

CHAPTER 4

Environmental Setting, Impacts, Standard Conditions of Approval and Mitigation Measures

This Draft EIR has been prepared in accordance with CEQA, as amended (Public Resources Code Section 21000, et seq.), and the CEQA Guidelines (California Code of Regulations Sections 15000 through 15378).

This chapter contains the analysis of the potential effects to environmental topics considered under CEQA from adoption and development under the Specific Plan. This chapter describes the existing setting for each topic, the potential impacts that could result from adoption and development under the Specific Plan, relevant plans and policies, and Standard Conditions of Approval that would minimize or avoid potential adverse environmental effects that could result, and identifies mitigation measures necessary to reduce the potential impacts resulting from adoption and development under the Specific Plan.

The following provides an overview of the scope of the analysis included in this chapter, organization of the sections, the methods for determining what impacts are significant, and the applicability of the City's Uniformly Applied Development Standards and Standard Conditions of Approval.

4.01 Environmental Topics

The following Sections in this chapter analyze the environmental topics as listed below and presented in the Table of Contents at the front of this document:

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| 4.1 Aesthetics, Shadow and Wind | 4.8 Hydrology and Water Quality |
| 4.2 Air Quality | 4.9 Land Use, Plans and Policies |
| 4.3 Biological Resources | 4.10 Noise |
| 4.4 Cultural Resources | 4.11 Population, Housing and Employment |
| 4.5 Geology, Soils and Geohazards | 4.12 Public Services and Recreation Facilities |
| 4.6 Greenhouse Gases and Climate Change | 4.13 Transportation and Circulation |
| 4.7 Hazardous Materials | 4.14 Utilities and Service Systems |

Agricultural Resources and Mineral Resources were determined not to be directly relevant to the adoption and development under the Specific Plan and are briefly discussed in Chapter 6, *Impact Overview and Growth Inducement*, under Section 6.4, *Effects Found Not to Be Significant*.

4.02 Format of Environmental Topic Sections, Impact Statements, and Mitigation Measures

Each environmental topic section generally includes two main subsections:

- *Existing Setting*, which includes baseline conditions, regulatory setting, Thresholds/Criteria of Significance, and identification of applicable Standard Conditions of Approval (which are discussed below); and
- *Impacts and Mitigation Measures*, which identifies and discusses the potential impact and cites applicable Standard Conditions of Approval and mitigation measures that would, to the extent possible, reduce or eliminate adverse impacts identified in this chapter.

This EIR identifies all impacts with an abbreviated designation that corresponds to the environmental topic addressed (e.g., “HAZ” for hazardous materials). The topic designator is followed by a number that indicates the sequence in which the impact statement occurs within the section. For example, “Impact HAZ-1” is the first (i.e., “1”) hazardous materials impact identified in the EIR. All impact statements are presented in bold text.

The Impact Classification (discussed below) of the project’s effects prior to implementation of mitigation measures is stated in parentheses immediately following the impact statement. The Impact Classification stated in the parentheses immediately following the impact statement does, however, already incorporate the City’s Standard Conditions of Approval and Uniformly Applied Development Standards, discussed below.

Similarly, each recommended measure or mitigation measure is numbered to correspond with the impact that it addresses. Where multiple mitigation measures address a single impact, each mitigation measure is numbered sequentially. For example “Mitigation Measure HAZ-1” would be the first mitigation identified to address the first hazardous materials impact (i.e., “HAZ”). All mitigation measure statements are presented in bold text.

4.03 Thresholds/Criteria of Significance

Under CEQA, a significant effect is determined as a substantial, or potentially substantial, adverse change in the environment (Public Resources Code Section 21068). Each *Impact and Mitigation Measures* discussion in this chapter is prefaced by criteria of significance, which are the thresholds for determining whether an impact is significant.

The City has established Thresholds/Criteria of Significance Guidelines to help clarify and standardize analysis and decision-making in the environmental review process in the City of Oakland. The Thresholds are offered as guidance in preparing environmental review documents. The City uses these Thresholds unless the location of the project or other unique factors warrants the use of different thresholds. The Thresholds are intended to implement and supplement provisions in the CEQA Guidelines for determining the significance of environmental effects,

including CEQA Guidelines Sections 15064, 15064.5, 15065, 15382, and Appendix G, and form the basis of the City's Initial Study and Environmental Review Checklist¹.

The Thresholds are intended to be used in conjunction with the City's Standard Conditions of Approval and Uniformly Applied Development Standards (see discussion below), which are incorporated into projects regardless of the determination of a project's environmental impacts.

CEQA requires the analysis of potential adverse effects of a project on the environment. Potential effects of the environment on a project are legally not required to be analyzed or mitigated under CEQA. However, this EIR nevertheless analyzes potential effects of "the environment on the project" in order to provide information to the public and decision-makers. Where a potential significant effect of the environment on the project is identified, the document, as appropriate, identifies City Standard Conditions of Approval and/or project-specific non-CEQA recommendations to address these issues.

4.04 Standard Conditions of Approval and Uniformly Applied Development Standards

The City's Standard Conditions of Approval and Uniformly Applied Development Standards (referred to in the EIR as "Standard Conditions of Approval", SCA's or Conditions of Approval) are incorporated into projects as conditions of approval regardless of a project's environmental determination. As applicable, the Standard Conditions of Approval are adopted as requirements of an individual project when it is approved by the City and are designed to, and will, substantially mitigate environmental effects.

In reviewing project applications, the City determines which Standard Conditions of Approval are applied, based upon the zoning district, community plan, and the type(s) of permit(s)/approval(s) required for the project. Depending on the specific characteristics of the project type and/or project site, the City will determine which Standard Conditions of Approval apply to a specific project. For example, Standard Conditions of Approval related to creek protection permits will only be applied to projects on creekside properties.

All relevant Standard Conditions of Approval have been incorporated as part of the analysis for adoption and development under the Specific Plan. Because Standard Conditions of Approval are mandatory City requirements, the impact analysis assumes that these will be imposed and implemented by a project. If a Standard Condition of Approval would reduce a potentially significant impact to less than significant, the impact is determined to be less than significant and no mitigation is imposed. Standard Conditions of Approval are not listed as mitigation measures.

The Standard Conditions of Approval incorporate development policies and standards from various adopted plans, policies, and ordinances (such as the Oakland Planning and Municipal Codes, Oakland

¹ Although no Environmental Review Checklist was prepared for this EIR, the factors listed for consideration in the Environmental Review Checklist are evaluated in this EIR.

Creek Protection, Stormwater Management and Discharge Control Ordinance, Oakland Tree Protection Ordinance, Oakland Grading Regulations, National Pollutant Discharge Elimination System (NPDES) permit requirements, Housing Element-related mitigation measures, California Building Code, and Uniform Fire Code, et al.), which have been found to substantially mitigate environmental effects. Where there are peculiar circumstances associated with a project or project site that will result in significant environmental impacts despite implementation of the Standard Conditions of Approval, the City will determine whether there are feasible mitigation measures to reduce the impact to less than significant levels.

4.05 Impact Classifications

The following level of significance classifications are used throughout the impact analysis in this EIR:

- **Less than Significant (LS)** – The impacts of a proposed project, either before or after implementation of standard conditions of approval, do not reach or exceed the defined Threshold/Criteria of Significance. Generally, no mitigation measure is required for a LS impact.
- **Significant (S)** – The impact of a proposed project is expected to reach or exceed the defined Threshold/Criteria of Significance. Feasible mitigation measures and/or standard conditions of approval may or may not be identified to reduce the significant impact to a LS impact.
- **Significant Unavoidable (SU)** – The impact of a proposed project reaches or exceeds the defined Threshold/Criteria of Significance. No feasible mitigation measure is available to reduce the S impact to LS. In these cases, feasible mitigation measures are identified to reduce the S impact to the maximum feasible extent, and the significant impact is considered SU. Impacts are also conservatively classified as SU if a feasible mitigation measure is identified that would reduce the impact to LS, but the approval and/or implementation of the mitigation measure is not within the City of Oakland’s or the project applicant’s sole control, in which case the analysis cannot presume implementation of the mitigation measure and the resulting LS impact. It is important to clarify that SU is an impact classification that only applies *after* consideration of possible mitigation measures.
- **No Impact (N)** – No noticeable adverse effect on the environment would occur.

4.06 Environmental Baseline

Overall, pursuant to Section 15125(a) of the CEQA Guidelines, this EIR measures the physical impacts of the proposed project (i.e., the Broadway Valdez Development Program) against a “baseline” of physical environmental conditions at and in the vicinity of the Plan Area. The environmental “baseline” is the combined circumstances existing around the time the NOP of the EIR was published, which is April 2012.² In most cases, the baseline condition relevant to the environmental topic being analyzed is described within each environmental topic section in this

² Except as specified otherwise, any reference to “existing” conditions throughout this EIR refers to the baseline condition as of around April 2012.

chapter. In some cases (such as Section 4.1, *Aesthetics, Wind and Shadow*), discussion of the baseline condition is detailed or restated in the Impacts Analysis to provide the impact analysis in the most reader-friendly format and organization. The baseline also includes the policy and planning context in which adoption and development under the Specific Plan is proposed. This is discussed in detail within Section 4.9, *Land Use, Plans and Policies*, and identifies any inconsistencies between the adoption and development under the Specific Plan and applicable, currently adopted plans and policies.

4.07 Cumulative Analysis

4.07.1 Approach to the Cumulative Analysis

CEQA defines cumulative as “two or more individual effects which, when considered together, are considerable, or which can compound or increase other environmental impact.” Section 15130 of the CEQA Guidelines requires that an EIR evaluate potential environmental impacts when the project’s incremental effect is cumulatively considerable. “Cumulatively considerable” means that the incremental effects of an individual project are significant when viewed in connection with the effects of past, present, existing, approved, pending and reasonably foreseeable future projects. These impacts can result from a combination of a proposed project together with other projects causing related impacts. “The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonable foreseeable probable future projects.” The City of Oakland’s analysis approach specifies “past, present, existing, approved, pending and reasonably foreseeable future projects.”

4.07.2 Cumulative Context

The context used for assessing cumulative impacts typically varies depending on the specific topic being analyzed to reflect the different geographic scope of different impact areas. For example, considerations for the cumulative air quality analysis are different from those used for the cumulative analysis of aesthetics. In assessing aesthetic impacts, only development within the vicinity of a project would contribute to a cumulative visual effect. In assessing air quality impacts, on the other hand, all development within the air basin contributes to regional emissions of criteria pollutants, and basin-wide projections of emissions is the best tool for determining the cumulative effect. Accordingly, the geographic setting and other parameters of each cumulative analysis discussion can vary.

Generally, the City of Oakland’s Major Projects list June 2012 (provided as Appendix B to this Draft EIR), as well as cumulative development beyond the Plan Area that could potentially result in an incremental impact when added to the development under the Specific Plan, was used to identify past, present, existing, approved, pending and reasonably foreseeable future projects in the vicinity of the Plan Area. Example major cumulative projects located within or near the Plan Area include the Broadway West Grand Mixed-Use Project, the Shops at Broadway Project, Kaiser Center Office Project, Alta Bates Summit Medical Center Master Plan Project, Kaiser

Permanente Oakland Redevelopment Project, City Walk/City Center T-10 Project, Jack London Square Redevelopment Project, the Lake Merritt BART Station Area Plan Project. However, the Major Projects List is not intended as an inclusive list of cumulative projects considered in this EIR. As discussed above, cumulative projects considered in the cumulative context can vary by environmental topic; therefore, some of the Major Projects listed may not be directly relevant to the cumulative context, depending on the environmental topic.

In some cases, the cumulative context may include more development than listed in the Major Projects list. A primary example is the transportation analyses (and transportation-related traffic and air quality), which use the Alameda County Transportation Commission travel demand model, which reflects traffic from projects citywide and the broader regional context.

Alternatively, as mentioned above, the aesthetics analysis would primarily consider projects within the viewsheds of the Plan Area, which may not, for example, include projects on the list that are located in distant Oakland areas, particularly low-rise development not affecting the Oakland skyline. Further, projects contributing to potential cumulative effects to cultural resources, for example, could consider development in and near the Plan Area as well as development citywide (in the case of impacts to resource types such as libraries, railroad-related resources, and ethnic sites found throughout the city, although not the case for the development analyzed in this EIR).

The cumulative discussions in each topical section throughout this Chapter describe the cumulative geographic context considered for each topic.

4.1 Aesthetics, Shadow and Wind

This section describes the existing visual, shadow, and wind conditions of the Specific Plan Area and analyzes how the adoption and development under the Specific Plan may affect those conditions. The analysis includes how the adoption and development under the Specific Plan may affect the visual quality and visual character of the Plan Area, as well as scenic vistas and resources viewed from surrounding public areas, and lighting and glare. Potential changes to shadow and wind conditions are also analyzed. This section describes the environmental and regulatory setting relevant to aesthetics, shadow, and wind issues in the Plan Area. Potential impacts are discussed and evaluated, and appropriate mitigation measures or Standard Conditions of Approval (SCA) are identified, as necessary.

4.1.1 Environmental Setting

Visual Character of the Plan Area

The 95-acre Plan Area is situated in a shallow valley that slopes down from the north to the south. The underlying street grid is made up of an irregular block pattern that is characterized by a series of triangular and trapezoidal shape blocks as a result of Broadway bisecting the Plan Area into eastern and western portions. The irregularity of block shapes and sizes has led to a predominance of small parcels (75 percent of the parcels in the Plan Area are less than 0.25 acres), which contribute to the overall visual quality of the Plan Area since they allow for a more fine-grained development pattern than can be found in the Downtown, for instance, and provide a greater sense of visual interest at the street level. Among other unique Plan Area features that help to define its visual character are the several distinctively designed ‘flat-iron’ buildings, such as the historic Arnstein-Field & Lee Star Showroom at the intersection of Broadway and Webster Street and a number of extra wide sidewalks, such as at 27th and Broadway, and 25th and Broadway, which are used for a combination of public space and automobile showcases.

In general, the development pattern in the Plan Area is less uniform than that found in the City’s Downtown. The overall lower lot coverage reflects the concentration of automotive uses in the area that devote large areas to sales lots and vehicle storage, and to the Plan Area’s greater dependence on surface parking. The dedication of large areas to surface parking and automobile sales lots results in a development that is dispersed and fragmented, lacks consistent physical form, and contributes to a poorly defined public realm. Few blocks in the Plan Area have sections where buildings form a consistent street wall that frames the street with active storefronts, without major gaps. The few places where there is a consistent street wall, such as along Broadway between 25th and 26th Streets, the presence of automotive-related showrooms and repair garages undermine the pedestrian environment with physical distractions such as curb cuts, driveways and roll-up garage doors and uses that provide limited visual interest at the street level. Thus, the overall visual character of the Plan Area reveals that it was once cohesive in its emphasis of automobile-related uses and yet it can now be described as irregular and inconsistent in terms of the physical forms it contains.

The Plan Area is bordered to the north by the I-580 elevated freeway segment, which run in an east-west direction approximately 20 feet above street grade and creates a visual edge along this Plan Area boundary. This I-580 segment obscures northerly views from the Plan Area onto the neighboring areas and further contributes to the automobile-oriented quality experienced in this portion of the Plan Area.

Vegetation in the Plan Area is minimal and is limited to street trees as well as small ornamental lawns in front of commercial and residential buildings.

As noted above, the building character in the Plan Area is diverse, although some overarching themes do exist. The majority of the buildings are older (constructed prior to 1950) and most were designed for automotive sales and service type uses, and therefore have large, open floorplates and tall ceilings. These older buildings contribute to the Plan Area's sense of visual character and identity due to the quality of their construction and craftsmanship, which is distinguishable from more modern buildings, which tend to have a generic, non-descript quality. Residential uses are limited and generally exist as detached single-family homes. In terms of architectural styles, commercial buildings include Beaux Arts, Art Deco, Moderne, 1920s decorative brick, and early 20th century utilitarian service garages, while residential buildings include a mix of Craftsman, Colonial Revival, or Mission Revival styles.

In terms of building heights, the majority (90 percent) are low-rise, with most ranging between one and four stories. However, the Plan Area also contains about a dozen taller buildings ranging from 3 to 12 stories, which are scattered throughout the area. These include structures such as the Valdez Plaza Residences, Broadway Webster Medical Plaza, YMCA, and 180 Grand Parking Garage, and are generally newer and are denser than other buildings. Earlier, pre-1920 structures are primarily masonry buildings, while those built after 1920 are generally built with concrete or concrete block.

Designated historic buildings represent important visual landmarks. Buildings such as the First Presbyterian Church, the Queen Anne-style mixed use building at Broadway/29th, the Packard Lofts Building at Broadway/24th, and the two flat-iron buildings at Broadway/28th Street and Broadway/Piedmont Avenue add visual interest to the Plan Area.

Views of the Plan Area and Scenic Resources

Due to the built urban environment, short-range views of the Plan Area (those less than 0.25 mile from the area) are limited to surrounding streets and from the nearby public open spaces such as Oak Glen Park, Adams Park/Veterans Memorial and the public areas surrounding the northern portion of Lake Merritt. Short-range views are also available to motorists and others traveling along Broadway and other smaller streets throughout the Plan Area, as well as motorists traveling along the elevated I-580, adjacent to the Plan Area, and I-880, approximately one mile to the south. Mid- and long-range views of the Plan Area (approximately 0.5 mile from the area) are available primarily from various streets throughout the City of Oakland.

A site reconnaissance was conducted to document existing visual/aesthetic conditions and to identify representative viewpoints of the Plan Area and through the Plan Area toward the City's scenic resources as designated in the General Plan (the Oakland/Berkeley Hills, Downtown Oakland and San Francisco, Bay Area bridges, Lake Merritt, and the SF Bay and Oakland Estuary). Several representative views of the Plan Area were selected for analyses and are depicted with adoption and development under the Specific Plan. A viewpoint location map of the selected views is provided in **Figure 4.1-1**. **Figures 4.1-2** through **4.1-4** show existing views from these viewpoints alongside conceptual simulations of the development under the Specific Plan. These viewpoints were selected as they provide clear visual access to the Plan Area, through the Plan Area to the Oakland Hills. Viewpoints considered but rejected include views southward from the Mountain View Cemetery, views northward from I-980 and 27th Street up Broadway, and views northward from the east side of Lake Merritt (a map of the rejected viewpoints and rough images of views from these points is provided in Appendix C). It was determined that development under the Specific Plan would scarcely be perceptible from each of these rejected vantage points because the Plan Area was too far away and/or obscured from view.

Figure 4.1-2 illustrates a view of the Plan Area from an elevated vantage point along I-580, looking south. As shown in this figure, the view of Broadway is dominated by the wide expanse of the asphalt right-of-way, which visually downplays the prominence of the structures on either side. The irregularity of the Broadway street wall is exemplified, in this particular view, by a five-story commercial building located adjacent to an automotive dealership in the foreground. In general, views of auto-related uses are typical throughout the Plan Area, both in the form of surface parking lots and other types of auto-related commercial uses enclosed in commercial and light industrial buildings. A view of mid- and high-rise office buildings associated with Downtown can be seen in the background. In general, this view lacks any distinctive or unique visual characteristics and instead conveys a fairly generic urban landscape with the aforementioned focus on the automobile.

Another existing view of Broadway is presented from 24th Street, looking north (in Figure 4.1-3). Similar to the view described above, the predominant features from this vantage point are likewise associated with automotive uses, with a surface parking lot and "Auto Row" signs visible in the left foreground. In addition, low-rise nondescript commercial buildings line both sides of the street, although most of these buildings are at least partially obscured by street trees. A church spire is visible in the distance, although the numerous light poles along both sides of the street form the more prominent vertical features in the overall landscape. This view is similar to the one described above in that it conveys a generally urban, auto-centered character; however, it is softened somewhat by the presence of vegetation, a church in the mid-ground, and the Berkeley hills in the background, elements that convey a more pedestrian-friendly character.

It is noted that Broadway is the main thoroughfare through the Plan Area. Other streets throughout the Plan Area are narrower and contain different land use mixes, representing different visual patterns and characteristics.



SOURCE: Environmental Vision

Broadway Valdez District Specific Plan . 208522

Figure 4.1-1
Viewpoint Map



Existing View from I-580 at Broadway Looking South



Conceptual Simulation

Note: This conceptual visual simulation is intended to portray conceptual building massing and does not represent specific architectural design.

SOURCE: Environmental Vision

Broadway Valdez District Specific Plan . 208522

Figure 4.1-2

Existing View and Computer Simulation of Viewpoint 1



Existing View from Broadway at 24th Street Looking North



Conceptual Simulation

Note: This conceptual visual simulation is intended to portray conceptual building massing and does not represent specific architectural design.



Existing View from Lake Merritt Path Looking Northwest



Conceptual Simulation

Note: This conceptual visual simulation is intended to portray conceptual building massing and does not represent specific architectural design.

SOURCE: Environmental Vision

Broadway Valdez District Specific Plan . 208522

Figure 4.1-4

Existing View and Computer Simulation of Viewpoint 3

Lastly, a view from the Lake Merritt public path looking northwest is presented in the top image of Figure 4.1-4 (from outside of Plan Area boundaries). Given the large size of the Citicorp building at 180 Grand Avenue visible in the foreground, the relative low-rise nature of the structures in the Plan Area, and the intervening vegetation visible within this public open space, views of the Plan Area are largely obscured from this vantage point.

Although views eastward from the Plan Area include the Oakland Hills, overall, view corridors through the Plan Area provide limited views of protected scenic resources, as identified in the City's General Plan (see Policy OS-10.1 below). Although, as noted below, I-580 is a designated scenic highway, views from the highway, as depicted in Figure 4.1-2, is not characterized as scenic or unique.

Light and Glare

The Plan Area is located in a built-out urban environment that has existing sources of light and glare associated with land uses typical for an urban setting. Light and glare are associated with outdoor automotive sales lots, in particular, which are equipped with 15- to 20-foot pole-mounted lights to illuminate the parked for-sale vehicles. Light and glare are also associated with street lights along Broadway and other streets throughout the Plan Area, as well as I-580, a major interstate highway that borders the Plan Area to the north.

Shadow

Shadow conditions within the Plan Area are typical of shadow conditions in built-out urban environments. As expected, shadow is most prevalent in the portions of the Plan Area that contain taller buildings, such as in the Valdez Triangle, where shadow under existing conditions is extensive especially during the morning and afternoon hours during late fall and early winter, when the sun is lowest on the horizon. Taller buildings in the area, including the Valdez Plaza Residences, Broadway Webster Medical Plaza, YMCA, and 180 Grand Parking Garage, also cast longer shadows during this time. (See existing shadows delineated in Figures 4.1-5 through 4.1-16, presented in the Shadow Analysis, further in this section.)

Wind

General Wind Conditions

The Plan Area lies within a climatological sub region of the San Francisco Bay Area Air Basin where the marine air that travels through the Golden Gate, as well as across San Francisco and the San Bruno Gap, is a dominant weather factor. The Oakland-Berkeley Hills cause the westerly flow of marine air to split off to the north and south of Oakland; this phenomenon tends to diminish wind speeds in Oakland.

Wind flow is generally from the west, and average wind speeds vary from season to season with the strongest average winds occurring during summer and the lightest average winds during

winter. Together, the west, north-northwest and south-southeast winds are the most frequent winds that exceed 25 miles per hour (mph).

Wind conditions within the City result from the interaction of the approaching wind with the physical features of the environment – buildings, topography and landscape. In cities, groups of structures tend to slow the winds near ground level, due to the friction and drag of the structures themselves, but this leaves the air mass that flows well overhead to continue with little slowing. However, a building that is much taller than surrounding buildings will intercept and redirect winds that might otherwise flow overhead, and bring those winds down the vertical face of the building to ground level, where they create ground-level wind and turbulence. These redirected winds can be relatively strong and also relatively turbulent, and can be incompatible with the intended uses of nearby ground level spaces such as plazas and sidewalks. Moreover, structures that present very large surfaces square to strong winds can create ground-level winds that can be hazardous to pedestrians.

4.1.2 Regulatory Setting

Local

City of Oakland General Plan

City of Oakland General Plan policies that pertain to aesthetics, shadow, and wind relevant to the Specific Plan include the following:

Open Space, Conservation and Recreation (OSCAR) Element

- ***Policy OS-4.4:*** Elimination of Blighted Vacant Lots: Discourage property owners from allowing vacant land to become a source of neighborhood blight, particularly in residential areas with large vacant lots.
- ***Policy OS-9.3:*** Gateway Improvements: Enhance neighborhood and city identity by maintaining or creating gateways. Maintain view corridors and enhance a sense of arrival at the major entrances to the city, including freeways, BART lines, and the airport entry. Use public art, landscaping, and signage to create stronger City and neighborhood gateways.
- ***Policy OS-10.1:*** View Protection: Protect the character of existing scenic views in Oakland, paying particular attention to (a) views of the Oakland Hills from the flatlands; (b) views of downtown and Lake Merritt; (c) views of the shoreline; and (d) panoramic views from Skyline Boulevard, Grizzly Peak Road, and other hillside locations.
- ***Policy OS-10.2:*** Minimize Adverse Visual Impacts: Encourage site planning for new development which minimizes adverse visual impacts and take advantage of opportunities for new vistas and scenic enhancement.
- ***Policy OS-10.3:*** Underutilized Visual Resources: Enhance Oakland's underutilized visual resources, including the waterfront, creeks, San Leandro Bay, architecturally significant buildings or landmarks, and major thoroughfares.

- **Policy OS-11.1:** Access to Downtown Open Space: Provide better access to attractive, sunlit open spaces for persons working or living in downtown Oakland. The development of rooftop gardens is encouraged, especially on parking garages.

Land use and Transportation Element (LUTE)

- **Policy T6.2:** Improving Streetscapes: The city should make major efforts to improve the visual quality of streetscapes. Design of the streetscape, particularly in neighborhoods and commercial centers, should be pedestrian-oriented and include lighting, directional signs, trees, benches, and other support facilities.
- **Policy D2.1:** Enhancing the Downtown: Downtown development should be visually interesting, harmonize with its surroundings, respect and enhance important views in and of the downtown, respect the character, history, and pedestrian-orientation of the downtown, and contribute to an attractive skyline.

In addition, policies from the Historic Preservation Element are listed in Sections 4.4, *Cultural Resources*; and 4.6, *Greenhouse Gases*.

Scenic Highways Element

The City's Scenic Highways Element of the General Plan (adopted 1974) includes a number of policies that pertain to visual resources identified as part of the Caltrans Scenic Highway Program. Policies within the City's Scenic Highways Element aim to limit signage and visual intrusions and protect panoramic vistas along scenic corridors, and to ensure that new construction within scenic corridors demonstrate "architectural merit" and are "harmonious" with the surrounding landscape. The entire length of MacArthur Freeway (I-580) within Alameda County is identified as part of the Caltrans Scenic Highways Program. It is adjacent to the Plan Area to the north.

Redevelopment Plans

The Plan Area falls within the Project Area of two redevelopment plans: the Broadway/MacArthur/San Pablo Redevelopment Plan and the Central District Urban Renewal Plan. The overall general goal of these plans is to eliminate blight within the respective Project Areas.

Broadway/MacArthur/San Pablo Redevelopment Plan

The Broadway/MacArthur/San Pablo Redevelopment Plan Project Area encompasses the entire northern portion of the Plan Area southward to 27th Street. The majority of goals and objectives outlined within this plan do not directly pertain to aesthetics, shadow, and wind aside from requiring conformity with existing City sign ordinances and design review standards (see Oakland Planning Code, below). However, the Plan states that, "One of the objectives of this Plan is to create an attractive and pleasant environment in the Project Area." In addition, this Redevelopment Plan lists the following major goal:

- **I:** The establishment and implementation of performance criteria to assure high site design standards and environmental quality and other design elements which provide unity and integrity to the entire Project.

Central District Urban Renewal Plan

The Central District Urban Renewal Plan encompasses the southern portion of the Plan Area northward to 27th Street. This Redevelopment Plan lists the following major goal pertaining to aesthetics:

- **G:** Improved environmental design within the Project Area, including creation of a definite sense of place, clear gateways, emphatic focal points and physical design which expresses and respects the special nature of each subarea.

Oakland Planning Code

The designs of new projects in Oakland are subject to performance criteria that are utilized as part of the City's design review process. These criteria address the projects related to the surrounding visual character, as well as public and private investments in the area. Projects are evaluated based on site, landscaping, height, bulk, arrangement, texture, materials, colors, appurtenances, and other characteristics. Conformance with the Oakland General Plan and any other design guidelines or criteria is also considered.

City of Oakland Standard Conditions of Approval and Uniformly Applied Development Standards Imposed as Standard Conditions of Approval

The City's Standard Conditions of Approval (SCA) that directly pertain to reducing visual, light and glare, wind, and shade/shadow impacts and that apply to the adoption and development under the Specific Plan are listed below. If the Specific Plan is adopted by the City, all applicable SCAs would be adopted as conditions of approval and required, as applicable, of the adoption and development under the Specific Plan to help ensure no significant impacts occur to aesthetic resources. Because the conditions of approval are incorporated as part of the Specific Plan, they are not listed as mitigation measures.

- **SCA 12: Required Landscape Plan for New Construction and Certain Additions to Residential Facilities**
Prior to issuance of a building permit. Submittal and approval of a landscape plan for the entire site is required for the establishment of a new residential unit (excluding secondary units of five hundred (500) square feet or less), and for additions to Residential Facilities of over five hundred (500) square feet. The landscape plan and the plant materials installed pursuant to the approved plan shall conform to all provisions of Chapter 17.124 of the Oakland Planning Code, including the following:
 - a) Landscape plan shall include a detailed planting schedule showing the proposed location, sizes, quantities, and specific common botanical names of plant species.
 - b) Landscape plans for projects involving grading, rear walls on downslope lots requiring conformity with the screening requirements in Section 17.124.040, or vegetation management prescriptions in the S-11 zone, shall show proposed landscape treatments for all graded areas, rear wall treatments, and vegetation management prescriptions.
 - c) Landscape plan shall incorporate pest-resistant and drought-tolerant landscaping practices. Within the portions of Oakland northeast of the line formed by State

Highway 13 and continued southerly by Interstate 580, south of its intersection with State Highway 13, all plant materials on submitted landscape plans shall be fire-resistant. The City Planning and Zoning Division shall maintain lists of plant materials and landscaping practices considered pest-resistant, fire-resistant, and drought-tolerant.

- d) All landscape plans shall show proposed methods of irrigation. The methods shall ensure adequate irrigation of all plant materials for at least one growing season.

- **SCA 13: Landscape Requirements for Street Frontages (Residential Construction)**

Prior to issuance of a final inspection of the building permit:

- a) All areas between a primary Residential Facility and abutting street lines shall be fully landscaped, plus any unpaved areas of abutting rights-of-way of improved streets or alleys, provided, however, on streets without sidewalks, an unplanted strip of land five (5) feet in width shall be provided within the right-of-way along the edge of the pavement or face of curb, whichever is applicable. Existing plant materials may be incorporated into the proposed landscaping if approved by the Director of City Planning.
- b) In addition to the general landscaping requirements set forth in Chapter 17.124, a minimum of one (1) fifteen-gallon tree, or substantially equivalent landscaping consistent with city policy and as approved by the Director of City Planning, shall be provided for every twenty-five (25) feet of street frontage. On streets with sidewalks where the distance from the face of the curb to the outer edge of the sidewalk is at least six and one-half (6 ½) feet, the trees to be provided shall include street trees to the satisfaction of the Director of Parks and Recreation.

- **SCA 15: Landscape Maintenance (Residential Construction)**

Ongoing. All required planting shall be permanently maintained in good growing condition and, whenever necessary, replaced with new plant materials to ensure continued compliance with applicable landscaping requirements. All required fences, walls and irrigation systems shall be permanently maintained in good condition and, whenever necessary, repaired or replaced.

- **SCA 17: Landscape Requirements for Street Frontages (Commercial and Manufacturing)**

Prior to issuance of a final inspection of the building permit, on streets with sidewalks where the distance from the face of the curb to the outer edge of the sidewalk is at least six and one-half (6 ½) feet and does not interfere with access requirements, a minimum of one (1) twenty-four (24) inch box tree shall be provided for every twenty-five (25) feet of street frontage, unless a smaller size is recommended by the City arborist. The trees to be provided shall include species acceptable to the Tree Services Division.

- **SCA 18: Landscape Maintenance (Commercial and Manufacturing)**

Ongoing. All required planting shall be permanently maintained in good growing condition and, whenever necessary, replaced with new plant materials to ensure continued compliance with applicable landscaping requirements. All required irrigation systems shall be permanently maintained in good condition and, whenever necessary, repaired or replaced.

- **SCA 19: Underground Utilities**

Prior to issuance of a building permit, the project applicant for projects under the Specific Plan shall submit plans for review and approval by the Building Services Division and the Public Works Agency, and other relevant agencies as appropriate, that show all new electric and telephone facilities; fire alarm conduits; street light wiring; and other wiring, conduits, and similar facilities placed underground. The new facilities shall be placed underground along the project applicant's street frontage and from the project applicant's structures to the point of service. The plans shall show all electric, telephone, water service, fire water service, cable, and fire alarm facilities installed in accordance with standard specifications of the serving utilities.

- **SCA 20: Improvements in the Public Right-of-Way (General)**

Approved prior to the issuance of a P-job or building permit

- a) The project applicant for projects under the Specific Plan shall submit Public Improvement Plans to Building Services Division for adjacent public rights-of-way (ROW) showing all proposed improvements and compliance with the conditions and City requirements including but not limited to curbs, gutters, sewer laterals, storm drains, street trees, paving details, locations of transformers and other above ground utility structures, the design specifications and locations of facilities required by the East Bay Municipal Utility District (EBMUD), street lighting, on-street parking and accessibility improvements compliant with applicable standards and any other improvements or requirements for the project as provided for in this Approval. Encroachment permits shall be obtained as necessary for any applicable improvements- located within the public ROW.
- b) Review and confirmation of the street trees by the City's Tree Services Division is required as part of this condition.
- c) The Planning and Zoning Division and the Public Works Agency will review and approve designs and specifications for the improvements. Improvements shall be completed prior to the issuance of the final building permit.
- d) The Fire Services Division will review and approve fire crew and apparatus access, water supply availability and distribution to current codes and standards.

- **SCA 21: Improvements in the Public Right-of Way (Specific)**

Approved prior to the issuance of a grading or building permit. Final building and public improvement plans submitted to the Building Services Division shall include the following components:

- a) Install additional standard City of Oakland streetlights.
- b) Remove and replace any existing driveway that will not be used for access to the property with new concrete sidewalk, curb and gutter.
- c) Reconstruct drainage facility to current City standard.
- d) Provide separation between sanitary sewer and water lines to comply with current City of Oakland and Alameda Health Department standards.

- e) Construct wheelchair ramps that comply with Americans with Disabilities Act requirements and current City Standards.
 - f) Remove and replace deficient concrete sidewalk, curb and gutter within property frontage.
 - g) Provide adequate fire department access and water supply, including, but not limited to currently adopted fire codes and standards.
- **SCA 40: Lighting Plan**
Prior to the issuance of an electrical or building permit. The proposed lighting fixtures shall be adequately shielded to a point below the light bulb and reflector and that prevent unnecessary glare onto adjacent properties. Plans shall be submitted to the Planning and Zoning Division and the Electrical Services Division of the Public Works Agency for review and approval. All lighting shall be architecturally integrated into the site.

4.1.3 Impacts and Mitigation Measures

Significance Criteria

Adoption and development under the Specific Plan would have a significant impact on the environment if it were to:

1. Have a substantial adverse effect on a public scenic vista;
2. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, located within a state or locally designated scenic highway;
3. Substantially degrade the existing visual character or quality of the site and its surroundings;
4. Create a new source of substantial light or glare which would substantially and adversely affect day or nighttime views in the area;
5. Introduce landscape that would now or in the future cast substantial shadows on existing solar collectors (in conflict with California Public Resource Code Section 25980-25986);
6. Cast shadow that substantially impairs the function of a building using passive solar heat collection, solar collectors for hot water heating, or photovoltaic solar collectors;
7. Cast shadow that substantially impairs the beneficial use of any public or quasi-public park, lawn, garden, or open space;
8. Cast shadow on an historic resource, as defined by CEQA Section 15064.5(a), such that the shadow would materially impair the resource's historic significance by materially altering those physical characteristics of the resource that convey its historical significance and that justify its inclusion on or eligibility for listing in the National Register of Historic Places, California Register of Historical Resources, Local register of historical resources, or a historical resource survey form (DPR Form 523) with a rating of 1-5;

9. Require an exception (variance) to the policies and regulations in the General Plan, Planning Code, or Uniform Building Code, and the exception causes a fundamental conflict with policies and regulations in the General Plan, Planning Code, and Uniform Building Code addressing the provision of adequate light related to appropriate uses; or
10. Create winds exceeding 36 mph for more than one hour during daylight hours during the year. The wind analysis only needs to be done if the project's height is 100 feet or greater (measured to the roof) and one of the following conditions exist: (a) the project is located adjacent to a substantial water body (i.e., Oakland Estuary, Lake Merritt or San Francisco Bay); or (b) the project is located in Downtown.

Impacts

Scenic Vistas and Scenic Resources

Impact AES-1: Adoption and development under the Specific Plan would not adversely affect scenic public vistas or views of scenic resources (Criteria 1 and 2). (Less than Significant)

Adoption and development under the Specific Plan would not be expected to block or otherwise adversely affect scenic views or scenic resources. As stated above, the Plan Area itself is fully built out, and is generally limited terms of scenic views. Private projects would be built within existing property lines and would not be expected to visually obstruct existing view corridors along City streets. New structures would be added throughout the Plan Area in a way that is intended to fill in the gaps in the street wall and result in a more cohesive overall look.

The Specific Plan proposes revisions to the zoning and height and bulk districts that would, over time, encourage or discourage specific land uses within each of the Plan Area subareas and would channel specific uses according to areas where they have been determined to be most appropriate (the proposed land use designations, zoning, and height areas are discussed in detail in Chapter 3, *Project Description*). The proposed land use changes would also allow for increases in urban density and could result in construction of different building types, scales, and architectural designs in certain areas over time as compared to existing conditions. For instance, much of the Valdez subarea would designated as a part of the *Central Business District*, with height districts revised to accommodate structures up to 250 feet in height. Such changes would support the destination retail district envisioned in this area, and would, over time, result in much larger structures to be constructed than currently exist there. The majority of the North End subarea would be rezoned to *Community Commercial* and to height and bulk districts ranging from 45 feet (to accommodate the residential district) to 200 feet further north.

However, as discussed in the Project Description, for purposes of maintaining flexibility, this EIR is based on the Broadway Valdez Development Program, which sets forth a *reasonably foreseeable development* anticipated in the Plan Area over its lifespan. These proposed height limits, in combination with the proposed Maximum Base Heights, existing step-back requirements, and the City's projected Broadway Valdez Development Program inform the Physical Height Model, which is the basis for analysis within this EIR (see Figure 3-11 in Chapter 3, *Project Description*). However, the Physical Height Model shows more modest heights as most of the Plan Area is

expected to be built out to 65 feet or less in height. The tallest structures identified in the Physical Height Model would be located along the southernmost parcels of the Valdez subarea and the northernmost parcels of the North End subarea, areas where mid- and high-rise buildings already exist and where new towers are not expected to adversely affect views within or through the Plan Area. Although taller new buildings would be noticeable to residents, workers, and visitors in the immediate vicinity of individual development projects, these developments would not result in substantial changes to the overall urban scale considering the existing variable nature of the buildings heights and volumes throughout the Plan Area and surrounding neighborhoods. The overall scale of much of the area would remain mid-rise and urbanized in character.

In addition, the Specific Plan would undertake a number of public realm improvements, such as sidewalk widening, and would promote active street frontages, which, together, would result in smaller-scaled, more pedestrian-focused streets and would create visual interest at the street level. This is expected to have a beneficial effect on scenic vistas within the Plan Area.

Three visual simulations from representative viewpoints were prepared to illustrate possible changes to views as a result of adoption and development under the Specific Plan. Figure 4.1-2 (bottom image) illustrates a view from I-580 looking south over Broadway. Although this viewpoint is located on a segment of I-580 designed as a scenic route, as discussed above, this particular view is not considered scenic or unique. As shown, new development along the western sidewalk in the foreground and along both sidewalks in the background would visibly change how Broadway is perceived from this vantage point. While the new structures would partially obstruct views of the sky, such changes would not represent a substantial adverse effect on views, since no views considered scenic or unique (as defined by CEQA) and no visual access to protected scenic resources (as defined by the General Plan) would be obstructed. Furthermore, the new structures would create a more consistent street wall and add visual interest at the street level, enhancing the public views experienced by individuals traversing Broadway. As shown, the new buildings would be set back from the Broadway façade above the sixth story and landscaping would be installed along the Broadway street frontage. In general, the changes anticipated under the Specific Plan would create a more pedestrian-oriented aesthetic as seen both from this mid-range vantage point as well as experienced along Broadway.

Figure 4.1-3 illustrates a view from Broadway at 24th Street looking north. As shown, adoption and development under the Specific Plan would replace some of the existing low-rise auto dealerships and surface parking lots with new structures and landscaping. As shown, the views of Oakland Hills, a protected scenic resource, would remain largely unobstructed. Although the façade of the First Presbyterian Church would be partially obscured, the spire would remain visible against the sky. Changes to this view would not be considered substantial or adverse, since the underlying visual characteristics that make up this view (i.e., urban streetscape set against the backdrop of hills), would remain largely unchanged.

Figure 4.1-4 illustrates a view from Lake Merritt public path (outside of the Plan Area boundaries) looking northwest toward the Plan Area. As shown, the new structure would alter the public views into the Plan Area and partially block views of the sky. However, such changes would not be

considered significant or adverse, since the new structure would be of similar massing to the existing building that dominates the left field of this view. Construction of another high-rise building would further intensify this area, but would nevertheless remain consistent with the overall dense urban look and feel of this area.

All future development within the Plan Area would be subject to the proposed *Design Guidelines for the Broadway Valdez Specific Plan Area* (Design Guidelines), a document that includes guidelines and standards related to urban form and visual quality. Over time, adherence to the Design Guidelines for particular projects and the required consistency of those projects with the policies articulated in the Specific Plan would result in new development that is cohesive in architectural style and form. However, the mix of building styles area-wide would be generally preserved. Moreover, physical changes would be incremental and would occur gradually over time, as individual project sponsors find opportunities to implement their projects.

Renovation or construction of future projects under the Specific Plan would be required to adhere to the General Plan policies and SCAs described in the Regulatory Setting, above, that would effectively mitigate potential impacts to scenic views and vistas to less-than-significant levels. Based on the above, the adoption and development under the Specific Plan would not adversely affect scenic public vistas or views of protected scenic resources.

Mitigation: None Required.

Visual Character

Impact AES-2: Adoption and development under the Specific Plan would not substantially degrade the existing visual character or quality of the site and its surroundings (Criterion 3). (Less than Significant)

Overall, almost 40 percent of the developable land within the Plan Area is considered underutilized and the predominance of automobile-related uses, including long stretches of surface parking lots and abundant private driveways, contribute to the overall uninviting pedestrian environment of the Plan Area (see Section 4.9, *Land Use, Plans and Policies*). Adoption and development under the Specific Plan would be intended, among other objectives, to improve the visual character of the Plan Area by activating the street frontage and improving the physical appearance of existing structures and public realm. Although the specific designs of individual development projects are not yet known, these future projects under the Specific Plan would be analyzed to determine their individual effect on the visual character of the surrounding environment during the design review process. The *Design Guidelines for the Broadway Valdez Specific Plan Area* would guide future development and serve as the basis for design review approval findings by City staff, and when necessary, the City Planning Commission and the City Council. The *Design Guidelines* would apply to all new development projects and major rehabilitation projects located in the Plan Area and would ensure that adoption and development under the Specific Plan would be compatible with the existing built form and

architectural character of the Plan Area as a whole, and compatible with the distinctive visual character of individual areas.

In addition, future development would be required to align with and incorporate existing General Plan policies and SCAs relevant to visual quality and described in the Regulatory Setting, above. For these reasons, adoption and development under the Specific Plan would not be expected to degrade the visual character of the Plan Area, and this impact would be less than significant.

Mitigation: None Required.

Light and Glare

Impact AES-3: Adoption and development under the Specific Plan would result in new sources of light or glare which would not substantially and adversely affect day or nighttime views in the area (Criterion 4). (Less than Significant)

Adoption and development under the Specific Plan would create new sources of light or glare, but these new sources would be consistent with the existing light and glare conditions in the area. The Plan Area is already an urbanized environment with associated light and glare. Over time, surface parking lots and associated flood lighting would be replaced with taller buildings. These structures would introduce light from upper story office and residential uses as well as ground level lighting associated with commercial uses and office or residential entryways. Individual developments would not be expected to change or affect day or nighttime views as a result of increased light or glare to a significant extent. Such projects would be subject to standard project review and approval processes as required by the City of Oakland, and may require additional design review. Individual projects would be required to implement SCA 40, *Lighting Plan*, which would minimize potential impacts resulting from lighting and ensure that lighting and glare effects remain less than significant.

Mitigation: None Required.

Shadow

Impact AES-4: Adoption and development under the Specific Plan could result in substantial new shadow that would shade solar collectors, passive solar heaters, public open spaces, or historic resources or otherwise result in inadequate provision of adequate light (Criteria 5 through 9). (Conservatively Significant and Unavoidable)

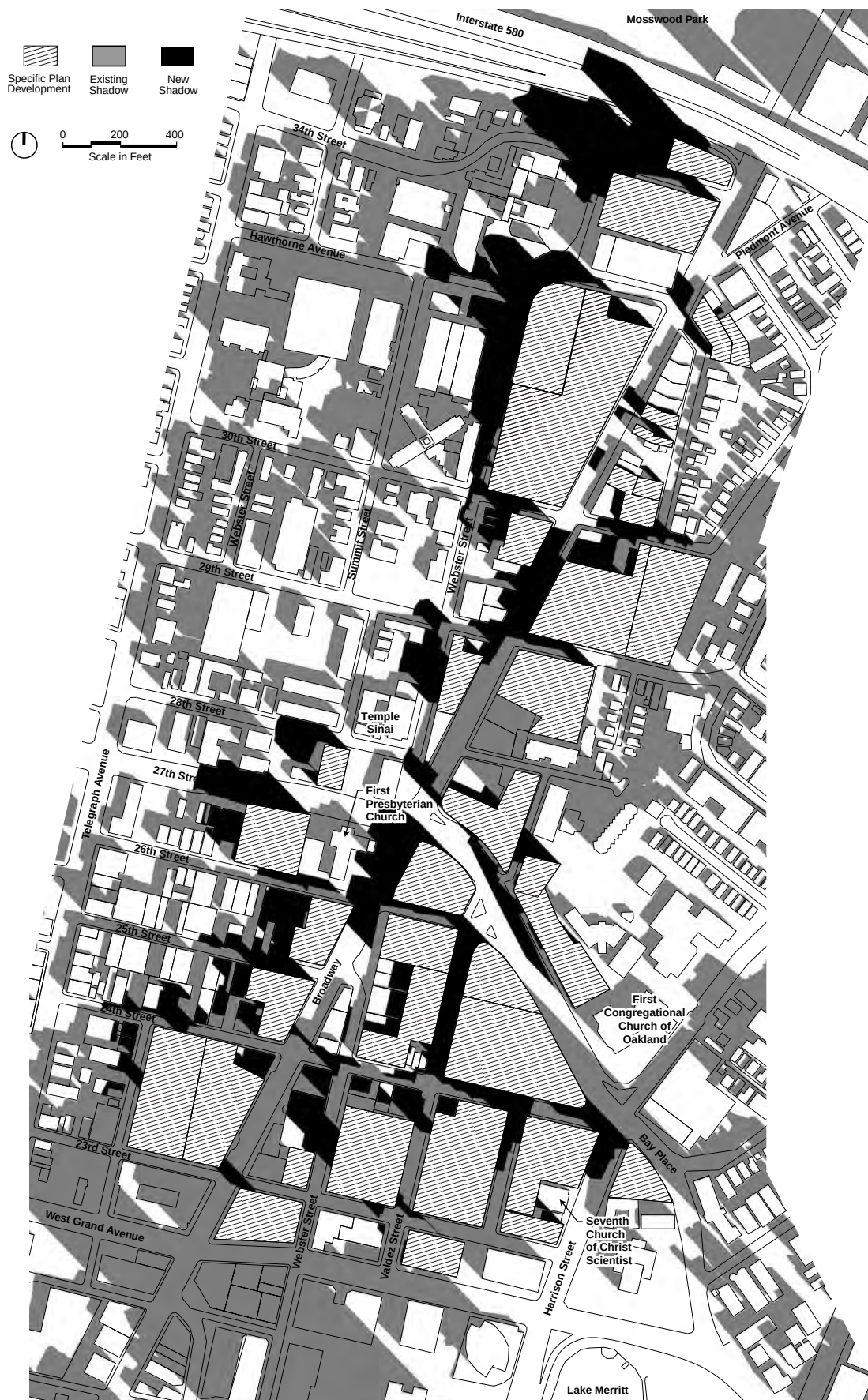
Adoption and development under the Specific Plan could include mid- and high-rise buildings that may cast shadow on public open spaces, solar collector, and historic resources. While the exact details associated with future development proposals is unknown at this time, a generalized shadow study was prepared that is based upon the Physical Height Model. As noted above,

although the proposed height limits, proposed maximum base heights, existing step-back code requirements inform the Physical Height Model, heights depicted in the Physical Height Model, and thus used as the basis for shadow analysis, are more modest than the height maximums in the proposed rezoning and most of the Plan Area is expected to be built out to 65 feet or less in height. However, heights and general building envelopes depicted in the Physical Height Model are considered conservative in that they include slightly more building area than would be required to accommodate the *maximum feasible development* assumed for the EIR analysis (i.e. the Broadway Valdez Development Program) (see Chapter 3, *Project Description*). Shadow study graphics are presented in **Figures 4.1-5** through **4.1-16**, which show the maximum extent of shadow that would occur at 9 a.m., noon, and 3 p.m. on December 21st, March 21st, June 21st and September 21st. As shown in these graphics, shadow from the new buildings would extend to the west in the mornings, north around the noon hour, and to the east in the afternoons.

Winter shadow is the longest and, thus, during the winter months, some new shadow would extend almost the length of a full block, with the highest buildings casting the greatest amount of new shadow. This would occur primarily in the Valdez Triangle (area to be re-designated as Central Business District) as well as blocks in the northern portion of the North End subarea. New shadow during the summer, fall, and spring months would fall within the range of winter shadow, with the majority of the new shading extending over the adjacent parcels and sidewalks.

The City's 2013 inventory of solar facilities identifies addressed for passive solar heat collectors, solar collectors for hot water heating, and photovoltaic solar collectors in the City of Oakland. This inventory identified solar collectors on the Humanist Church building located at 411 28th Street within the Plan Area. These collectors are on the south-facing portion of the roof along 27th Street. As shown on Figures 4.1-5, 4.1-8, 4.1-11, and 4.1-14, implementation of the Broadway Valdez Development Program would introduce new shading on this structure in the morning hours during all months of the year. New development on the south side of 27th Street could also add new shadow to the solar collectors during the afternoon hours in winter months (see Figure 4.1-7).

In general, solar collectors collect sun power during the period from two hours prior and two hours post solar noon—the time at which the sun is directly south. Due to daylight savings, this period is approximately 10am to 2pm during winter months and 11am to 3pm during summer months. During the winter months, the majority, if not all potential new shading would be gone from the affected solar collectors by 10am (see Figure 4.1-5). Although some shading would return by 3pm from new development across 27th Street (Figure 4.1-7), there is very little sun power left at this time on December afternoons. The collectors would be completely exposed at and around noon during winter months. Spring through autumn, new shading in the morning hours would move off of the solar collectors by between 11am and noon or earlier. It is likely the collectors would be exposed during the entirety of the important 11am to 3pm time period. While this additional shading may slightly reduce the ability of solar collectors at this address to collect sun power, the new shadow would not substantially compromise their effectiveness and thus would not result in a substantial loss of power, income, or use from the collectors. Moreover, the new shading would not substantially impair the function the solar collectors as they contribute to the Humanist Church building and the impact is considered less-than-significant.



SOURCE: Environmental Vision

Broadway Valdez District Specific Plan . 208522

Figure 4.1-5
Shadow Study for 9:00 a.m., December 21



SOURCE: Environmental Vision

Broadway Valdez District Specific Plan . 208522

Figure 4.1-6

Shadow Study for 12:00 noon, December 21



SOURCE: Environmental Vision

Broadway Valdez District Specific Plan . 208522
Figure 4.1-7
 Shadow Study for 3:00 p.m., December 21



SOURCE: Environmental Vision

Broadway Valdez District Specific Plan . 208522

Figure 4.1-8

Shadow Study for 9:00 a.m., March 21



SOURCE: Environmental Vision

Broadway Valdez District Specific Plan . 208522

Figure 4.1-9
Shadow Study for 12:00 noon, March 21



SOURCE: Environmental Vision

Broadway Valdez District Specific Plan . 208522

Figure 4.1-10

Shadow Study for 3:00 p.m., March 21



SOURCE: Environmental Vision

Broadway Valdez District Specific Plan . 208522

Figure 4.1-11

Shadow Study for 9:00 a.m., June 21



SOURCE: Environmental Vision

Broadway Valdez District Specific Plan . 208522

Figure 4.1-12

Shadow Study for 12:00 noon, June 21



SOURCE: Environmental Vision

Broadway Valdez District Specific Plan . 208522

Figure 4.1-13

Shadow Study for 3:00 p.m., June 21



SOURCE: Environmental Vision

Broadway Valdez District Specific Plan . 208522

Figure 4.1-14

Shadow Study for 9:00 a.m., September 21



SOURCE: Environmental Vision

Broadway Valdez District Specific Plan . 208522

Figure 4.1-15
Shadow Study for 12:00 noon, September 21



SOURCE: Environmental Vision

Broadway Valdez District Specific Plan . 208522

Figure 4.1-16
Shadow Study for 3:00 p.m., September 21

In addition, the City's inventory identified four addresses in the Plan Area vicinity—3223 Telegraph Avenue, 2781 Telegraph Avenue, 32 Randwick Avenue, and 59 Grand Avenue—with solar collectors. As shown in the shadow diagrams in Figures 4.1-5 through 4.1-16, new shadows from the Broadway Valdez Development Program would not reach these structures at a time when they are not already in shadow from existing development. As shown in Figure 4.1-7, new shadow would not be expected to reach Mosswood Park at a time when it is not already shaded by the I-580 overpass and the existing high-rise medical building just north of the overpass. Glen Oak Park is tree-lined and mostly shaded at all times. Nonetheless, and in part due to existing and proposed height restrictions in the residential neighborhood surrounding Glen Oak Park, shadows from adoption and development under the Specific Plan are not likely to reach that park. Lake Merritt, southeast of the Plan Area, would not be exposed to potential shading from adoption and development under the Specific Plan. Early morning shadows, in the winter months when shadows are longer, could add shade to the public plaza on the northwest side of 27th and Broadway. However, the potential for this brief and passing new shadow on the plaza is not likely to limit the public use of the space.

In terms of historic resources, the City of Oakland's CEQA thresholds of significance state that a significant impact would occur if a project were to shade designated historic resources such that the new shadow would materially impair the resource's historic significance. While access to light is not typically an important characteristic of most historic buildings, it may be of historic places of worship where the light, specifically the light through stained glass windows, conveys its historical significance. Blockage of that light at certain times of day that coincide with designated times of worship could materially impair its historic significance and lead to a significance impact. Therefore, under this criterion, new, prolonged shading of stained glass windows during designated worship periods, on places of worship that are considered historic resources under CEQA, would result in a significant impact when the access to natural light during those times is a material character defining element of the historic resource.

There are four CEQA Historic Resources that are also places of worship in and adjacent to Plan Area boundaries. These resources were examined in the context of the shadow study are the First Presbyterian Church, located at 2601-19 Broadway, the Seventh Church of Christ Scientist, located at 2333 Harrison Street, Temple Sinai, located adjacent to the Plan Area boundary at 356 28th Street, and the First Congregational Church of Oakland, located adjacent to the Plan Area boundary at 2501 Harrison Street.

As shown in Figures 4.1-6 through 4.1-16, the new shadow on First Presbyterian Church would occur primarily in the winter months, with parcels across Broadway and 26th Street (anticipated for buildout with buildings reaching 65-feet in height) casting new shadow on the eastern façade of the church building during the early morning hours and on the southern façade of the church building during late morning through afternoon hours. However, the stained glass windows, which are located along the church's northern façade, would not incur new shadow as a result of the adoption and development under the Specific Plan and, thus, no significant impact with respect to shading a historic resource would occur.

The Seventh Church of Christ Scientist would incur new shadow as a result of adoption and development under the Specific Plan specifically on adjacent parcels to the south and adjacent parcels to the west and north. New shadow would occur during the winter morning hours, and noon and afternoon hours year-round. However, based on observations, this church contains a relatively small amount of clear glass doors and windows within an entry vestibule along its eastern façade, rather than large areas of stained glass windows on any one facade. As such, access to light through these front doors and windows does not appear to be one of the characteristics which convey the historical significance of this building, in particular. New shadow would not be expected to materially impair its historic significance, since the glass doors and windows do not convey its historic significance such that their shading would negatively affect the building's historic status. Therefore, new shadow would not result in a significant impact with respect to this historic resource.

Temple Sinai, just north of the Plan Area boundary, would incur new shadow during late afternoon hours in the winter and early mornings throughout much of the year. The temple contains stained glass windows in the southern portion of its eastern façade. At days and hours when services are being held within that portion of the temple, these stained glass windows, as illuminated by the direct sunlight, are considered a material character defining feature that convey its historical significance. These windows would remain largely unshaded from development under the Specific Plan, except for early morning hours (prior to 9 a.m.) in the spring, summer and fall, when new shadow from parcels across Webster Street to the northeast (anticipated for buildout at 65 feet) could extend south enough to shade them. While the project would obscure direct sunlight for a limited time during morning hours, it would not prevent all light from entering the windows, because ambient light from the sky as well as light reflected from other building surfaces would continue to illuminate the window. Although, the duration of new shading would be brief and would occur during the early morning hours, according to the Temple's website, prayer services are scheduled for as early as 7:30 in the morning (Temple Sinai, 2013). Therefore, shading of the temple's stained glass windows during this time would materially impair this resource's historic significance by altering those physical characteristics of the resource that convey its historical significance and that justify its inclusion in the California Register of Historic Resources. As such, the impact would be significant. Implementation of Mitigation Measure AES-4, below, would be required.

The First Congregational Church of Oakland, just north of the Plan Area boundary at the intersection of Bay Place, 27th Street and Harrison Street, is a historic resource on the City of Oakland's Preservation Study list, and has an A-rated historic status (eligible for listing as a City Landmark). The stained glass windows which line the southwestern façade of this historic property would incur new shadow in the winter months between 3:00 p.m. and sunset when new shadows from parcels across Bay Place to the south (anticipated for buildout at 65 feet) would extend northward across the street (see Figure 4.1-7). In addition to the new shadows being brief and at a time when the Plan Area is almost entirely shaded, the church's southwestern façade is lined with tall trees which also shade the southwestern façade of this church. Existing trees and landscaping were not modeled in the shadow study and thus the shade they create is not captured as existing shading. It is likely that by the time new shading resulting from adoption and

development under the Specific Plan would reach the southwestern façade of the church, it would largely be shaded by these trees. Furthermore, any new shading would occur at a time when the church is not heavily used (after 3:00 p.m., well after morning church services). Therefore, new shadow would not result in a significant impact with respect to this historic resource.

Overall, new shading generated from buildout of the Broadway Valdez Development Program would result in less than significant shadow impacts with the exception of potential shading on the Temple Sinai. Therefore, Mitigation Measure AES-4 is recommended.

Mitigation Measure AES-4: Shadow Analysis. Project sponsors for projects proposed for development on the parcel bounded by Webster Street, 29th Street, Broadway, and 28th Street shall conduct a shadow analysis to evaluate the shadowing effects of the proposed project on the stained glass windows on the eastern façade of the Temple Sinai. Should the initial shadow analysis reveal new shading would occur on the stained glass windows of the Temple Sinai during morning worship periods, the project sponsor shall, if feasible, modify project designs and reduce proposed building heights, as necessary, until a revised shadow analysis demonstrates that new shading on Temple Sinai would not materially impair this resource's historic significance (i.e., would avoid Temple Sinai's stained glass windows during morning worship periods, which are generally from 7:30 a.m. to 12:00 p.m.).

Conclusion with Mitigation: At this time, it cannot be known with certainty that a project redesign would eliminate the potential for new shading on Temple Sinai that would materially impair this resource's historic significance. For this reason, Mitigation Measure AES-4 would not ensure less-than-significant impacts. Therefore, the impact is conservatively deemed significant and unavoidable.

Significance after Mitigation: Conservatively Significant and Unavoidable.

Wind

Impact AES-5: Adoption and development under the Specific Plan has the potential to result in adverse wind conditions (Criterion 10). (Conservatively Significant and Unavoidable)

Development under the Specific Plan could be tall enough to result in adverse wind conditions. Although new high-rise structures amidst existing or other new high-rise structures can sometimes result in general reductions in wind speed and the number and durations of occurrence of wind hazard, other building characteristics, such as location relative to other nearby buildings and/or open spaces, façade articulation, etc., are also considered and, together, can result in increases in adverse wind conditions.

Detailed wind studies are required of individual projects at least 100 feet tall and located within Downtown. Approval of the Specific Plan would include an amendment to the General Plan, including an extension of the *Central Business District* land use designation northward to

27th Street and throughout the Valdez subarea. Therefore, Mitigation Measure AES-5, Wind Analysis, is identified.

Mitigation Measure AES-5: Wind Analysis. Project sponsors proposing buildings 100 feet tall or taller within the portion of the Plan Area designated *Central Business District* shall conduct detailed wind studies to evaluate the effects of the proposed project. If the wind study determines that the proposed project would create winds exceeding 36 mph for more than one hour during daylight hours during the year, the project sponsor shall incorporate, if feasible, measures to reduce such potential effects, as necessary, until a revised wind analysis demonstrates that the proposed project would not create winds in excess of this threshold. Examples of measures that such projects may incorporate, depending on the site-specific conditions, include structural and landscape design features and modified tower designs: wind protective structures or other apparatus to redirect downwash winds from tall buildings, tree plantings or dense bamboo plantings, arbors, canopies, lattice fencing, etc.

Conclusion with Mitigation: At this time, however, there are not sufficient details available to analyze specific impacts and it cannot be known with certainty that a project redesign would eliminate the potential for new adverse wind impacts. For this reason, Mitigation Measure AES-5 would not ensure less-than-significant impacts. Therefore, the impact is conservatively deemed significant and unavoidable.

Significance after Mitigation: Conservatively Significant and Unavoidable.

Cumulative Impacts

Impact AES-6: Adoption and development under the Specific Plan, in combination with other past, present, and reasonably foreseeable future projects within and around the Plan Area, would result in significant cumulative wind, and shadow impacts. (Conservatively Significant and Unavoidable)

Geographic Context

The cumulative geographic context includes the Plan Area, viewsheds visible within and across the Plan Area, and surrounding areas potentially shaded by adoption and development under the Specific Plan.

Impacts

Adoption and development under the Specific Plan is intended to increase public and private investment within the plan boundaries, which would improve the overall visual quality of the area. When combined with other cumulative development in and around the Plan Area (as discussed in Section 4.07.2, *Cumulative Context*, at the beginning of Chapter 4 of this Draft EIR), the cumulative effects would not result in a significant adverse aesthetics impact, due to past, present and future developments' adherence to the General Plan policies and SCAs described earlier in the Setting section, as well as compliance with conditions identified through the City's

design review and environmental review processes, when applicable. Present and reasonably foreseeable development would be generally consistent with adopted plans and the overall vision of the City and the Plan Area. Other cumulative projects would be analyzed for their potential impacts to light and glare, views, and visual character – through design review and/or the environmental review process, when applicable. If potential project-level, adverse aesthetics effects are identified through these processes, the project's effects will be reduced to less than significant to the extent feasible through adherence to project-specific design measures, including design modifications, identified through those processes. Therefore, although the effect of cumulative development may change the overall aesthetic character of the Plan Area and surrounding neighborhoods, it would not be expected to be adverse and result in significant cumulative impacts for the reasons discussed above and throughout this analysis. The impact related to aesthetics would be less than significant.

However, as noted above, due to the uncertainty of available mitigation, adoption and development under the Specific Plan would result in significant and unavoidable impacts related to shadows and wind. Therefore, adoption and development under the Specific Plan, when combined with other cumulative development in and around the Plan Area, would contribute to cumulative shadow and wind effects and would result in significant and unavoidable cumulative shadow and wind impacts.

Mitigation Measure AES-6: Implement Mitigation Measures AES-4 and AES-5.

Significance after Mitigation: Conservatively Significant and Unavoidable.

4.1.4 References

- California Department of Transportation, 2013. The California Scenic Highway System, <http://www.dot.ca.gov/hq/LandArch/scenic/cahisys.htm>, accessed February 18, 2013.
- City of Oakland, 1974. *General Plan, Scenic Highways Element*, adopted September 1974.
- City of Oakland, 1996. *General Plan, Open Space, Conservation and Recreation (OSCAR) Element*, June 1996.
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4.2 Air Quality

This section presents an overview of information related to air quality, including a description of current air quality conditions in the vicinity of the Plan Area and sensitive land uses that could be affected by air pollution. The impact analysis discusses the expected emissions associated with adoption and development under the Specific Plan, evaluates potential effects on sensitive receptors in the vicinity, and includes appropriate City Standard Conditions of Approval (SCAs) and recommended measures to further implement SCAs, followed by identification of the residual impact significance after SCAs and recommended measures are implemented.

4.2.1 Environmental Setting for Air Quality

Climate and Meteorology

Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants. The Plan Area is located in the City of Oakland and is within the boundaries of the San Francisco Bay Area Air Basin (Bay Area). The Bay Area Air Basin encompasses the nine-county region including all of Alameda, Contra Costa, Santa Clara, San Francisco, San Mateo, Marin and Napa counties, and the southern portions of Solano and Sonoma counties. The climate of the Bay Area is determined largely by a high-pressure system that is almost always present over the eastern Pacific Ocean off the West Coast of North America. During winter, the Pacific high-pressure system shifts southward, allowing more storms to pass through the region. During summer and early fall, when few storms pass through the region, emissions generated within the Bay Area can combine with abundant sunshine under the restraining influences of topography and subsidence inversions to create conditions that are conducive to the formation of photochemical pollutants, such as ozone and secondary particulates, such as nitrates and sulfates.

More specifically, the Plan Area lies approximately two miles east of San Francisco Bay in the Northern Alameda and Western Contra Costa Counties climatological subregion. This subregion extends from Richmond to San Leandro with San Francisco Bay as its western boundary, and its eastern boundary defined by the Oakland-Berkeley Hills. In this area, marine air traveling through the Golden Gate, as well as across San Francisco and the San Bruno Gap (a gap in the Coastal Range between the ocean and the San Francisco Airport), is a dominant weather factor. The Oakland-Berkeley Hills cause the westerly flow of air to split off to the north and south of Oakland, which causes diminished wind speeds. The air pollution potential in this subregion is relatively low for portions close to the Bay, due to the largely good ventilation and less influx of pollutants from upwind sources (Bay Area Air Quality Management District [BAAQMD], 2012a).

Wind measurements taken at Oakland International Airport indicate that the predominant wind flow is out of the west-northwest. Northwest winds occur approximately 46 percent of the time. Average wind speeds vary from season to season with the strongest average winds occurring during summer and the lightest average winds during winter. Average wind speeds are 9.7 miles per hour (mph) during summer and 7.4 mph during winter. Temperatures in Oakland average

58 °F annually, ranging from an average of 40°F on winter mornings to an average of mid-70s in the late summer afternoons. Daily and seasonal oscillations of temperature are small because of the moderating effects of the nearby ocean. In contrast to the steady temperature regime, rainfall is highly variable and confined almost exclusively to the “rainy” period from early November to mid-April. Oakland averages 18 inches of precipitation annually, but because much of the area’s rainfall is derived from the fringes of mid-latitude storms, a shift in the annual storm track of a few hundred miles can mean the difference between a very wet year and near drought conditions.

Existing Air Quality

The BAAQMD operates a regional monitoring network that measures the ambient concentrations of the six criteria air pollutants. Existing and probable future levels of air quality in Oakland can generally be inferred from ambient air quality measurements conducted by the BAAQMD at its nearby monitoring stations. The monitoring stations closest to the Plan Area are the West Oakland and International Boulevard stations in Oakland, approximately 1.0 mile southwest and 7.3 miles southeast from the Plan Area, respectively. The West Oakland station began monitoring fine particulate matter (PM_{2.5}), nitrogen oxides (NO_x), and sulfur dioxide (SO₂) in 2009, ozone (O₃; 1-hour and 8-hour) in 2010, and the International Boulevard station monitors these same pollutants and for previous years.

Since the major pollutants of concern in the San Francisco Bay Area are O₃ and PM, **Table 4.2-1** shows a four-year summary of monitoring data (2009 through 2012) for these pollutants from the West Oakland and International Boulevard stations. Due to the proximity of the Plan Area to the stations in Oakland, air quality measurements gathered in Oakland are understood to be generally representative of conditions within the Specific Plan Area. Table 4.2-1 also compares measured pollutant concentrations with State and national ambient air quality standards (see Regulatory Setting below).

Criteria Air Pollutants

Ozone (O₃)

Short-term exposure to ozone can irritate the eyes and cause constriction of the airways. Besides causing shortness of breath, ozone can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema. Ozone is not emitted directly into the atmosphere, but is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG) and nitrogen oxides (NO_x). ROG and NO_x are known as precursor compounds for ozone. Significant ozone production generally requires ozone precursors to be present in a stable atmosphere with strong sunlight for approximately three hours. Ozone is a regional air pollutant because it is not emitted directly by sources, but is formed downwind of sources of ROG and NO_x under the influence of wind and sunlight. Ozone concentrations tend to be higher in the late spring, summer, and fall, when the long sunny days combine with regional subsidence inversions to create conditions conducive to the formation and accumulation of secondary photochemical compounds, like ozone.

**TABLE 4.2-1
AIR QUALITY DATA SUMMARY (2008-2011) FOR THE SPECIFIC PLAN AREA^a**

Pollutant	State Standard ^b	National Standard ^b	Monitoring Data by Year			
			2009	2010	2011	2012
Ozone hourly						
Highest 1-hour average, ppm ^c	0.09	NA	0.092	0.040	0.057	0.061
Days over State Standard			0 ^f	0	0	0
Ozone 8-hour						
Highest 8-hour average, ppm ^c	0.07	0.075	0.062	0.035	0.048	0.048
Days over National Standard			0	0	0	0
Days over State Standard			0	0	0	0
Carbon Monoxide (CO) 8-hour						
Highest 8-hour average, ppm ^c	9.0	9	1.96	1.69	2.65	2.4
Days over National Standard			0	0	0	0
Days over State Standard			0	0	0	0
Nitrogen Dioxide (NO ₂)						
Highest 1-hour concentration, ppm ^c	0.18	0.10	0.057	0.069	0.062	0.053
Days over National Standard			0	0	0	0
Days over State Standard			0	0	0	0
Sulfur Dioxide (SO ₂)						
Highest 24-hourconcentration, ppm ^c	0.04	0.14	0.005	0.004	0.003	0.008
Days over National Standard			0	0	0	0
Days over State Standard			0	0	0	0
PM _{2.5}						
Highest 24-hour average, µg/m3 ^c	NA	35	27.9	35.2	43.1	33.6
Estimated days over National Standard ^d			0	0	1	0

^a Ozone data for 2009 are from the BAAQMD's International Boulevard station in Oakland, approximately 7.3 mile southeast from the Plan Area; data for 2010, 2011, and 2012 are from the BAAQMD's West Oakland station at 1100 21st Street in Oakland, approximately 1.0 mile southwest of the Plan Area; All other pollutant data are from West Oakland for 2009 through 2012 except for 2012 PM_{2.5}, which is from International Boulevard. PM₁₀ data was not available near the Plan Area.

^b Generally, State standards and national standards are not to be exceeded more than once per year.

^c ppm = parts per million; µg/m³ = micrograms per cubic meter.

^d Exceedance based on the previous National Standard of 65µg/m³.

^e The CARB states that an exceedance is not necessarily a violation.

^f A violation occurs only if the standard is exceeded. Because 0.092 rounds to 0.09, it is not considered a violation. A recorded concentration of 0.095 or greater would constitute a violation of the State standard.

NA = Not Available or Not Applicable.

SOURCE: CARB, 2013.

Carbon Monoxide (CO)

Ambient carbon monoxide concentrations normally are considered a local effect and typically correspond closely to the spatial and temporal distributions of vehicular traffic. Wind speed and atmospheric mixing also influence carbon monoxide concentrations. Under inversion conditions, carbon monoxide concentrations may be distributed more uniformly over an area that may extend some distance from vehicular sources. When inhaled at high concentrations, carbon monoxide 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 for fetuses.

Carbon monoxide concentrations have declined dramatically in California due to existing controls and programs and most areas of the state including the Plan Area region have no problem meeting the carbon monoxide state and federal standards. CO measurements and modeling were important in the early 1980s when CO levels were regularly exceeded throughout California. In more recent years, CO measurements and modeling have not been a priority in most California air districts due to the retirement of older polluting vehicles, fewer emissions from new vehicles, and improvements in fuels. The clear success in reducing CO levels is evident in the first paragraph of the executive summary of the California Air Resources Board (CARB) *2004 Revision to the California State Implementation Plan for Carbon Monoxide Updated Maintenance Plan for Ten Federal Planning Areas* (CARB, 2004), shown below:

“The dramatic reduction in carbon monoxide (CO) levels across California is one of the biggest success stories in air pollution control. Air Resources Board (ARB or Board) requirements for cleaner vehicles, equipment and fuels have cut peak CO levels in half since 1980, despite growth. All areas of the State designated as non-attainment for the federal 8-hour CO standard in 1991 now attain the standard, including the Los Angeles urbanized area. Even the Calexico area of Imperial County on the congested Mexican border had no violations of the federal CO standard in 2003. Only the South Coast and Calexico continue to violate the more protective State 8-hour CO standard, with declining levels beginning to approach that standard.”

Nitrogen Dioxide (NO₂)

NO₂ is a reddish brown gas that is a by-product of combustion processes. Automobiles and industrial operations are the main sources of NO₂. NO₂ may be visible as a coloring component of a brown cloud on high pollution days, especially in conjunction with high ozone levels.

Nitrogen dioxide is an air quality concern because it acts as a respiratory irritant and is a precursor of ozone. Nitrogen dioxide is a major component of the group of gaseous nitrogen compounds commonly referred to as nitrogen oxides (NO_x). Nitrogen oxides are produced by fuel combustion in motor vehicles, industrial stationary sources (such as industrial activities), ships, aircraft, and rail transit. Typically, nitrogen oxides emitted from fuel combustion are in the form of nitric oxide (NO) and nitrogen dioxide (NO₂). NO is often converted to NO₂ when it reacts with ozone or undergoes photochemical reactions in the atmosphere. Therefore, emissions of NO₂ from combustion sources are typically evaluated based on the amount of NO_x emitted from the source.

Sulfur Dioxide (SO₂)

SO₂ is a combustion product of sulfur or sulfur-containing fuels such as coal and diesel. SO₂ is also a precursor to the formation of atmospheric sulfate, particulate matter, and contributes to potential atmospheric sulfuric acid formation that could precipitate downwind as acid rain.

Particulate Matter (PM)

PM₁₀ and PM_{2.5} consist of particulate matter that is 10 microns or less in diameter and 2.5 microns or less in diameter, respectively (a micron is one-millionth of a meter). PM₁₀ and PM_{2.5} represent fractions of particulate matter that can be inhaled into the air passages and the lungs and can cause

adverse health effects. Some sources of particulate matter, such as wood burning in fireplaces, demolition, and construction activities, are more local in nature, while others, such as vehicular traffic, have a more regional effect. Very small particles of certain substances (e.g., sulfates and nitrates) can cause lung damage directly, or can contain adsorbed gases (e.g., chlorides or ammonium) that may be injurious to health. Particulates also can damage materials and reduce visibility. Large dust particles (diameter greater than 10 microns) settle out rapidly and are easily filtered by human breathing passages. This large dust is of more concern as a soiling nuisance rather than a health hazard. The remaining fraction, PM_{10} and $PM_{2.5}$, are a health concern particularly at levels above the federal and state ambient air quality standards. $PM_{2.5}$ (including diesel exhaust particles) is thought to have greater effects on health, because these particles are so small and thus, are able to penetrate to the deepest parts of the lungs. Scientific studies have suggested links between fine particulate matter and numerous health problems including asthma, bronchitis, acute and chronic respiratory symptoms such as shortness of breath and painful breathing. Recent studies have shown an association between morbidity and mortality and daily concentrations of particulate matter in the air. Children are more susceptible to the health risks of PM_{10} and $PM_{2.5}$ because their immune and respiratory systems are still developing.

Mortality studies since the 1990s have shown a statistically significant direct association between mortality (premature deaths) and daily concentrations of particulate matter in the air. Despite important gaps in scientific knowledge and continued reasons for some skepticism, a comprehensive evaluation of the research findings provides persuasive evidence that exposure to fine particulate air pollution has adverse effects on cardiopulmonary health (Dockery and Pope, 2006).

Lead (Pb)

Ambient lead concentrations meet both the federal and state standards in the Plan Area. Lead has a range of adverse neurotoxin health effects, and was formerly released into the atmosphere primarily via leaded gasoline products. The phase-out of leaded gasoline in California resulted in decreasing levels of atmospheric lead. Adoption and development under the Specific Plan would not introduce any new sources of lead emissions; consequently, lead emissions are not required to be quantified and are not further evaluated in this analysis.

Toxic Air Contaminants (TACs)

Toxic Air Contaminants (TACs) are air pollutants that may lead to serious illness or increased mortality, even when present in relatively low concentrations. Potential human health effects of TACs include birth defects, neurological damage, cancer, and death. There are hundreds of different types of TACs with varying degrees of toxicity. Individual TACs vary greatly in the health risk they present; at a given level of exposure, one TAC may pose a hazard that is many times greater than another.

TACs do not have ambient air quality standards, but are regulated by the BAAQMD using a risk-based approach. This approach uses a health risk assessment to determine what sources and pollutants to control as well as the degree of control. A health risk assessment is an analysis of

exposure to toxic substances and human health risks from exposure to toxic substances is estimated, based on the potency of the toxic substances.¹

The BAAQMD provides a publicly available inventory of TAC-related health risks for permitted stationary sources throughout the San Francisco Bay Area Air Basin as well as for freeways. The inventory presents community risk and hazards from screening tools and tables that are intentionally conservative. The screening-level risk factors derived from the BAAQMD's tool are intended to indicate whether additional review related to the impact is necessary and are not intended to be used to assess actual risk for all projects. The BAAQMD's most recently updated (May 2012) Google Earth-based inventory of stationary source risks and hazards indicates 14 permitted TAC sources within and adjacent to the Plan Area. These sources are predominantly associated with commercial and office uses in the area, such as emergency diesel generators, gasoline dispensing facilities, boilers, as well as automobile service and repair uses. Conservatively estimated increased cancer risk values for these sources vary from less than 0.01 in one million up to 55 in one million, depending on the source. **Table 4.2-2** presents these existing sources and their conservatively estimated risk and hazard values. Risk and hazard values are at the fence line of the facility.

Odorous Emissions

Though offensive odors from stationary sources rarely cause any physical harm, they still remain unpleasant and can lead to public distress generating citizen complaints to local governments. The occurrence and severity of odor impacts depend on the nature, frequency and intensity of the source; wind speed and direction; and the sensitivity of receptors. The CEQA Guidelines recommends that odor impacts be considered for any proposed new odor sources located near existing receptors, as well as any new sensitive receptors located near existing odor sources. Generally, increasing the distance between the receptor and the source would mitigate odor impacts.

The BAAQMD provides examples of odor sources which include wastewater treatments plants, landfills, confined animal facilities, composting stations, food manufacturing plants, refineries and chemical plants. Few odor sources currently exist in the Plan Area, however, most of the Plan Area is within maximum buffer areas delineated in accordance with the BAAQMD factors.

In accordance with the recommendations in the BAAQMD Guidelines, the City mapped known odor sources within its jurisdiction. Most of the Plan Area is located on the furthest fringes of the BAAQMD-recommended two-mile buffer zone of two chemical manufacturing plants. The Plan Area is not within the BAAQMD-recommended one-mile buffer zone of greenwaste/recycling or food processing facilities nor within the BAAQMD-recommended two-mile buffer zone of the EBMUD Waste Treatment Facility located in West Oakland (see **Figure 4.2-1**) (City of Oakland, 2010).

¹ A health risk assessment is required for permitting approval if the BAAQMD concludes that projected emissions of a specific air toxic compound from a proposed new or modified source suggest a potential public health risk. In these instances, a health risk assessment for the source in question must be prepared. Such an assessment generally evaluates chronic, long-term effects, calculating the increased risk of cancer as a result of exposure to one or more TACs.

**TABLE 4.2-2
HEALTH IMPACTS FROM STATIONARY SOURCES WITHIN THE PLAN AREA**

Source #	Facility Type	Address	Conservatively Estimated Risk Levels from Screening Tools and Tables		
			Cancer Risk (persons per million)	Chronic Hazard Impact	PM _{2.5} Concentration (µg/m ³)
7476	Label Art	290 27th Street	0	0	0
13705	Saint Paul's Tower	100 Bay Place	18.27	0.006	0.004
14195	Caltrans	111 Grand Avenue	54.85	0.019	0.097
19467	Brandywine Realty Trust	155 Grand Avenue	18.84	0.007	0.004
16640	Calsteers	180 Grand Avenue	26.42	0.009	0.047
19971	Essex Portfolio LLC	100 Grand Avenue	16.28	0.006	0.004
19344	VIP Auto Collision Repair	293 27th Street	0	0	0
15482	Autotrends	300 24th Street	0	0	0
12498	Oakland Acura	277 27th Street	0	0	0
G9464	Oakland Fleet Fueling Facility	401 27th Street	No data ^a		
20013	MPower Communications	23rd & Waverley Street	2.12	0.001	0.004
12434	Q & S Automotive	2345 Broadway	0	0	0
15483	Autotrends	2840 Broadway	0	0	0
15919	Collision Service Center of Oakland	295 29th Street	0	0	0
Highest Source Impact			54.85	0.019	0.097

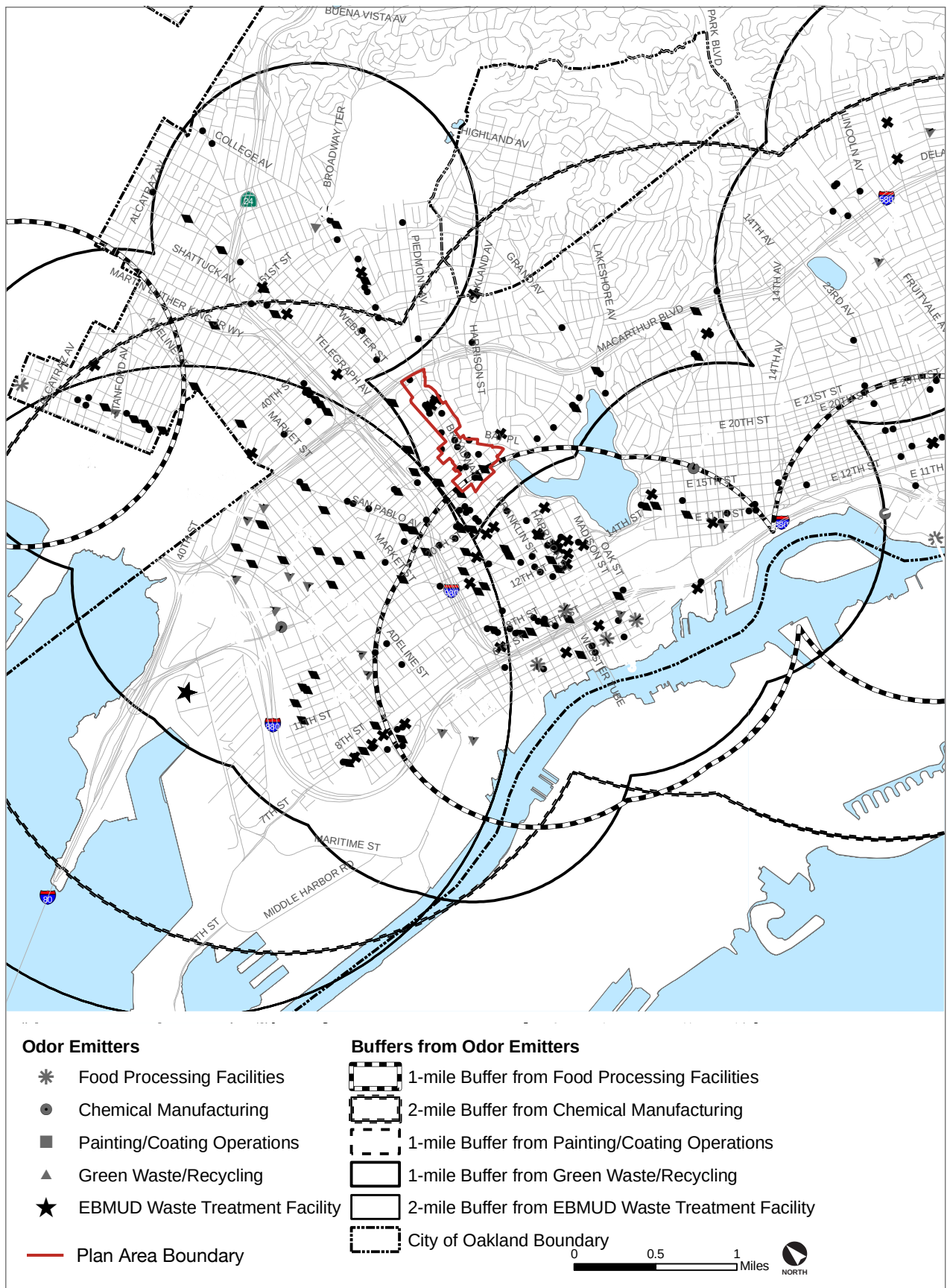
^a Although this facility continues to operate as a garage for the State of California, the fueling facility is no longer in operation per the BAAQMD.

SOURCE: BAAQMD, 2012c and ESA.

Sensitive Land Uses

Some receptors are considered more sensitive than others to air pollutants. The reasons for greater than average sensitivity include pre-existing health problems, proximity to emissions source, or duration of exposure to air pollutants. Land uses such as schools, children's day care centers, hospitals, and convalescent homes are considered to be more sensitive than the general public to poor air quality because the population groups associated with these uses have increased susceptibility to respiratory distress and other air quality-related health problems. Persons engaged in strenuous work or exercise also have increased sensitivity to poor air quality. Residential areas are considered more sensitive to air quality conditions than commercial and industrial areas, because people generally spend longer periods of time at their residences, resulting in greater exposure to ambient air quality conditions.

The BAAQMD specifically defines sensitive receptors as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as



SOURCE: City of Oakland, 2010; PBS&J, 2010

Broadway Valdez District Specific Plan . 208522

Figure 4.2-1
Odor Emitters

children, the elderly, and people with illnesses. Examples include schools, hospitals and residential areas. The Plan Area consists of a mixture of commercial, retail and office space as well as residential dwellings, day care facilities, and senior community facilities.

4.2.2 Regulatory Setting

Federal

Ambient Air Quality Standards

The Federal Clean Air Act (FCAA) requires the U.S. Environmental Protection Agency (USEPA) to identify National Ambient Air Quality Standards (NAAQS or “national standards”) to protect public health and welfare. National standards have been established for ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), respirable particulate matter (PM₁₀ and PM_{2.5}), and lead (Pb). Pursuant to the 1990 FCAA amendments, the USEPA classifies air basins (or portions thereof) as “attainment” or “nonattainment” for each criteria air pollutants, based on whether or not the NAAQS had been achieved.

Table 4.2-3 shows current national and State ambient air quality standards and provides a brief discussion of the related health effects and principal sources for each pollutant. **Table 4.2-4** shows the current attainment status in the Plan Area vicinity.

The FCAA requires each state to prepare an air quality control plan referred to as the State Implementation Plan (SIP). The FCAA amendments added requirements for states containing areas that violate the NAAQS to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is a living document that is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of air basins as reported by the agencies with jurisdiction over them. The USEPA has responsibility to review all state SIPs to determine if they conform to the mandates of the FCAA amendments and will achieve air quality goals when implemented. If the USEPA determines a SIP to be inadequate, it may prepare a Federal Implementation Plan (FIP) for the nonattainment area and may impose additional control measures. Failure to submit an approvable SIP or to implement the plan within mandated timeframes can result in sanctions being applied to transportation funding and stationary air pollution sources in the air basin.

Toxic Air Contaminants

Regulation of TACs termed Hazardous Air Pollutants (HAPs) under federal regulations, is achieved through federal, State and local controls on individual sources. The 1977 FCAA amendments required the USEPA to identify National Emission Standards for Hazardous Air Pollutants (NESHAPs) to protect public health and welfare. These substances include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. There is uncertainty in the precise degree of hazard.

**TABLE 4.2-3
STATE AND NATIONAL CRITERIA AIR POLLUTANT STANDARDS, EFFECTS, AND SOURCES**

Pollutant	Averaging Time	State Standard	National Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Ozone (O ₃)	1 hour	0.09 ppm	---	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Formed when reactive organic gases (ROG) and nitrogen oxides (NO _x) react in the presence of sunlight. Major sources include on-road motor vehicles, solvent evaporation, and commercial / industrial mobile equipment.
	8 hours	0.07 ppm	0.075 ppm		
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	Classified as a chemical asphyxiant, CO interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm		
Nitrogen Dioxide (NO ₂)	1 hour	0.18 ppm	0.100 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.
	Annual Avg.	0.030	0.053 ppm		
Sulfur Dioxide (SO ₂)	1 hour	0.25 ppm	.075 ppm	Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants, destructive to marble, iron, and steel. Limits visibility and reduces sunlight.	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	3 hours	---	0.5 ppm		
	24 hours	0.04 ppm	0.14 ppm		
	Annual Avg.	---	0.03 ppm		
Respirable Particulate Matter (PM ₁₀)	24 hours	50 µg/m ³	150 µg/m ³	May irritate eyes and respiratory tract, decreases in lung capacity, cancer and increased mortality. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	Annual Avg.	20 µg/m ³	---		
Fine Particulate Matter (PM _{2.5})	24 hours	---	35 µg/m ³	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and results in surface soiling.	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning; Also, formed from photochemical reactions of other pollutants, including NO _x , sulfur oxides, and organics.
	Annual Avg.	12 µg/m ³	15 µg/m ³		
Lead (Pb)	30-Day Avg.	1.5 µg/m ³	---	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurological dysfunction.	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Calendar Quarter	---	1.5 µg/m ³		
	Rolling 3-Month Avg.		.15 µg/m ³		
Hydrogen Sulfide	1 hour	0.03 ppm	No National Standard	Geothermal Power Plants, Petroleum Production and refining	Nuisance odor (rotten egg smell), headache and breathing difficulties (higher concentrations)
Sulfates	24 hour	25 µg/m ³	No National Standard	Produced by the reaction in the air of SO ₂ .	Breathing difficulties, aggravates asthma, reduced visibility
Visibility Reducing Particles	8 hour	Extinction of 0.23/km; visibility of 10 miles or more	No National Standard	Reduces visibility, reduced airport safety, lower real estate value, discourages tourism.	See PM _{2.5}

ppm = parts per million; µg/m³ = micrograms per cubic meter.SOURCE: California Air Resources Board, 2012, <http://www.arb.ca.gov/research/aaqs/aaqs2.pdf>

**TABLE 4.2-4
BAY AREA ATTAINMENT STATUS**

Pollutant	Designation/Classification	
	Federal Standards	State Standards
Ozone (O ₃) – one hour	No Federal Standard ¹	Nonattainment
Ozone (O ₃)– eight hour	Nonattainment	Nonattainment
PM ₁₀	Unclassified	Nonattainment
PM _{2.5}	Nonattainment	Nonattainment
Carbon Monoxide (CO)	Maintenance	Attainment
Nitrogen Dioxide (NO ₂)	Attainment	Attainment
Sulfur Dioxide (SO ₂)	Attainment	Attainment
Lead (Pb)	No Designation	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility Reducing Particles	No Federal Standard	Unclassified

¹ Federal One Hour Ozone National Ambient Air Quality Standard was revoked on June 15, 2005.

² The State 8-hour ozone standard was approved by the CARB on April 28, 2005, and became effective May 17, 2006.

SOURCE: BAAQMD, 2013.

State

The California Air Resources Board (CARB) manages air quality, regulates mobile emissions sources, and oversees the activities of county Air Pollution Control Districts and regional Air Quality Management Districts. CARB establishes state ambient air quality standards and vehicle emissions standards.

Ambient Air Quality Standards

As shown in Tables 4.2-1 4.2-3, and 4.2-4, California has adopted ambient standards that are more stringent than the federal standards for the criteria air pollutants and include air quality standards for some pollutants for which there is no corresponding national standard. Under the California Clean Air Act (CCAA) patterned after the FCAA, areas have been designated as attainment or nonattainment with respect to the state standards.

Toxic Air Contaminants

The Health and Safety Code defines TACs as air pollutants which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health. The State Air Toxics Program was established in 1983 under Assembly Bill (AB) 1807 (Tanner). A total of 243 substances have been designated TACs under California law; they include the 189 (federal) HAPs adopted in accordance with AB 2728. The Air Toxics “Hot Spots” Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risk from air toxics sources; however, AB 2588 does not regulate air toxics emissions. Toxic air contaminant emissions from individual facilities are quantified and prioritized. “High-priority”

facilities are required to perform a health risk assessment and, if specific thresholds are violated, are required to communicate the results to the public in the form of notices and public meetings.

In August of 1998, CARB identified particulate emissions from diesel-fueled engines (diesel particulate matter, or DPM) as TACs. CARB subsequently developed the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles* (CARB, 2000). The document represents proposals to reduce diesel particulate emissions, with the goal of reducing emissions and associated health risks by 75 percent in 2010 and by 85 percent in 2020. The program aims to require the use of state-of-the-art catalyzed diesel particulate filters and ultra low sulfur diesel fuel on diesel-fueled engines.

In April 2005, CARB published *Air Quality and Land Use Handbook: A Community Health Perspective* (CARB, 2005). This handbook is intended to give guidance to local governments in the siting of sensitive land uses, such as residences, schools, daycare centers, playgrounds, or medical facilities, near sources of air pollution. There are TAC sources predominantly associated with commercial and office uses located throughout the Plan Area, including, for example, emergency diesel generators, and gasoline dispensing facilities, in addition to freeways and high-volume roadways. Consistent with CARB guidance, the City of Oakland has adopted Standard Conditions of Approval (SCA B) that reduce the impact of TAC sources and sensitive receptors.

Regional

The regional agency primarily responsible for developing air quality plans for the Bay Area is the Bay Area Air Quality Management District (BAAQMD), the agency with permit authority over most types of stationary emission sources of air pollutants in the Bay Area.

Air Quality Plans

As noted above, the FCAA requires states to prepare SIPs. For states containing areas that violate the NAAQS, regional planning and air pollution control agencies must prepare a regional *Air Quality Plan* to outline the measures by which both stationary and mobile sources of pollutants can be controlled in order to achieve all standards specified in the Clean Air Act. The 1988 CCAA also requires development of air quality plans and strategies to meet state air quality standards in areas designated as non-attainment (with the exception of areas designated as non-attainment for the state PM standards). Maintenance plans are required for attainment areas that had previously been designated non-attainment in order to ensure continued attainment of the standards.

Bay Area plans are prepared by the BAAQMD with the cooperation of the Metropolitan Transportation Commission (“MTC”) and the Association of Bay Area Governments (“ABAG”). Currently, there are three plans for the Bay Area. These are:

- The *Ozone Attainment Plan for the 1-Hour National Ozone Standard* developed to meet federal ozone air quality planning requirements. However, the U.S. EPA revoked the 1-hour ozone standard in 2005.

- The *Bay Area 2010 Clean Air Plan (CAP)* developed to meet planning requirements related to the state ozone standard using a multi-pollutant approach (BAAQMD, 2010); and
- The *1996 Carbon Monoxide Redesignation Request and Maintenance Plan for Ten Federal Planning Areas*, developed by the air districts with jurisdiction over the ten planning areas including the BAAQMD to ensure continued attainment of the federal carbon monoxide standard. In June 1998, the USEPA approved this plan and designated the ten areas as attainment. The maintenance plan was revised most recently in 2004 (CARB, 2004).

The Bay Area addresses all requirements of the national eight-hour standard in the 2010 CAP. For state air quality planning purposes, the Bay Area is classified as a serious non-attainment area for ozone. The “serious” classification triggers various plan submittal requirements and transportation performance standards. One such requirement is that the Bay Area update the CAP every three years to reflect progress in meeting the air quality standards and to incorporate new information regarding the feasibility of control measures and new emission inventory data. The Bay Area’s record of progress in implementing previous measures must also be reviewed. On September 15, 2010, the BAAQMD adopted the most recent revision to the CAP—the 2010 CAP. The goals of the 2010 CAP are:

- 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;
- Consider the impacts of ozone control measures on PM₁₀ and PM_{2.5}, TACs, and GHGs, in a single, integrated plan;
- Review progress in improving air quality in recent years; and
- Establish emission control measures to be adopted or implemented in the 2009–2012 timeframe.

BAAQMD CEQA Guidelines and Thresholds of Significance

In December 1999, the BAAQMD adopted its *CEQA Guidelines – Assessing the Air Quality Impacts of Projects and Plans*, as a guidance document to provide lead government agencies, consultants, and project proponents with uniform procedures for assessing air quality impacts and preparing the air quality sections of environmental documents for projects subject to CEQA. The *BAAQMD CEQA Guidelines* is an advisory document and local jurisdictions are not required to utilize the methodology outlined therein. The document describes the criteria that the BAAQMD uses when reviewing and commenting on the adequacy of environmental documents. It recommends thresholds for use in determining whether projects would have significant adverse environmental impacts, identifies methodologies for predicting project emissions and impacts, and identifies measures that can be used to avoid or reduce air quality impacts.

The BAAQMD updated the 1999 CEQA Air Quality Guidelines in 2010. In May of 2011, the BAAQMD adopted an updated version of its Thresholds of Significance for use in determining the significance of projects’ environmental effects under CEQA (Thresholds), and published their CEQA Guidelines for consideration by lead agencies. The Thresholds lowered the previous (1999) thresholds of significance for annual emissions of ROG, NO_x, and PM₁₀, and set a

standard for PM_{2.5} and fugitive dust. The 2011 CEQA Guidelines also include methodologies for evaluating risks and hazards for the siting of stationary sources and of sensitive receptors. The BAAQMD resolution adopting the significance thresholds in 2010 and 2011 had been set aside by an Alameda County Superior Court judicial writ of mandate as of March 5, 2012. However, on August 13, 2013 the California Court of Appeals issued a full reversal of the judgment. In a published ruling, the Court directed that the Superior Court vacate the writ of mandate issued in March 2012.

The BAAQMD has most recently updated its CEQA Air Quality Guidelines in May of 2012 which continue to provide direction on recommended analysis methodologies but no longer recommend quantitative significance thresholds. In the revised Guidelines, the air district recommends that lead agencies develop their own thresholds of significance. The BAAQMD offers, as possibilities, its previous 1999 Guidelines thresholds and also presents a table of thresholds promulgated by other California air districts, as well as a reference to California Air Pollution Control Officers Association and State Air Resources Board guidance. Lead agencies may also reference the BAAQMD CEQA Thresholds Options and Justification Report developed by district staff in 2009. This latter option provides lead agencies with a justification for continuing to rely on the BAAQMD 2011 thresholds. As such, City Thresholds for air quality are generally based upon the BAAQMD 2011 CEQA Guidelines and Thresholds.

Local

City of Oakland General Plan

The Open Space, Conservation and Recreation (OSCAR) Element of the Oakland General Plan contains the following Air Quality objective and policies that would apply to the adoption and development under the Specific Plan (City of Oakland, 1996).

- ***Objective CO-12: Air Resources:*** To improve air quality in Oakland and the surrounding Bay Region.
- ***Policy CO-12.1:*** Promote land use patterns and densities which help improve regional air quality conditions by: (a) minimizing dependence on single passenger autos; (b) promoting projects which minimize quick auto starts and stops, such as live-work development, mixed use development, and office development with ground floor retail space; (c) separating land uses which are sensitive to pollution from the sources of air pollution; and (d) supporting telecommuting, flexible work hours, and behavioral changes which reduce the percentage of people in Oakland who must drive to work on a daily basis.
- ***Policy CO-12.4:*** Require that development projects be designed in a manner which reduces potential adverse air quality impacts. This may include: (a) the use of vegetation and landscaping to absorb carbon monoxide and to buffer sensitive receptors; (b) the use of low-polluting energy sources and energy conservation measures; and (c) designs which encourage transit use and facilitate bicycle and pedestrian travel.
- ***Policy CO-12.6:*** Require construction, demolition and grading practices which minimize dust emissions.

City of Oakland Municipal Code

Per the City of Oakland Municipal Code, Title 15 Buildings and Construction, Chapter 15.36 Demolition Permits, 15.36.100 Dust Control Measures,

“Best Management Practices” shall be used throughout all phases of work, including suspension of work, to alleviate or prevent fugitive dust nuisance and the discharge of smoke or any other air contaminants into the atmosphere in such quantity as will violate any city or regional air pollution control rules, regulations, ordinances, or statutes. Water or dust palliatives or combinations of both shall be applied continuously and in sufficient quantity during the performance of work and at other times as required. Dust nuisance shall also be abated by cleaning and sweeping or other means as necessary. A dust control plan may be required as condition of permit issuance or at other times as may be deemed necessary to assure compliance with this section. Failure to control effectively or abate fugitive dust nuisance or the discharge of smoke or any other air contaminants into the atmosphere may result in suspension or revocation of the permit, in addition to any other applicable enforcement actions or remedies. (Ord. 12152 Section 1, 1999).

The City of Oakland has implemented Green Building principles in City buildings through the following programs: Civic Green Building Ordinance (Ordinance No. 12658 C.M.S., 2005), requiring, for certain large civic projects, techniques that minimize the environmental and health impacts of the built environment through energy, water and material efficiencies and improved indoor air quality, while also reducing the waste associated with construction, maintenance and remodeling over the life of the building; Green Building Guidelines (Resolution No. 79871, 2006) which provides guidelines to Alameda County residents and developers regarding construction and remodeling; and Green Building Education Incentives for private developers.

Standard Conditions of Approval

The City’s Standard Conditions of Approval (SCA) that directly pertain to air quality and that apply to the adoption and development under the Specific Plan are listed below. If the Specific Plan is adopted by the City, all applicable SCAs will be adopted as conditions of approval and required, as applicable, of the adoption and development under the Specific Plan to help ensure no significant impacts occur regarding construction period dust (or emissions). Because the conditions of approval are incorporated as part of the Specific Plan, they are not listed as mitigation measures.

- **SCA A: Construction-Related Air Pollution Controls (Dust and Equipment Emissions)**

Ongoing throughout demolition, grading, and/or construction. During construction, the project applicant shall require the construction contractor to implement all of the following applicable measures recommended by the BAAQMD:

- a) Water all exposed surfaces of active construction areas at least twice daily (using reclaimed water if possible). Watering should be sufficient to prevent airborne dust from leaving the site. Increased watering frequency may be necessary whenever wind speeds exceed 15 miles per hour. Reclaimed water should be used whenever possible.

- b) Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard (i.e., the minimum required space between the top of the load and the top of the trailer).
- c) All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- d) Pave all roadways, driveways, sidewalks, etc. as soon as feasible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.
- e) Enclose, cover, water twice daily or apply (non-toxic) soil stabilizers to exposed stockpiles (dirt, sand, etc.).
- f) Limit vehicle speeds on unpaved roads to 15 miles per hour.
- g) Idling times on all diesel-fueled commercial vehicles over 10,000 lbs. shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485, of the California Code of Regulations). Clear signage to this effect shall be provided for construction workers at all access points.
- h) Idling times on all diesel-fueled off-road vehicles over 25 horsepower shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes and fleet operators must develop a written idling policy (as required by Title 13, Section 2449 of the California Code of Regulations.)
- i) All construction equipment shall be maintained and properly tuned in accordance with the manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- j) Post a publicly visible sign that includes the contractor's name and telephone number to contact regarding dust complaints. When contacted, the contractor shall respond and take corrective action within 48 hours. The telephone numbers of contacts at the City and the BAAQMD shall also be visible. This information may be posted on other required on-site signage.
- k) All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe.
- l) All excavation, grading, and demolition activities shall be suspended when average wind speeds exceed 20 mph.
- m) Install sandbags or other erosion control measures to prevent silt runoff to public roadways.
- n) Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for one month or more).
- o) Designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite. Their duties shall include holidays and weekend periods when work may not be in progress.

- p) Install appropriate wind breaks (e.g., trees, fences) on the windward side(s) of actively disturbed areas of the construction site to minimize wind blown dust. Wind breaks must have a maximum 50 percent air porosity.
 - q) Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
 - r) The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time.
 - s) All trucks and equipment, including tires, shall be washed off prior to leaving the site.
 - t) Site accesses to a distance of 100 feet from the paved road shall be treated with a 6 to 12 inch compacted layer of wood chips, mulch, or gravel.
 - u) Minimize the idling time of diesel-powered construction equipment to two minutes.
 - v) All equipment to be used on the construction site and subject to the requirements of Title 13, Section 2449 of the California Code of Regulations (“California Air Resources Board Off-Road Diesel Regulations”) must meet Emissions and Performance Requirements one year in advance of any fleet deadlines. The project applicant shall provide written documentation that the fleet requirements have been met.
 - w) Use low VOC (i.e., ROG) coatings beyond the local requirements (i.e., BAAQMD Regulation 8, Rule 3: Architectural Coatings).
 - x) All construction equipment, diesel trucks, and generators shall be equipped with Best Available Control Technology for emission reductions of NO_x and PM.
 - y) Off-road heavy diesel engines shall meet the CARB’s most recent certification standard.
- **SCA B: Exposure to Air Pollution (Toxic Air Contaminants)²**
The following condition applies to all projects that meet ALL of the following criteria:
 1. The project involves either of the following sensitive land uses:
 - a. New residential facilities or new dwelling units; or
 - b. New or expanded schools, daycare centers, parks, nursing homes, or medical facilities; and
 2. The project is located within 1,000 feet of one or more of the following sources of air pollution:
 - a. Freeway
 - b. Roadway with significant traffic (at least 10,000 vehicles per day);

² This Standard Condition of Approval (SCA) refines, clarifies, and replaces the City’s previous Exposure to Air Pollution SCAs from the Supplemental Standard Conditions of Approval (dated 7/128/11), specifically SCAs B and C. This SCA better conforms to current guidance from the Bay Area Air Quality Management District (BAAQMD) and the EIR certified for the Plan Bay Area adopted by the Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC).

- c. Rail line (except BART) with over 30 trains per day;
 - d. Distribution center that accommodated more than 100 trucks per day, more than 40 trucks with operating Transportation Refrigeration Units (TRU) per day, or where the TRU unit operations exceed 300 hours per week;
 - e. Major rail or truck yard (such as the Union Pacific rail yard adjacent to the Port of Oakland);
 - f. Ferry terminal;
 - g. Port of Oakland; or
 - h. Stationary pollutant source requiring a permit from BAAQMD (such as a diesel generator; and
3. The project exceeds the health risk screening criteria after a screening analysis is conducted in accordance with the Bay Area Air Quality Management District (BAAQMD) CEQA Guidelines.

Exposure to Air Pollution (Toxic Air Contaminants)

a. ***Health Risk Reduction Measures***

Requirement: The project applicant shall incorporate appropriate measures into the project design in order to reduce the potential health risk due to exposure to toxic air contaminants. The project applicant shall choose **one** of the following methods:

- 1) The project applicant shall retain a qualified air quality consultant to prepare a Health Risk Assessment (HRA) in accordance with the California Air Resources Board (CARB) and the Office of Environmental Health and Hazard Assessment requirements to determine the health risk of exposure of project residents/occupants/users to air pollutants. The HRA shall be submitted to the City for review and approval. If the HRA concludes that the health risk is at or below acceptable levels, then health risk reduction measures are not required. If the HRA concludes the health risk exceeds acceptable levels, health risk reduction measures shall be identified to reduce the health risk to acceptable levels. Identified risk reduction measures shall be submitted to the City for review and approval and be included on the project drawings submitted for the construction-related permit or on other documentation submitted to the City.
- 2) The project applicant shall incorporate the following health risk reduction measures into the project. These features shall be submitted to the City for review and approval and be included on the project drawings submitted for the construction-related permit or on other documentation submitted to the City:
 - Installation of air filtration to reduce cancer risks and Particulate Matter (PM) exposure for residents, and other sensitive populations, in the project that are in close proximity to sources of air pollution. Air filter devices shall be rated MERV-13 or higher. As part of implementing this measure, an ongoing maintenance plan for the building's HVAC air filtration system shall be required.
 - Phasing of residential developments when proposed within 500 feet of freeways such that homes nearest the freeway are built last, if feasible.
 - The project shall be designed to locate sensitive receptors as far away as feasible from the source(s) of air pollution. 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, if feasible.

- Sensitive receptors shall not be located on the ground floor, if feasible.
- Planting trees and/or vegetation between sensitive receptors and pollution source, if feasible. Trees that are best suited to trapping PM shall be planted, including one or more of the following: Pine (*Pinus nigra* var. *maritima*), Cypress (*X Cupressocyparis leylandii*), Hybrid popular (*Populus deltoids X trichocarpa*), and Redwood (*Sequoia sempervirens*).
- Within the project site, sensitive receptors shall be located as far away from truck activity areas, such as loading docks and delivery areas, as feasible.
- Within the project site, existing and new diesel generators shall meet CARB's Tier 4 emission standards, if feasible.
- Within the project site, emissions from diesel trucks shall be reduced through implementing the following measures, if feasible:
 - Installing electrical hook-ups for diesel trucks at loading docks.
 - Requiring trucks to use Transportation Refrigeration Units (TRU) that meet Tier 4 emission standards.
 - Requiring truck-intensive projects to use advanced exhaust technology (e.g., hybrid) or alternative fuels.
 - Prohibiting trucks from idling for more than two minutes.
 - Establishing truck routes to avoid sensitive receptors in the project. A truck route program, along with truck calming, parking, and delivery restrictions, shall be implemented.

When Required: Prior to approval of construction-related permit

Initial Approval: Planning and Zoning Division

Monitoring/Inspection: Building Services Division

b. ***Maintenance of Health Risk Reduction Measures***

Requirement: The project applicant shall maintain, repair, and/or replace installed health risk reduction measures, including but not limited to the HVAC system (if applicable), on an ongoing and as-needed basis. Prior to occupancy, the project applicant shall prepare and then distribute to the building manager/operator an operation and maintenance manual for the HVAC system and filter including the maintenance and replacement schedule for the filter.

When Required: Ongoing

Initial Approval Authority: N/A

Monitoring/Inspection/Enforcement: Building Services Division

The following Standard Condition of Approval that addresses parking and transportation demand management and that applies to all projects that generate 50 or more net new AM or PM peak hour vehicle trips, is stated in full in the assessment of traffic in Section 4.13, *Transportation and Circulation*:

- **SCA 25: Parking and Transportation Demand Management**

4.2.3 Impacts and Mitigation Measures

Significance Criteria

Adoption and development under the Specific Plan would have a significant air quality impact if it were to:^{3,4}

Project-Level Impacts

1. During project construction result in average daily emissions of 54 pounds per day of ROG, NO_x, or PM_{2.5} or 82 pounds per day of PM₁₀;
2. During project operation result in average daily emissions of 54 pounds per day of ROG, NO_x, or PM_{2.5} or 82 pounds per day of PM₁₀; or result in maximum annual emissions of 10 tons per year of ROG, NO_x, or PM_{2.5} or 15 tons per year of PM₁₀;
3. Contribute to carbon monoxide (CO) concentrations exceeding the California Ambient Air Quality Standards (CAAQS) of nine parts per million (ppm) averaged over eight hours and 20 ppm for one hour [**NOTE:** Pursuant to BAAQMD CEQA Guidelines, localized CO concentrations should be estimated for projects in which (a) project-generated traffic would conflict with an applicable congestion management program established by the county congestion management agency or (b) project-generated traffic would increase traffic volumes at affected intersections to more than 44,000 vehicles per hour (or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited, such as tunnels, parking garages, bridge underpasses, natural or urban street canyons, and below-grade roadways). In Oakland, only the MacArthur Maze portion of Interstate 580 exceeds the 44,000 vehicles per hour screening criteria.];
4. For new **sources** of Toxic Air Contaminants (TACs), during either **project construction or project operation** expose sensitive receptors to substantial levels of TACs resulting in (a) an increase in cancer risk level greater than 10 in one million, (b) an increase in non-cancer risk (chronic or acute) hazard index greater than 1.0, or (c) an increase of annual average PM_{2.5} of greater than 0.3 micrograms per cubic meter; or, under cumulative conditions, resulting in (a) a cancer risk level greater

³ Although Specific Plans typically undergo only a plan-level analysis by necessity given the lack of available information on specific projects at the time of analysis, a "hybrid analysis" is performed herein to also provide a project-level analysis, where feasible. The intent is for this Specific Plan EIR to eliminate or minimize any subsequent CEQA review required of projects that occur under the Specific Plan. The discussion and analysis uses both the City's Project- and Plan-Level Thresholds for Air Quality.

⁴ Except for impacts related to Toxic Air Contaminants (TACs) (Significance Criterion 4) and odors (Significance Criterion 6), air quality impacts are, by their nature, cumulative impacts because one project by itself cannot generate air pollution that would violate regional air quality standards. Significance Criteria 1 through 3 pertain to a project's contribution to cumulative impacts but are labeled "Project- Level Impacts" here to be consistent with the terminology used by the BAAQMD.

than 100 in a million, (b) a non-cancer risk (chronic or acute) hazard index greater than 10.0, or (c) annual average PM_{2.5} of greater than 0.8 micrograms per cubic meter [NOTE: Pursuant to the BAAQMD CEQA Guidelines, when siting new TAC sources consider sensitive receptors located within 1,000 feet. For this threshold, sensitive receptors include residential uses, schools, parks, daycare centers, nursing homes, and medical centers. The cumulative analysis should consider the combined risk from all TAC sources.];

5. Expose new **sensitive receptors** to substantial ambient levels of Toxic Air Contaminants (TACs) resulting in (a) a cancer risk level greater than 100 in a million, (b) a non-cancer risk (chronic or acute) hazard index greater than 10.0, or (c) annual average PM_{2.5} of greater than 0.8 micrograms per cubic meter [NOTE: Pursuant to the BAAQMD CEQA Guidelines, when siting new sensitive receptors consider TAC sources located within 1,000 feet including, but not limited to, stationary sources, freeways, major roadways (10,000 or greater vehicles per day), truck distribution centers, airports, seaports, ferry terminals, and rail lines. For this threshold, sensitive receptors include residential uses, schools, parks, daycare centers, nursing homes, and medical centers]; or
6. Frequently and for a substantial duration, create or expose sensitive receptors to substantial objectionable odors affecting a substantial number of people [NOTE: For this threshold, sensitive receptors include residential uses, schools, daycare centers, nursing homes, and medical centers (but not parks)].

Plan-Level Impacts

7. Fundamentally conflict with the primary goals of the Bay Area Clean Air Plan (CAP);
8. Not include special overlay zones containing goals, policies, and objectives to minimize potential Toxic Air Contaminant (TAC) impacts in areas located (a) near existing and planned sources of TACs and (b) within 500 feet of freeways and high-volume roadways containing 100,000 or more average daily vehicle trips; or
9. Not identify existing and planned sources of odors with policies to reduce potential odor impacts.

Approach to Analysis

As described above, the City has generally relied on the BAAQMD's 2011 guidelines to develop significance thresholds for air quality. As such, the City Thresholds for air quality are generally based upon the BAAQMD 2011 CEQA Guidelines and Thresholds.

The analysis of potential air quality impacts uses both the project-level and the plan-level methodology identified by the BAAQMD, the regional agency primarily responsible for developing air quality plans for the Bay Area, including the City of Oakland. This methodology is outlined in the BAAQMD document *California Environmental Quality Act Air Quality Guidelines* (BAAQMD, 2012a). Although individual projects developed under the Specific Plan may undergo separate environmental review under CEQA, this hybrid of a project-level and plan-level analysis considers potential individual construction and operational emissions from future projects, and represents adequate environmental analysis under CEQA for individual development projects under the Broadway Valdez Development Program (see Chapter 3, *Project Description*).

The health risk analysis contained herein relied on the BAAQMD's conservative screening-level data to screen out low-emitting existing sources of TACs that pose no substantial threat to increased cancer risk level exposure. For TAC sources not eliminated through this screening process, a more refined concentration modeling analysis was conducted and the result evaluated.

Moreover, CEQA requires the analysis of potential adverse effects of a project on the environment. Potential effects of the environment on a project are legally not required to be analyzed or mitigated under CEQA. However, this EIR nevertheless analyzes potential effects of "the environment on the project" in order to provide information to the public and decision-makers. Where a potential significant effect of the environment on the project is identified, the document, as appropriate, identifies City Standard Conditions of Approval and/or project-specific non-CEQA recommendations to address these issues.

Impacts

Project-Level Impacts

Impact AIR-1: Construction associated with adoption and development under the Specific Plan would result in average daily emissions of 54 pounds per day of ROG, NO_x, or PM_{2.5} or 82 pounds per day of PM₁₀ (Criterion 1). (Conservatively Significant and Unavoidable)

Project-related construction would generate air emissions through the use of heavy-duty construction equipment, from vehicle trips hauling materials, and from construction workers traveling to and from the project site. Mobile source emissions, primarily NO_x, would be generated from the use of construction equipment such as excavators, bulldozers, wheeled loaders, and cranes. During the finishing phase, paving operations and the application of asphalt, architectural coatings (i.e., paints) and other building materials would release ROG. The assessment of construction air quality impacts considers each of these sources, and recognizes that construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and for dust, the prevailing weather conditions.

The City of Oakland anticipates that adoption and development under the Specific Plan would occur over the next 20 to 25 years. The timing and sequence of development would depend upon numerous factors, including future market conditions, public investment, and private initiative and investment. As a conservative analysis, construction activities are assumed to occur over a default construction period calculated by the CalEEMod land use emissions model based on the number of residential units and square feet of non-residential development. The temporal distribution of land use construction reflects the assumptions of the transportation analysis which envisions a specific portion of net new land use by year 2020 and the remainder by year 2035. Although the Broadway Valdez Development Program likely would be developed at a slower pace through 2035, for the purposes of conservative analysis, construction periods are condensed to typical project-level construction periods. Following this conservative approach, the assumed construction period spans from 2015 to 2023, representing two equivalent 4-year construction periods.

Construction emissions from adoption and development under the Specific Plan were estimated using the CalEEMod land use emissions model, which separates the construction process into stages: demolition, grading, paving, structural building, and architectural coating. The grading phase is separated into emissions from fugitive dust, emissions from off-road equipment, and worker vehicle trips. The paving phase estimates emissions from off-road equipment, on-road trucks worker vehicle trips, as well as off-gassing of ROG emissions from asphalt (primarily parking lot and roadway surfaces).⁵ Emissions from the structural building phase would consist of off-road equipment emissions, worker vehicle trips and vendor vehicle trips. Grading activities were assumed to have been conducted prior to the other activities. The construction duration for each stage and scenario are detailed in CalEEMod printout sheets, which are included in Appendix E.

Daily construction-related criteria pollutant emissions resulting from adoption and development under the Specific Plan are presented in **Table 4.2-5**. As shown, maximum regional emissions would exceed the BAAQMD daily significance thresholds for ROG during construction. The predominant construction activity associated with the significant ROG emissions (98 percent of emissions) would be application of architectural coatings. The CalEEMod model assumes the application of architectural coatings to occur within a single year period for a particular development project, not, as here, for a Specific Plan with multiple sites under different ownership.⁶ As a practical matter, individual development projects under the Specific Plan could be spread out over several years and the peak emissions from application of architectural coatings could be less than that conservatively assumed for years 2019 and 2023 in Table 4.2-5. However, considering the amount by which estimated ROG emissions are estimated to exceed the threshold, a less conservative assumption, and a less aggressive timeline for individual projects, would not reduce the significance. Therefore, the analysis is appropriately conservative. ROG emissions estimated in Table 4.2-5 were adjusted to account for reduced ROG content of architectural coatings under Regulation 8, Rule 3 of the BAAQMD and the requirements of the 2010 Green Building Code (also contained in SCA A {w}).

In addition, SCA A would implement the BAAQMD Best Management Practices for fugitive dust control and would be required for all construction activities within the Plan Area. Further, to implement SCA A, the following additional measure is recommended:

Recommended Measure AIR-1: During construction, the project applicant shall require the construction contractor to use prefinished materials and colored stucco, as feasible.

Conclusion: A conservative estimate of emissions in the Plan Area associated with construction of development under the Specific Plan shows a significant impact. Even with the inclusion of SCA A and Recommended Measure AIR-1, it cannot reliably be demonstrated that ROG emissions from application of architectural coatings would be reduced to 54 pounds per day or less. Therefore, this impact would be significant and unavoidable.

⁵ "Off gassing" refers to the release of gaseous compounds from a solid material such as asphalt.

⁶ The CalEEMod model assumes an architectural coating phase duration based on extrapolation of survey data contained in the South Coast Air Quality Management District document *Sample Construction Scenarios for Projects less than Five Acres*, 2005.

**TABLE 4.2-5
AVERAGE DAILY CONSTRUCTION-RELATED EMISSIONS**

	Average Daily Construction Emissions (lb/day)			
	ROG	NO _x	PM ₁₀	PM _{2.5}
2015 (Demolition, Site Preparation, Grading and Building Construction)	6.85	48.70	2.19	2.19
2016 (Building Construction)	11.10	54.59	2.40	2.40
2017 (Building Construction)	10.21	49.73	2.19	2.19
2018 (Building Construction)	9.52	45.75	1.99	1.99
2019 (Building Construction, Paving and Architectural Coatings)	119.79	8.84	.55	0.55
2020 (Demolition, Site Preparation, Grading and Building Construction)	5.55	32.33	1.37	1.30
2021 (Building Construction)	6.71	31.30	1.30	1.23
2022 (Building Construction)	6.37	29.04	1.23	1.16
2023 (Building Construction, Paving and Architectural Coatings)	98.84	14.45	0.68	0.62
Threshold	54	54	82	54
Exceeds Threshold?	Yes	Yes	No	No

SOURCE: ESA, 2013

Significance: Conservatively Significant and Unavoidable.

Impact AIR-2: Adoption and development under the Specific Plan would result in operational average daily emissions of more than 54 pounds per day of ROG, NO_x, or PM_{2.5} or 82 pounds per day of PM₁₀; or result in maximum annual emissions of 10 tons per year of ROG, NO_x, or PM_{2.5} or 15 tons per year of PM₁₀ (Criterion 2). (Conservatively Significant and Unavoidable)

Plan Area development would result in an increase in criteria air pollutant and precursor emissions, including ROG, NO_x, PM₁₀ and PM_{2.5} from a variety of emissions sources, including onsite area sources (e.g., natural gas combustion for space and water heating, landscape maintenance, use of consumer products such as hairsprays, deodorants, cleaning products, etc.) and mobile on-road sources. Exhaust emissions from on-road vehicle traffic associated with adoption and development under the Specific Plan were calculated by using the CalEEMod land use emissions model program.

The transportation analysis estimates that adoption and development under the Specific Plan would result in approximately 40,302 net new vehicle trips per day after accounting for use of transit, bicycling, walking and internal trip capture (a 34 percent reduction).

Table 4.2-6 summarizes daily mobile and onsite area emissions of criteria pollutants that would be generated by adoption and development under the Specific Plan by 2035 assuming vehicle trip generation from full buildout of the Broadway Valdez Development Program. It compares these

emissions with City of Oakland significance thresholds. As indicated in Table 4.2-6, development-related operational emissions of ROG, NO_x, and PM₁₀ would exceed the significance thresholds.

**TABLE 4.2-6
AVERAGE DAILY OPERATIONAL EMISSIONS**

	Average Daily Operational Emissions (lb/day)			
	ROG	NO _x	PM ₁₀	PM _{2.5}
Area Sources	105.53	1.72	1.64	1.63
Energy Sources	1.44	12.74	0.99	0.99
Mobile Sources	73.72	182.06	250.69	11.70
Total Emissions	180.69	196.52	253.32	14.32
Threshold	54	54	82	54
Exceeds Threshold?	Yes	Yes	Yes	No

SOURCE: ESA, 2013

Table 4.2-7 summarizes Broadway Valdez Development Program-generated daily maximum annual mobile and onsite area emissions of criteria pollutants in 2035. As indicated in Table 4.2-7, Plan Area development-related operational emissions of ROG, NO_x, and PM₁₀, would exceed the City of Oakland significance thresholds.

**TABLE 4.2-7
MAXIMUM ANNUAL OPERATIONAL EMISSIONS**

	Maximum Annual Operational Emissions (ton/year)			
	ROG	NO _x	PM ₁₀	PM _{2.5}
Area Sources	18.66	0.15	0.10	0.10
Energy Sources	0.26	2.32	0.18	0.18
Mobile Sources	12.43	33.42	36.85	2.12
Total Emissions	31.35	35.89	37.13	2.40
Threshold	10	10	15	10
Exceeds Threshold?	Yes	Yes	Yes	No

SOURCE: ESA, 2013

Under SCA 25, a Transportation Demand Management (TDM) program would be developed and implemented for individual project generating 50 or more a.m. or p.m. peak trips to reduce use of single-occupant vehicles and to increase the use of rideshare, transit, bicycle and walk modes for trips to and from, as well as within the Plan Area (see Section 4.13, *Transportation and Circulation*). Due to uncertainty pertaining to quantifying the effectiveness of implementing TDM strategies, the travel demand analysis used as a basis for calculating vehicle emissions does not assume additional trip reduction due to specific TDM strategies beyond those associated with internal, pass-by, and diverted linked trips. Therefore the analysis is conservative as further reductions through implementation of SCA 25 may occur. Further, to implement SCA 25, the following additional measures are recommended:

Recommended Measure AIR-2: The following measures identified in the 2012 BAAQMD CEQA Guidelines for specific development projects in excess of 50,000 square feet or 325 dwelling units are recommended to be considered and if determined feasible, implemented for those projects:

- Establish a dedicated employee transportation coordinator for each specific development as a condition of occupancy permit/tenancy contract;
- Increase building energy efficiency by 20 percent beyond 2008 Title 24 (reduces NO_x related to natural gas combustion);
- Require use of electrically powered landscape equipment;
- Require only natural gas hearths in residential units as a condition of final building permit;
- Use low VOC architectural coatings in maintaining buildings;
- Require smart meters and programmable thermostats; and
- Install solar water heaters for all uses.

Conclusion: Trip generation estimates for adoption and development under the Specific Plan used in this analysis included adjustments for development scale, density, and diversity of uses, as well as a robust number of alternative transportation trips (walk, bike, and transit) and carpooling. Therefore, many key elements of alternative mode strategies have been incorporated into the trip generation assumptions.

SCA 25 including Recommended Measure AIR-2 would not result in the 60 to 68 percent reductions necessary (for PM₁₀) or 46 to 73 percent (for ROG and NO_x) to reduce the impact to a less-than-significant level as that amount of traffic reduction exceeds the best reduction estimates for TDM and other programs and measures (BAAQMD, 2012b). Consequently, adoption and development under the Specific Plan still would result in significant environmental effects on air quality and contribute substantially to an existing air quality violation (ozone precursors and particulate matter), even with implementation of SCA 25 and Recommended Measure AIR-2. Therefore, this impact would remain significant and unavoidable for emissions of ROG NO_x, and PM₁₀.

Significance: Conservatively Significant and Unavoidable.

Impact AIR-3: Adoption and development under the Specific Plan would not contribute to carbon monoxide (CO) concentrations exceeding the California Ambient Air Quality Standards (CAAQS) of nine parts per million (ppm) averaged over eight hours and 20 ppm for one hour (Criterion 3). (Less than Significant)

Pursuant to BAAQMD CEQA Guidelines, localized CO concentrations should be estimated for projects in which (a) project-generated traffic would conflict with an applicable congestion management program established by the county congestion management agency or (b) project-generated traffic would increase traffic volumes at affected intersections to more than 44,000

vehicles per hour (or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited, such as tunnels, parking garages, bridge underpasses, natural or urban street canyons, and below-grade roadways). In Oakland, only the MacArthur Maze portion of Interstate 580 exceeds the 44,000 vehicles per hour screening criteria, which is over 2 miles west of the Plan Area. Further, ambient CO standards have not been exceeded in the Bay Area for over a decade, largely due to reformulated fuels in California. Therefore, adoption and development under the Specific Plan would not be required to estimate localized CO concentrations as it would not contribute to CO concentrations exceeding CAAQS. The impact would be less than significant.

Mitigation: None Required.

Impact AIR-4: Adoption and development under the Specific Plan could generate substantial levels of Toxic Air Contaminants (TACs) resulting in (a) a cancer risk level greater than 10 in one million, (b) a non-cancer risk (chronic or acute) hazard index greater than 1.0, or (c) an increase of annual average PM_{2.5} concentration of greater than 0.3 micrograms per cubic meter or, under cumulative conditions, resulting in (a) a cancer risk level greater than 100 in a million, (b) a non-cancer risk (chronic or acute) hazard index greater than 10.0, or (c) annual average PM_{2.5} of greater than 0.8 micrograms per cubic meter as a result of construction activities or project operations (Criterion 4). (Conservatively Significant and Unavoidable)

Pursuant to the BAAQMD CEQA Guidelines, when siting new TAC sources, receptors located within 1,000 feet of new sources or construction activities should be considered.

Construction Source Impacts on New and Existing Receptors

Project construction activities would produce DPM and PM_{2.5} emissions due to exhaust emissions from equipment such as loaders, backhoes, and cranes, as well as haul truck trips. These emissions could result in elevated concentrations of DPM and PM_{2.5} at nearby receptors (both new and existing residences). These elevated concentrations could lead to an increase in the risk of cancer or other health impacts. Due to the variable nature of construction activity, the generation of TAC emissions in most cases would be temporary, especially considering the short amount of time such equipment is typically within an influential distance that would result in the exposure of sensitive receptors to substantial concentrations.

Concentrations of mobile-source DPM emissions are typically reduced by 70 percent at a distance of approximately 500 feet (CARB, 2005). In addition, current models and methodologies for conducting health risk assessments are associated with longer-term exposure periods of 9, 40, and 70 years, which do not correlate well with the temporary and highly variable nature of construction activities. This results in difficulties with producing accurate estimates of increased health risk. The specificity of detail necessary to conduct a health risk assessment is not available at the Specific Plan stage. Notwithstanding this lack of detail, SCA A would implement all construction-related Best Management Practices and mitigation measures identified by the BAAQMD in its 2012 guidance.

Operational Impacts from New Sources Resulting from Adoption and Development Under the Specific Plan on New or Existing Receptors

Adoption and development under the Specific Plan includes a variety of land use types including residential, office, and retail uses. While there are no specific stationary sources of air pollution proposed, as a practical matter, California building code requires back-up diesel generators for all buildings in excess of 70 feet in height for elevator safety. As indicated in Figure 3-11 (see Chapter 3, *Project Description*), buildings in excess of this height would be accommodated in the southernmost and northernmost portions of the Plan Area. Operators of back-up diesel generators would be required to obtain a permit and an Authority to Construct from the BAAQMD who would evaluate emissions based on size and require Best Available Control Technology, if warranted. Per its Policy and Procedure Manual, the BAAQMD would deny an Authority to Construct or a Permit to Operate for any new or modified source of TACs that exceeds a cancer risk of 10 in one million or a chronic or acute hazard index of 1.0.

Notwithstanding the permit restrictions of the BAAQMD, the potential exists for multiple new towers to be developed within a single concentrated portion of the Plan Area. Given the existing elevated cancer risk contributions from existing localized sources in some portion of the Plan Area (see Impact AIR-5), the potential exists for multiple new sources, each with a cancer risk less than 10 in one million, to cumulatively increase cancer risks to greater than 100 in one million. While SCA B would be implemented for new residential development within the Plan Area that could be exposed to locally generated risks greater than 100 in a million, this SCA does not apply to projects with new sources that could impact existing receptors. Therefore, new project sources could result in a significant cumulative risk generation impact.

Mitigation Measure AIR-4: Risk Reduction Plan

Applicants for projects that would include backup generators shall prepare and submit to the City, a Risk Reduction Plan for City review and approval. The applicant shall implement the approved plan. This Plan shall reduce cumulative localized cancer risks to the maximum feasible extent. The Risk Reduction Plan may contain, but is not limited to the following strategies:

- Demonstration using screening analysis or a health risk assessment that project sources, when combined with local cancer risks from cumulative sources with 1,000 feet would be less than 100 in one million.
- Installation of non-diesel fueled generators.
- Installation of diesel generators with an EPA-certified Tier 4 engine or Engines that are retrofitted with an ARB Level 3 Verified Diesel Emissions Control Strategy.

Significance after Mitigation: Conservatively Significant and Unavoidable

Clean diesel generators and other strategies of the Risk Reduction Plan would substantially reduce potential cancer risks associated with DPM. While the residual risk for a given generator would be less than 10 in one million, the degree to which multiple sources, if concentrated on one area would maintain cumulative risks to below 100 in one million cannot be assured. While SCA B would apply to new residential development, the impacts

to existing receptors could potentially remain and with no options other than controlling the source or mitigating the receptor, this impact is conservatively identified as significant and unavoidable.

Impact AIR-5: Adoption and development under the Specific Plan would not expose sensitive receptors to substantial levels of Toxic Air Contaminants (TACs) resulting in (a) a cancer risk level greater than 100 in one million, (b) a non-cancer risk (chronic or acute) hazard index greater than 10.0, or (c) an increase of annual average PM_{2.5} concentration of greater than 0.8 micrograms per cubic meter by siting a new sensitive receptor (Criterion 5). (Less than Significant)

When siting new sensitive receptors, existing TAC sources located within 1,000 feet including, but not limited to, stationary sources, freeways, major roadways (10,000 or greater vehicles per day), truck distribution centers, ports, and rail lines, should be considered. For this threshold, sensitive receptors (new under the Specific Plan or existing) include residential uses, schools, parks, daycare centers, nursing homes, and medical centers.

Operational Impacts of Existing Sources on New Receptors in the Plan Area

As stated above, CEQA requires the analysis of potential adverse effects of a project on the environment. Potential effects of the environment on a project are legally not required to be analyzed or mitigated under CEQA. However, this EIR nevertheless analyzes potential effects of “the environment on the project” (i.e. siting new receptors near existing TAC sources) in order to provide information to the public and decision-makers. Where a potential significant effect of the environment on the project is identified, the document, as appropriate, identifies City Standard Conditions of Approval and/or project-specific non-CEQA recommendations to address these issues.

There are a number of TAC sources both within and surrounding the Plan Area. In the Valdez subarea, these sources would not contribute substantially to risk levels approaching the cumulative thresholds. There are five stationary sources along Grand Avenue and roadway sources from traffic along Grand Avenue and Broadway. Here, the worst case cumulative exposure would be at 111 Grand Avenue where cumulative risk would be 84.27 in one million considering stationary and roadway sources combined. Cumulative PM_{2.5} concentration contributions would be 0.376 microgram per cubic meter. The cumulative hazard index at this worst case location in the Valdez subarea would be 0.047. Consequently cumulative exposure risks and hazards within the Valdez subarea would be less than significant.

In the North End subarea there are two sources that, according to the BAAQMD’s intentionally conservative estimates, each individually would exceed the 100 in one million cancer risk cumulative threshold within portions of the Plan Area and thus call for refined modeling analysis. The sources are Plants 7780 and 7781 operated by Alta Bates Summit Medical Center and include a total of eight diesel generators. Refined modeling analysis revealed DPM concentrations equal 0.00252 micrograms per cubic meter for an annual average, which results in a cancer health risk increase of approximately 1.5 in one million (see Appendix E). This refined

analysis risk level along with the BAAQMD's conservatively estimated risk levels for non-DPM sources (Gaseous TACs) are presented in **Table 4.2-8**. When combined, the total worst case stationary source cancer risk within the North End subarea, equals approximately 12.1 in one million. Also, when combined with the worst case health risk from I-580, as conservatively estimated by the BAAQMD, the cumulative cancer risk level in the

**TABLE 4.2-8
CUMULATIVE CANCER RISK LEVELS FROM
REFINED MODELING AND SCREENING-LEVEL DATA**

Source	Cancer Risk Level
Plant 7780 and 7781 Refined Modeled DPM Risk	1.5 per million
Plant 7780 and 7781 BAAQMD's Screening Risk non-DPM	10.6 per million
<i>Subtotal</i>	<i>12.1 per million</i>
I-580 – Worst Case @ 10 ft. distance and 6 ft. in height	73.1 per million
Cumulative Development within 1,000 feet of Plan Area	5.6 per million
Grand Total	90.8 per million
SOURCE: ESA, 2013.	

North End subarea, and within the Plan Area, reaches approximately 85.2 in one million. Although refined modeling was conducted for stationary source DPM concentrations, the non-DPM and mobile source cancer risk contribution to the estimated 85.2 in one million cancer risk increase is derived from the BAAQMD's screening tools and thus are intentionally conservative. Regardless, the worst case cumulative cancer risk increase of 85.2 in one million is still under the cumulative threshold of 100 in one million.

Additionally, there are eight future or foreseeable projects on the City's list of major projects (see Appendix B) that could be constructed within 1,000 feet of the Plan Area. Five of these projects are residential projects with ground floor commercial uses and would not be expected to be sources of TACs or non-roadway PM_{2.5}. The other three cumulative projects include Alta Bates Medical Center, Kaiser Permanente Hospital at Broadway and MacArthur Boulevard, and Kaiser Center at 300 Lakeside Drive. Air quality analysis conducted for Alta Bates project indicates an additional cancer risk contribution of 4.0 in one million (ESA, 2009). Air quality analysis conducted for Kaiser Permanente Medical Center project indicates an additional cancer risk contribution of 1.6 in one million (ESA, 2006). Air quality analysis conducted for Kaiser Center project indicates that no new stationary sources would be constructed (ESA, 2010). The addition of these cumulative project risks to those calculated above results in the worst case cumulative cancer risk increase of 90.8 in one million which is still under the cumulative threshold of 100 in one million.

As stated in Impact AIR-4, California building code requires back-up diesel generators for all buildings in excess of 70 feet and buildings in excess of this height would be accommodated in the southernmost and northernmost portions of the Plan Area. Notwithstanding the permit

restrictions of the BAAQMD, the potential exists for multiple new towers to be developed within a single concentrated portion of the Plan Area. Given the existing elevated cancer risk contributions from existing localized sources in some portions of the Plan Area, the potential exists for multiple new sources, each with a cancer risk less than 10 in one million, to cumulatively increase localized cancer risks to greater than 100 in one million. If this condition were to occur, SCA B would be implemented to reduce exposure to new sensitive receptors through installation of filtration systems, as necessary.

The combination of screening-level analysis and refined modeling analysis for TAC concentrations reveals that adoption and development under the Specific Plan with SCA B addressing the potential for siting new sensitive receptors within any portion of the Plan Area, would not result in exposure to substantial levels of TACs resulting in (a) a cumulative cancer risk level greater than 100 in a million, (b) a cumulative non-cancer risk (chronic or acute) hazard index greater than 10.0, or (c) annual average PM_{2.5} concentration contributions of greater than 0.8 micrograms per cubic meter and the impact is less-than-significant.

Mitigation: None Required.

Impact AIR-6: Adoption and development under the Specific Plan would not frequently and for a substantial duration, create or expose sensitive receptors to substantial objectionable odors affecting a substantial number of people (Criterion 6). (Less than Significant)

The BAAQMD 2012 Guidelines identify wastewater treatment plants, oil refineries, asphalt plants, chemical manufacturing, painting/coating operations, coffee roasters, food processing facilities, recycling operations and metal smelters as odor sources of particular concern, and recommends buffer zones of one to two miles around them to avoid potential odor conflicts. All of these odor sources are present within the City of Oakland. However, odor is a subjective impact and perception of odor can vary depending on receptor sensitivity, climate, wind patterns, topography.

In accordance with the recommendations in the BAAQMD Guidelines, the City of Oakland created a map of known odor sources including: food processing facilities; coffee roasters; chemical manufacturers; asphalt batch plants; and the EBMUD wastewater treatment facility (see Figure 4.2-1) (City of Oakland, 2010). This map presents a reasonable estimation of all the odor sources of concern within the City of Oakland, based upon City's business tax records of the industry categories identified by the BAAQMD. In addition, buffer zones were drawn around the identified sites, based on the aforementioned BAAQMD criteria. There are two chemical plants, located at 1700 6th Street and 1696 West Grand Avenue, whose 2-mile buffer radius overlap the eastern and western portions of the Plan Area. The 2-mile odor buffer areas are considered a maximum screening distance for odor impacts from a particular source. All odor impacts from the source would be expected to occur within these buffers, but the actual area of impact within the buffer is dependent on certain factors including source type, frequency of odor generation, intensity of odor, wind direction, and sensitivity of the receptors.

BAAQMD was contacted regarding the odor history of these two facilities. No odor complaints have been filed for the past 3 years (Rochelle, 2013). Northwest winds occur 46 percent of the time in the Oakland area. Given the location of the Specific Plan Area relative to the sources and wind direction as well as the 1.5 mile distance of these two sources from the Specific Plan Area, the potential for new sensitive receptors within the Plan Area to be impacted by substantial objectionable odors affecting a substantial number of people would be less than significant.

Mitigation: None Required.

Plan-Level Impacts

Impact AIR-7: Adoption and development under the Specific Plan would be consistent with the primary goals of the Bay Area Clean Air Plan (CAP) and would not fundamentally conflict with the CAP because the Specific Plan demonstrates reasonable efforts to implement control measures contained in the CAP (Criterion 7). (Less than Significant)

The 1988 California Clean Air Act, Section 40919(d) requires regions to implement “transportation control measures to substantially reduce the rate of increase in passenger vehicle trips and miles traveled.” Consistent with this requirement, one of the goals of the 2010 CAP is to reduce the number of trips and vehicle miles Bay Area residents travel in single-occupant vehicles through the implementation of five categories of transportation control measures (TCMs).

Key Goals of the proposed Specific Plan that address reduced trip generation and are consistent with the goals of the CAP include:

- An attractive, regional destination for retailers, shoppers, employers and visitors that serves in part the region’s shopping needs and captures sales tax revenue for reinvestment in Oakland.
- A “complete” mixed-use neighborhood that is economically and socially sustainable—providing quality jobs, diverse housing opportunities, and a complementary mix of retail, dining, entertainment, and medical uses.
- New uses and development that enhance the Plan Area’s social and economic vitality by building upon the area’s existing strengths and successes, and revitalizing and redeveloping underutilized, outdated, and/or nuisance uses or properties.
- A compact neighborhood that is well-served by an enhanced and efficient transit system.
- Quality pedestrian facilities and amenities that create a safe and aesthetically pleasing environment that supports increased pedestrian activity.
- A balanced and complete circulation network of “complete streets” that accommodates the internal and external transportation needs of the Plan Area by promoting walking, biking, and transit while continuing to serve automobile traffic.

- Carefully managed parking that addresses retail needs while not undermining walking, bicycling and public transit as preferred modes of transportation.
- A multi-pronged approach to sustainability that integrates land use, mobility, and design strategies to minimize environmental impact, reduce resource consumption, and prolong economic and social cohesiveness and viability.

The Plan Area's infill location and proximity to transit reduces the distance that customers would drive in motor vehicles to shop by providing increased retail opportunities within the Plan Area. Also, the Plan Area is located in direct proximity to the nearby employment hubs. Taken together, these locational characteristics of the Specific Plan Area help reduce the potential motor vehicle trips. The Plan Area is also located within a priority development area with respect to the Sustainable Communities plan developed for the Bay Area pursuant to SB 375 which has been implemented to reduce emissions through the planning process.

Table 4.2-9 identifies those five categories of TCMs that local governments should implement through local plans to be considered in conformance with the 2010 CAP. A review of the TCM's in Table 4.2-9 indicates that these measures lend themselves to application to large scale land use development projects and would be addressed by City of Oakland SCA 25, *Parking and Transportation Demand Management*, which would apply to development projects under the Specific Plan generating 50 or more net new AM or PM peak hour vehicle trips.

**TABLE 4.2-9
TRANSPORTATION CONTROL MEASURES IN THE 2010 CLEAN AIR PLAN**

1. Improve Transit Services (TCM A)
2. Improve System Efficiency (TCM B)
3. Encourage Sustainable Travel Behavior (i.e., voluntary employer-based trip reduction program)(TCM C)
4. Support Focused Growth (Bicycle and Pedestrian friendliness) (TCM D)
5. Implement Pricing Strategies (TCM E)
SOURCE: BAAQMD, 2010.

Specifically, SCA 25 would require an applicant for such projects to submit for review and approval by the Planning and Zoning Division a Transportation Demand Management (TDM) plan containing strategies to reduce vehicle traffic and parking demand generated by the project to the maximum extent practicable. The applicant shall implement the approved TDM plan. The TDM plan shall include strategies to increase bicycle, pedestrian, transit, and carpools/vanpool use and reduce parking demand. All four primary modes of travel shall be considered, as appropriate. Strategies to consider include the following:

- a. Inclusion of additional bicycle parking, shower, and locker facilities that exceed the requirement.
- b. Construction of and/or access to bikeways per the Bicycle Master Plan; Priority Bikeway Projects, and on-site signage and bikelane striping.

- c. Installation of safety elements per the Pedestrian Master Plan (such as cross walk striping, curb ramps, count-down signals, bulb outs, etc.) to encourage convenient crossing at arterials.
- d. Installation of amenities such as lighting, street trees, trash receptacles per the Pedestrian Master Plan and any applicable streetscape plan.
- e. Construction and development of transit stops/shelters, pedestrian access, way finding signage, and lighting around transit stops per transit agency plans or negotiated improvements
- f. Direct on-site sales of transit passes purchased and sold at a bulk group rate
- g. Provision of a transit subsidy to employees or residents, determined by the project applicant and subject to review by the City, if the employees or residents use transit or commute by other alternative modes.
- h. Provision of an ongoing contribution to AC Transit service to the area between the development and nearest mass transit station.
- i. Guaranteed ride home program for employees, either through 511.org or through a separate program.
- j. Pre-tax commuter benefits (commuter checks) for employees.
- k. Free designated parking spaces for on-site car-sharing program (such as City Car Share, Zip Car, etc.) and/or car-share membership for employees or tenants.
- l. On-site carpooling and/or vanpool program that includes preferential (discounted or free) parking for carpools and vanpools.
- m. Distribution of information concerning alternative transportation options.
- n. Parking spaces sold/leased separately for residential units. Charge employees for parking, or provide a cash incentive or transit pass alternative to a free parking space in commercial properties.
- o. Parking management strategies including attendant/valet parking and shared parking spaces.
- p. Requiring tenants to provide opportunities and the ability to work off-site.
- q. Allow employees or residents to adjust their work schedule in order to complete the basic work requirement of five, eight-hour workdays by adjusting their schedule to reduce vehicle trips to the worksite (e.g., working four, ten-hour days; allowing employees to work from home two days per week).
- r. Provide or require tenants to provide employees with staggered work hours involving a shift in the set work hours of all employees at the workplace or flexible work hours involving individually determined work hours.

Because the requirements of SCA 25 would implement transportation control measures consistent with the 2010 CAP, adoption and development under the Specific Plan would not be considered to fundamentally conflict with the 2010 CAP and would be considered to have a less-than-significant air quality impact with regard to TCM implementation.

Mitigation: None Required.

Impact AIR-8: Adoption and development under the Specific Plan would include special overlay zones containing goals, policies, and objectives to minimize potential Toxic Air Contaminant (TAC) impacts in areas located (a) near existing and planned sources of TACs and (b) within 500 feet of freeways and high-volume roadways containing 100,000 or more average daily vehicle trips (Criterion 8). (Less than Significant)

In some cases, CARB makes recommendations for specific buffer zones around certain types of TAC emitters of particular concern, as is the case for dry cleaners (500 feet) and chrome platers (1,000 feet). The BAAQMD Guidelines recommend special overlay zones containing goals, policies, and objectives to minimize potential TAC impacts in areas located within 1,000 feet of existing and planned TAC sources. As discussed in Impact AIR-5, residential development areas within the Plan Area are within areas of concern from the TAC emissions from one or more of the stationary TAC sources as well as from high volumes of vehicle traffic on I-580. While high-volume roadways exist throughout the Plan Area, data from the transportation analysis indicates that none of the other major roadways in the area have volumes approaching 100,000 vehicles per day either existing or under cumulative conditions. Also, no rail yards, trucking distribution facilities or major port activities—major TAC emission sources that exist primarily in other areas of the City—are located in proximity to the Plan Area.

The City's SCA B, *Exposure to Air Pollution (Toxic Air Contaminants)*, would apply to residential development located near sources of PM_{2.5} and DPM and within 1,000 feet of stationary and mobile sources of TACs. In accordance with the BAAQMD Guidelines, when a residential development project is proposed within 1,000 feet of a stationary TAC source, the potential health risk to the project residents would be evaluated using the BAAQMD's recommended screening criteria. If the project were to exceed the screening criteria a project-specific HRA would be prepared to quantify the project-specific health risk; this requirement is incorporated in SCA B. Adoption and development under the Specific Plan would be required to implement any project-specific recommendations to reduce the potential health risk.

Recommendations may include having the future project applicant install, operate and maintain a central heating and ventilation (HV) system or other air take system in the building or in each individual residential unit, that meets or exceeds an efficiency standard of MERV 13; using HEPA filters; or using ASHRAE 85% supply filters. Therefore, SCA B functions as an overlay zone with specific requirements to reduce exposure to TACs and reduce related TAC impacts. Because SCA B would be incorporated as part of the Specific Plan, adopted as a condition of approval, and required, as applicable, of the development under the Specific Plan, the impact would be less-than-significant.

Mitigation: None Required.

Impact AIR-9: Adoption and development under the Specific Plan would not identify existing and planned sources of odors with policies to reduce potential odor impacts (Criterion 9). (Less than Significant)

There are no sources of odor identified by the City's database of potential odor generating facilities sources within the Plan Area. Potential sources of odor near the Plan Area are addressed in Impact AIR-6. As discussed in Impact AIR-6, the potential for sensitive receptors within the Plan Area to be impacted by substantial objectionable odors affecting a substantial number of people would be less than significant.

Mitigation: None Required.

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4.3 Biological Resources

This section identifies the existing biological resources within the Specific Plan Area and analyzes how the adoption and development under the Specific Plan may affect those resources. This section describes the environmental and regulatory setting relevant to biological resources in the Plan Area including the federal, state, and local regulations pertaining to biological resources within the region. Potential impacts are discussed and evaluated, and appropriate mitigation measures or Standard Conditions of Approval (SCA) are identified, as necessary.

4.3.1 Environmental Setting

Regional Setting

The Plan Area is located in the Bay Area-Delta Bioregion, as defined by the State's Natural Communities Conservation Program. This designation identifies the broader ecosystem in which the Plan Area resides. This bioregion extends from the Sacramento and San Joaquin Bioregions to the Pacific Coast (CERES, 2013). The climate is Mediterranean with relatively mild, wet winters and warm, dry summers.

Project Setting

As noted above, the Plan Area is located in a heavily trafficked area with Oakland's Uptown District to the south, Kaiser Permanente to the north, Lake Merritt to the southeast, and the 25th Street Garage District to the west. The Plan Area includes a combination of commercial, (highlighting the presence of the auto industry), mixed-use development, residential, and roadways. Due to the urban nature of the 95 acre Plan Area, there is a lack of suitable habitat in this area. Over the years, natural habitats that once occurred in the Plan Area have since shifted towards nearby settings, such as the waterfront along the East Bay shoreline and Lake Merritt. The natural landscape prior to the influx of urban development included a mix of coastal prairie, coastal scrub, and riparian habitats. Biological surveys for this analysis included areas within and adjacent to the Plan Area that would be directly and indirectly impacted by the adoption and development under the Specific Plan.

Habitat Types within the Plan Area

Urban

The Plan Area is urban, saturated with a built environment allowing for no naturally occurring biological communities to currently exist. Features of this setting are made up of structures, roadways, concrete, and asphalt that do not encourage flora or fauna to flourish. Exceptions include, weedy plants adapted to harsh conditions, as well as formalized plantings incorporated by city and community organizations. Urban wildlife species in the Oakland area include: common raven (*Corvus corax*), crow (*Corvus corone*), northern mockingbird (*Mimus polyglottos*), raccoon (*Procyon lotor*), Norway rat (*Rattus norvegicus*), and Virginia opossum (*Didelphis virginiana*), and white-tailed deer (*Odocoileus virginianus*). On occasion, the following may occur: red-tailed hawks

(*Buteo jamaicensis*), Cooper's hawks (*Accipiter cooperi*) and peregrine falcons (*Falco peregrines anatum*) as they all prey on rodents and/or birds found in urban areas. For example, peregrine falcons have been observed roosting on Oakland City Hall and the California State Building and just outside the Plan Area boundary on the Kaiser Center building (Lowe, 2010; Nevill, 2007). Although this species is known to use tall buildings and bridges in highly urbanized areas for nesting, there are no known peregrine nesting sites in the Specific Plan Area (CDFW, 2013).

Creeks and Riparian

Glen Echo Creek, a channelized stream with mature riparian trees and vegetated banks, runs north to south along the eastern boundary of the Plan Area between 28th and 30th Streets, as well as beneath the Plan Area. North of the intersection of Richmond Boulevard (and Randwick Avenue), the creek is the central feature of Oak Glen Park, which includes a significant stand of native oaks. North of 29th Street, Glen Echo Creek is daylighted, while south of 29th Street, the creek flows into a subterranean culvert until it reaches Adams Park, where the stream daylights for a short distance before flowing under Grand Avenue and into Lake Merritt.

The creek does not support a native fishery, and impediments to fish passage and wildlife movement make the creek an unlikely location for aquatic resources. However, species found within the Glen Echo Creek watershed, which includes Lake Merritt, are goldfish (*Carassius auratus*), western mosquitofish (*Gambusia affinis*), and three-spine stickleback (*Gasterosteus aculeatus*) (Leidy, 2007).

The riparian areas of the creek, including trees, shrubs, and groundcover, act as suitable wildlife habitat and protection from humans and predators. Glen Echo Creek, designated by the City of Oakland as 'Zone 12 Line B' (PANIL, 2008), merges with Rockridge Creek south of the Plan Area, eventually draining into Lake Merritt.

Landscaped

Habitat provided by a small amount of landscaped areas, occurs sporadically within the Plan Area. These areas can typically provide cover, foraging, and nesting habitat for a variety of bird species, especially those that are tolerant of disturbance and human presence. The roadway triangle along 26th and 27th Avenues and the densely vegetated parcel of land near Webster and 34th south of the I-580 Highway are examples of landscaped areas found within the Plan Area. The Plan Area is near Mosswood Park to the north, however I-580 acts as a deterrent to migration between the two areas. Oak Glen Park and Adams Park are outside of the Plan Area, but are in the vicinity providing suitable habitat for urbanized animals.

Birds found in these areas include the non-native English sparrow (*Passer domesticus*), house finch (*Carpodacus mexicanus*), dark-eyes junco (*Junco hyemalis*), western scrub jay (*Aphelocoma californica*), and Anna's hummingbird (*Calypte anna*).

Sensitive Natural Communities

Sensitive natural communities are designated as such by various resource agencies, such as California Department of Fish and Wildlife (CDFW), or in local policies and regulation. These

communities are generally considered to have important functions or values for wildlife and/or are recognized as declining in extent or distribution and are considered threatened enough to warrant some sort of protection. The California Natural Diversity database (CNDDB) tracks communities it believes to be in need of conservation and these communities are typically considered sensitive for the purposes of CEQA analysis. A CNDDB search of the Plan Area flora and fauna, within the U.S. Geological Survey 7.5-minute topographic quadrangles surrounding Oakland West's Quadrangle, was performed in preparation of this Draft EIR and the results can be found in Appendix F. However, no sensitive natural communities were found within the Plan Area (CDFW, 2013).

Jurisdictional Waters and Wetlands

No formal wetland delineation of the Plan Area has been conducted, and no obvious wetlands or open water habitats are present within the Plan Area.

Special-status Species

Special-status species are protected pursuant to federal and/or State of California endangered species laws, or have been designated Species of Special Concern by CDFW. In addition, Section 15380(b) of the California Environmental Quality Act (CEQA) Guidelines provides a definition (AEP, 2011) of rare, endangered or threatened species that are not included in any listing. For purposes of this Draft EIR, special-status species are defined as:

- Plant and wildlife species listed as rare, threatened or endangered under the federal or state endangered species acts;
- Species that are candidates for listing under either federal or state law;
- Species formerly designated by the USFWS as Species of Concern or designated by CDFW as Species of Special Concern;
- Species protected by the federal Migratory Bird Treaty Act (16 U.S.C. 703-711); and/or
- Species such as candidate species that may be considered rare or endangered pursuant to
- Section 15380(b) of the CEQA Guidelines.

Few species within the Plan Area meet the above criteria, therefore do not remain a concern regarding potential impacts from adoption and development under the Specific Plan.

Appendix F provides a comprehensive list of the special-status species that have been documented from, or have potential to occur in, suitable habitat within or near the Plan Area. These lists include occurrences documented by the CNDDB (CDFW, 2013), the CNPS Electronic Inventory (CNPS, 2013), and the USFWS database (USFWS, 2013). Based on review of the biological literature of the region, information presented in previous environmental documentation, and an evaluation of the habitat conditions of the Plan Area, most of these species were eliminated from further evaluation because (1) the Plan Area does not and/or never has provided suitable habitat for the species, or (2) the known range for a particular species is outside of the Plan Area.

The remaining special-status species presented in **Table 4.3-1** include those that are documented as occurring within the Plan Area or for which potential habitat (i.e., general habitat types) could occur within the Plan Area. Species for which generally suitable habitat occurs but that were nonetheless determined to have low potential to occur in the Plan Area are also listed in Table 4.3-1. This table also provides the rationale for each potential-to-occur determination. Species observed with a moderate to high potential to occur in the Plan Area are discussed in further detail below.

Special-Status Animals

Twelve special-status wildlife species were identified in Table 4.3-1 as having potential for occurrence within the Plan Area. Please refer to Table 4.3-1 for a summary of each species' habitat preferences and the rationale for determinations with regard to potential for occurrence within the Plan Area. These species, therefore, are evaluated in the impact analysis:

- Peregrine falcon
- Cooper's hawk
- Red-shouldered hawk
- Red-tailed hawk
- Pallid bat
- Silver-haired bat
- Hoary bat
- Big free-tailed bat

These species are described in further detail below.

Mammals

Peregrine falcon (*Falco peregrinus anatum*). The peregrine falcon is a federal and State-Delisted Endangered Species¹ and a California Fully Protected Species. It is known throughout California and is a year-around resident along the Pacific coast. The peregrine is a specialist, preying primarily on mid-sized birds, such as pigeons and doves, in flight. Occasionally these birds will take insects and bats. Although typical nesting sites for the species are tall cliffs, preferably over or near water, peregrines are also known to use urban sites, including the Bay Bridge and tall buildings in San Francisco and San Jose (Peeters, 2005). Nesting peregrines were also recently documented from the Fruitvale Avenue Bridge on the Oakland-Alameda border, approximately 3.5 miles southeast of the Plan Area; one breeding pair was observed at this site in 2010 (Nevill, 2010). No peregrine nesting sites are documented in downtown Oakland but the species has been observed perching and roosting on several buildings in downtown Oakland including Kaiser Center, Oakland City Hall, and the California State building (Lowe, 2010; Nevill, 2007). Many of the tall buildings and structures within the Plan Area provide potential nesting habitat for this species. The abundance of prey and suitable perching habitat provide highly suitable habitat for peregrine falcons.

¹ The peregrine falcon was listed as federally endangered on June 2, 1970, and then federally delisted on August 25, 1999. This species was also listed as state endangered on June 27, 1971, and then state delisted on November 4, 2009.

**TABLE 4.3-1
SPECIAL-STATUS SPECIES CONSIDERED**

Common Name <i>Scientific Name</i>	Listing Status USFWS/ CDFW/CNPS	General Habitat	Potential for Occurrence in Plan Area
Species Listed and Proposed for Listing			
ANIMALS			
Birds			
Peregrine falcon <i>Falco peregrinus anatum</i>	Delisted FE/ Delisted CE/ Fully Protected	Nests on ledges on cliffs, bridges, and tall buildings. In SF Bay area the species is known to nest on the Bay Bridge and buildings in San Francisco and San Jose.	High. This species has been observed foraging and roosting at multiple sites within downtown Oakland (Lowe, 2010; Nevill, 2007; CDFW, 2013). However, there are no known nesting sites for this species in Oakland (CDFW, 2013). Few buildings within the Plan Area provide potentially suitable nesting habitat for this species.
Cooper's hawk <i>Accipiter cooperii</i>	--/CDFW WL	Commonly nests in conifers and riparian woodland but also known to nest in large trees in urban areas throughout the East Bay, especially near riparian corridors.	High. Known to nest within Lakeside Park, which is within vicinity of the Plan Area (CDFW, 2013). May forage or nest within the Plan Area.
Red-shouldered hawk <i>Buteo lineatus</i>	--/3503.5	Commonly nests in riparian corridors but becoming increasingly common in urban areas throughout the East Bay, nesting in large trees.	High. Fairly common locally in urban areas. May nest within wooded areas of Peralta Park or other parks south of the Plan Area.
Red-tailed hawk <i>Buteo jamaicensis</i>	--/3503.5	Nests in large oaks and conifers. The Bay Area's most common urban raptor.	High. Known to occur in downtown Oakland. May nest within tall trees in the various parks within the Plan Area.
Mammals			
Pallid bat <i>Antrozous pallidus</i>	FSC/CSC BLM Sensitive/ WBWG_H	Occurs in various habitats including grasslands, scrubs, woodlands, mixed conifer forests, but it is most common in open, dry habitats with rocky areas for roosting. Day roosts include hollow trees, buildings, caves, crevices, and mines.	Moderate to High. Suitable roosting habitat occurs within the parks within the Plan Area and foraging habitat is present over park turfgrass and Lake Merritt. May forage and roost near the Plan Area but not expected to breed there.
Silver-haired bat <i>Lasionycteris noctivagans</i>	FSC/ WBWG_M	Roost almost exclusively in trees – in natural hollows and bird excavated cavities or under loose bark of large diameter snags.	Moderate to High. Suitable roosting habitat occurs within the parks near the Plan Area and foraging habitat is present over park turfgrass and Lake Merritt. May forage and roost near the Plan Area but not expected to breed there.
Hoary bat <i>Lasiurus cinereus</i>	--/WBWG_M	Prefers open habitats or habitat mosaics, with trees for cover and open areas or habitat edges for feeding. Prefers to roost in dense foliage of medium to large trees.	Moderate to High. Suitable roosting habitat occurs within the parks within the Plan Area and foraging habitat is present over park turfgrass and Lake Merritt. May forage and roost near the Plan Area but not expected to breed there.

TABLE 4.3-1 (Continued)
SPECIAL-STATUS SPECIES CONSIDERED

Common Name <i>Scientific Name</i>	Listing Status USFWS/ CDFW/CNPS	General Habitat	Potential for Occurrence in Plan Area
Species Listed and Proposed for Listing			
ANIMALS			
Mammals (cont.)			
Big free-tailed bat <i>Nyctinomops macrotis</i>	--/CSC/ WBWG_M	Found in habitats such desert shrub, woodlands, and evergreen forests. Mostly roosts in cliff crevices, but documented in buildings, caves, and tree cavities.	Moderate to High. Suitable roosting habitat occurs within the parks near the Plan Area and foraging habitat is present over park turfgrass and Lake Merritt. May forage and roost near the Plan Area but not expected to breed there.

STATUS CODES:

FEDERAL: (U.S. Fish and Wildlife Service)

- FE = Listed as Endangered (in danger of extinction) by the Federal Government.
- FT = Listed as Threatened (likely to become Endangered within the foreseeable future) by the Federal Government.
- FP = Proposed for Listing as Endangered or Threatened.
- FC = Candidate to become a *proposed* species.
- FSC = former Federal Species of Concern. Species so designated as such were listed by the Sacramento FWS office until 2006 but Sacramento FWS no longer maintains this list. These species are still considered to be at-risk by other federal and state agencies, as well as various organizations with recognized expertise such as the Audubon Society.

STATE: (California Department of Fish and Wildlife)

- CE = Listed as Endangered by the State of California
- CT = Listed as Threatened by the State of California
- CSC = California Species of Special Concern
- 3503.5 = Protection for nesting species of Falconiformes (hawks) and Strigiformes (owls) under section 3503.5 CDFW code.
- Fully Protected = California Department of Fish and Wildlife Fully Protected Species
- CDFW WL = on CDFW watch list for "Taxa to Watch"

WBWB_M = on the Western Bat Working Group (WBWG) "Medium Priority" list. This designation, made by the WBWG, indicates a level of concern that should warrant closer evaluation, more research, and conservation actions of both the species and possible threats.

WBWB_H = on the Western Bat Working Group (WBWG) "High Priority" list. This designation, made by the WBWG, should result in these species being considered the highest priority for funding, planning, and conservation actions. These species are imperiled or are at high risk of imperilment.

Delisted = Species that were formally federally or state listed as endangered or threatened species.

SOURCES: CDFW, 2011; USFWS, 2013, WBWG 2013

Cooper's hawk (*Accipiter cooperi*). Cooper's hawks are protected under section 3503.5 of CDFW code (nesting Falconiformes). Cooper's hawk ranges over most of North America and may be seen throughout California, most commonly as a winter migrant. Nesting pairs have declined throughout the lower-elevation, more populated parts of the state. Cooper's hawk forages in open woodlands and wooded margins and nests in tall trees, often in riparian areas (Ehrlich et al., 1988; Sibley, 2001).

Red-tailed hawk (*Buteo jamaicensis*). Red-tailed hawks are protected under section 3503.5 of CDFW code (nesting Falconiformes). They are commonly found in woodlands and open country with scattered trees. These large hawks feed primarily on small mammals, but will also prey on other small vertebrates, such as snakes and lizards, as well as on small birds and invertebrates. Red-tailed hawks nest in a variety of trees in urban, woodland, and agricultural habitats. Large

trees located within parks such as Peralta Park potentially provide suitable nesting habitat for red-tailed hawks.

Red-shouldered hawk (*Buteo lineatus*). Red-shouldered hawks are protected under section 3503.5 of CDFW code (nesting Falconiformes). They are relatively common in both rural and urban situations and can be found in residential neighborhoods and along riparian corridors or other waterbodies. These hawks hunt primarily for mammals, reptiles, and amphibians (Sibley, 2000). Large trees near the Plan Area, particularly those within parks, provide potential nesting habitat for red-shouldered hawks.

Special status bat species. The Plan Area provides potential foraging and roosting habitat for four special-status bat species, all of which have been documented within or near the Plan Area. These four bat species may utilize trees or abandoned buildings for roosting and turfgrass for foraging in any of the parks within the Plan Area during migratory periods but are not expected to breed and reproduce there.

Pallid bat (*Antrozous pallidus*) ranges throughout western North America, from British Columbia to Mexico and east to Texas. This species is most abundant in arid lands, including deserts and canyonlands, shrub-steppe grasslands, and higher elevation coniferous forests and is therefore only likely to occur within the Plan Area on a transient basis during spring and summer migrations. Pallid bats may roost alone or in groups in trees in cavities or under bark and structures such as bridges and buildings. Pallid bats forage over open areas and are opportunistic feeders on a wide variety of insects, foraging both on surfaces and in the air. Prey includes beetles, centipedes, crickets, moths, and rarely, lizards, and small rodents (WBWG, 2005a).

Silver-haired bat (*Lasionycteris noctivagans*) occurs throughout most of North America and is primarily associated with conifer and mixed conifer/hardwood forests. This species would most likely be found in the Plan Area during winter and seasonal migrations. Silver-haired bats roost almost exclusively in cavities and under the bark of tree, although they are sometimes found in structures as well. Moths are apparently the primary prey for this species, although they have been documented as feeding on a wide variety of insects. Seasonal records suggest considerable north to south migration, with animals moving to warmer, more southern climates in the winter (WBWG, 2005b).

The **hoary bat** (*Lasiurus cinereus*) is the most widespread of all North American bats. This species ranges from Canada to South America and is primarily associated with forested habitats. Hoary bats are solitary and roost primarily in foliage of both coniferous and deciduous trees, often at the edge of a clearing. The species is highly migratory but neither wintering sites nor migratory routes are well documented. Hoary bats reportedly have a strong preference for moths, but are also known to eat beetles, flies, grasshoppers, termites, dragonflies, and wasps (WBWG, 2005c).

The **big free-tailed bat** (*Nyctinomops macrotis*) ranges from South America to the southwestern United States. This species is found in a variety of habitats including desert shrub, woodlands, and evergreen forests. It mostly roosts in cliff crevices, but has been documented in buildings,

caves, and tree cavities (WBWG, 2005d). This species may occur within the Plan Area as a seasonal migrant.

Special-Status Plants

No special-status plant species are expected to occur within the Plan Area. Although a number of special-status plant species are identified in Appendix F as occurring within the vicinity of the Plan Area, there are no intact native communities remaining within the Plan Area, and therefore, no suitable habitat for these species is present. Many plant species presented in Appendix F are considered by CNPS (2013) to be extirpated from the Plan Area due to a long-standing history of disturbance.

4.3.2 Regulatory Setting

This subsection briefly describes federal, state, and local regulations, permits, and policies pertaining to biological resources as they apply to the Plan Area.

Federal

Endangered Species Act

The United States Fish and Wildlife Service (USFWS), which has jurisdiction over plants, wildlife, and most freshwater fish, and the National Marine Fisheries Service (NMFS), which has jurisdiction over anadromous fish, marine fish, and mammals, oversee implementation of the Federal Endangered Species Act (FESA). Section 7 of the FESA mandates that all federal agencies consult with the USFWS and NMFS to ensure that federal agencies actions do not jeopardize the continued existence of a listed species or destroy or adversely modify critical habitat for listed species. A federal agency is required to consult with USFWS and NMFS if it determines a “may effect” situation will occur in association with the project. The FESA prohibits the “take”² of any fish or wildlife species listed as threatened or endangered, including the destruction of habitat that could hinder species recovery.

Under Section 9 of the FESA, the take prohibition applies only to wildlife and fish species. However, Section 9 prohibits the removal, possession, damage or destruction of any endangered plant from federal land. Section 9 also prohibits acts to remove, cut, dig up, damage, or destroy an endangered plant species in nonfederal areas in knowing violation of any state law or in the course of criminal trespass. Candidate species and species that are proposed or under petition for listing receive no protection under Section 9 of the FESA.

² “Take,” as defined in Section 9 of the FESA, is broadly defined to include intentional or accidental “harassment” or “harm” to wildlife. “Harass” is further defined by the USFWS as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, and sheltering. “Harm” is defined as an act which actually kills or injures wildlife. This may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

Section 10 of the FESA requires the issuance of an “incidental take” permit before any public or private action may be taken that would potentially harm, harass, injure, kill, capture, collect, or otherwise hurt (i.e., take) any individual of an endangered or threatened species. To offset the take of individuals that may occur incidental to implementation of a proposed project, the permit requires preparation and implementation of a habitat conservation plan that provides for the overall preservation of the affected species through specific mitigation measures.

Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (16 USC, Section 703, Supplement I, 1989) prohibits killing, possessing, or trading in migratory birds, except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs.

State

California Endangered Species Act

Under the California Endangered Species Act (CESA), California Department of Fish and Wildlife Service (CDFW) has the responsibility for maintaining a list of threatened and endangered species (California Fish and Wildlife Code Section 2070). CDFW also maintains a list of “candidate species,” which are species formally noticed as being under review for addition to either the list of endangered species or the list of threatened species. In addition, CDFW maintains lists of “species of special concern,” which serve as “watch lists.” Pursuant to the requirements of CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any state-listed endangered or threatened species could be present on the project site and determine whether the proposed project could have a potentially significant impact on such species. In addition, CDFW encourages informal consultation on any proposed project that may affect a candidate species.

California Native Plant Protection Act

State listing of plant species began in 1977 with the passage of the California Native Plant Protection Act (NPPA), which directed CDFW to carry out the legislature’s intent to “preserve, protect, and enhance endangered plants in this state.” The NPPA gave the California Fish and Wildlife Service the power to designate native plants as endangered or rare and to require permits for collecting, transporting, or selling such plants. The California Endangered Species Act expanded upon the original NPPA and enhanced legal protection for plants. CESA established threatened and endangered species categories, and grandfathered all rare animals – but not all rare plants – into the act as threatened species. Thus, there are three listing categories for plants in California: rare, threatened, and endangered.

California Fish and Wildlife Code

Under Section 3503 of the California Fish and Wildlife Code, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Section 3503.5 of the California Fish and Wildlife Code prohibits

take, possession, or destruction of any birds in the orders *Falconiformes* (hawks) or *Strigiformes* (owls), or of their nests and eggs.

Fish and Wildlife Code Sections 3511, birds; 4700, mammals; 5050, reptiles and amphibians; and 5515, fish) allows the designation of a species as Fully Protected. This is a greater level of protection than is afforded by the California Endangered Species Act, since such a designation means the listed species cannot be taken at any time.

Bats and other non-game mammals are protected in California. Section 4150 of the Fish and Wildlife Code states that all non-game mammals or parts thereof may not be taken or possessed except as otherwise provided in the code or in accordance with regulations adopted by the commission. Thus, destruction of an occupied, non-breeding bat roost, resulting in the death of bats, or disturbance that causes the loss of a maternity colony of bats (resulting in the death of young), is prohibited.

Sensitive Natural Communities

Sensitive natural communities are identified as such by CDFW's Natural Heritage Division and include those that are naturally rare and those whose extent has been greatly diminished through changes in land use. The CNDDDB tracks 135 such natural communities in the same way that it tracks occurrences of special-status species: information is maintained on each site's location, extent, habitat quality, level of disturbance, and current protection measures. CDFW is mandated to seek the long-term perpetuation of the areas in which these communities occur. While there is no statewide law that requires protection of all special-status natural communities, CEQA requires consideration of a project's potential impacts on biological resources of statewide or regional significance. There are no Sensitive Natural Communities in the Plan Area.

Jurisdictional Waters

Definitions

The following represents definitions applicable to the Specific Plan.

Waters of the United States. The term "waters of the United States," as defined in the Code of Federal Regulations (33 CFR§ 328.3[a]; 40 CFR § 230.3[s]), refers to:

1. All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2. All interstate waters including interstate wetlands;
3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which could affect interstate or foreign commerce including any such waters:
 - which are or could be used by interstate or foreign travelers for recreational or other purposes; or

- from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
 - which are used or could be used for industrial purposes by industries in interstate commerce.
4. All impoundments of waters otherwise defined as waters of the United States under the definition;
 5. Tributaries of waters identified in paragraphs (1) through (4).

U.S. Army Corps of Engineers and U.S. Environmental Protection Agency Regulations

The Corps and the USEPA regulate the discharge of dredged or fill material into waters of the United States, including wetlands, under Section 404 of the Clean Water Act (CWA). Projects that would otherwise result in the placement of dredged or fill material into waters of the United States require a Section 404 permit from the Corps. Some classes of fill activities may be authorized under General or Nationwide permits if specific conditions are met. Nationwide permits do not authorize activities that are likely to jeopardize the existence of a threatened or endangered species (listed or proposed for listing under the FESA). In addition to conditions outlined under each Nationwide Permit, project specific conditions may be required by the Corps as part of the Section 404 permitting process. When a project's activities do not meet the condition for a Nationwide Permit, an Individual Permit may be issued.

Section 401 of the CWA requires an applicant for a Corps permit to obtain state certification that the activity associated with the permit will comply with applicable state effluent limitations and water quality standards. In California, water quality certification, or a waiver, must be obtained from the Regional Water Quality Control Board (RWQCB) for both Individual and Nationwide Permits.

State Policies and Regulations

State regulation of activities in waters and wetlands resides primarily with the CDFW and the State Water Resources Control Board (SWRCB). In addition, CDFW is authorized under the California Fish and Wildlife Code, Section 1600-1616, to enter into a Streambed Alteration Agreement with applicants and develop mitigation measures when a proposed project would obstruct the flow or alter the bed, channel, or bank of a river or stream in which there is a fish or wildlife resource including intermittent and ephemeral streams. The SWRCB, acting through the nine Regional Water Quality Control Boards, must certify that a USACE permit action meets state water quality objectives (CWA, Section 401).

Local

City of Oakland General Plan

The Open Space, Conservation, and Recreation (OSCAR) Element of the City of Oakland General Plan was adopted in 1996. OSCAR policies pertaining to natural resources with potential relevance to adoption and development under the Specific Plan include the following:

- ***Policy CO-6.1:*** Protect Oakland's remaining natural creek segments by retaining creek vegetation, maintaining creek setbacks, and controlling bank erosion. Design future flood control projects to preserve the natural character of creeks and incorporate provisions for public access, including trails, where feasible. Strongly discourage projects which bury creeks or divert them into concrete channels.
- ***Policy CO-7.1:*** Protect native plant communities, especially oak woodlands, redwood forests, native perennial grasslands, and riparian woodlands, from the potential adverse impacts of development. Manage development in a way which prevents or mitigates adverse impacts to these communities.
- ***Policy CO-7.3:*** Make every effort to maintain the wooded or forested character of tree-covered lots when development occurs on such lots.
- ***Policy CO-7.4:*** Discourage the removal of large trees on already developed sites unless removal is required for biological, public safety, or public works reasons.
- ***Policy CO-9.1:*** Protect rare, endangered, and threatened species by conserving and enhancing their habitat and requiring mitigation of potential adverse impacts when development occurs within habitat areas.
- ***Policy CO-11.1:*** Protect wildlife from the hazards of urbanization, including loss of habitat and predation by domestic animals.
- ***Policy CO-11.2:*** Protect and enhance migratory corridors for wildlife. Where such corridors are privately owned, require new development to retain native habitat or take other measures which help sustain local wildlife population and migratory patterns.

The following policy was adopted in the 1998 Land Use and Transportation (LUTE) element of the General Plan LUTE:

- ***Policy W3.3:*** Native plant communities, wildlife habitats, and sensitive habitats should be protected and enhanced.

City of Oakland Tree Ordinance

City of Oakland Tree Preservation and Removal Ordinance (Oakland Municipal Code [OMC] Chapter 12.36) permits removal of protected trees under certain circumstances. To grant a tree removal permit, the City must determine that removal is necessary in order to accomplish one of the following objectives:

- to ensure public health and safety,
- to avoid an unconstitutional taking of property,

- to take reasonable advantage of views,
- to pursue acceptable professional practice of forestry or landscape design, or
- to implement the vegetation management prescriptions in the S-11 site development review zone.

Protected trees include the following:

- *Quercus agrifolia* (California or coast live oak) measuring four inches diameter at breast height (dbh) or larger, and any other tree measuring nine inches dbh or larger except *Eucalyptus* and *Pinus radiata* (Monterey pine); provided, however, that Monterey pine trees on City property and in development-related situations where more than five Monterey pine trees per acre are proposed to be removed are considered to be Protected trees.

City of Oakland Creek Ordinance

Title 13, Chapter 13.16, City of Oakland Creek Protection, Storm Water Management, and Discharge Control Ordinance, provides a high level of protection for creeks within Oakland's city limits.

The ordinance defines a creek as "...a watercourse that is a naturally occurring swale or depression, or engineered channel that carries fresh or estuarine water either seasonally or year around."

In addition, under the ordinance definition, a creek channel must be hydrologically connected to a waterway above or below a project site, and the channel must exhibit a defined bed and bank. A creek protection permit is required whenever work is to be undertaken on a creekside property. The ordinance prohibits, among other things, the discharge of concentrated stormwater or other modification of the natural flow of water in a watercourse, development within a watercourse or within 20 feet from the top of the bank, and the deposition or removal of any material within a watercourse without a permit. Depending on the type of activity being permitted, conditions of approval may include the submittal of a creek protection plan and/or a hydrology report, revegetation with native plant species, the use of soil bioengineering techniques for bank stabilization and erosion control, and implementation of stormwater quality protection measures.

The following activities, among others, are typically not permitted:

- Removal of riparian vegetation;
- Culverting or undergrounding of a creek;
- Moving the location of a creek;
- Structures spanning a creek; and/or
- Riprap, rock gabions, or concrete within the bed or on the creek banks.

City of Oakland Standard Conditions of Approval and Uniformly Applied Development Standards Imposed as Standard Conditions of Approval

The Standard Conditions Approval (SCAs) relevant to the biological resources that could be significantly impacted by adoption and development under the Specific Plan are listed below. If the Specific Plan is approved by the City, all applicable SCAs would be adopted as conditions of approval and required, as applicable, of adoption and development under the Specific Plan to help

ensure less-than-significant impacts to biological resources. The SCAs are incorporated and required as part of the Specific Plan, so they are not listed as mitigation measures.

- **SCA 43: Tree Removal Permit on Creekside Properties.**

Prior to issuance of a final inspection of the building permit. Prior to removal of any tree located on the project site which is identified as a creekside property, the project applicant must secure the applicable creek protection permit, and abide by the conditions of that permit.

- **SCA 44: Tree Removal During Breeding Season.**

Prior to issuance of a tree removal permit. To the extent feasible, removal of any tree and/or other vegetation suitable for nesting of raptors shall not occur during the breeding season of March 15 and August 15. If tree removal must occur during the breeding season, all sites shall be surveyed by a qualified biologist to verify the presence or absence of nesting raptors or other birds. Pre-removal surveys shall be conducted within 15 days prior to start of work from March 15 through May 31, and within 30 days prior to the start of work from June 1 through August 15. The pre-removal surveys shall be submitted to the Planning and Zoning Division and the Tree Services Division of the Public Works Agency. If the survey indicates the potential presences of nesting raptors or other birds, the biologist shall determine an appropriately sized buffer around the nest in which no work will be allowed until the young have successfully fledged. The size of the nest buffer will be determined by the biologist in consultation with the CDFG, and will be based to a large extent on the nesting species and its sensitivity to disturbance. In general, buffer sizes of 200 feet for raptors and 50 feet for other birds should suffice to prevent disturbance to birds nesting in the urban environment, but these buffers may be increased or decreased, as appropriate, depending on the bird species and the level of disturbance anticipated near the nest.

- **SCA 45: Tree Removal Permit.**

Prior to issuance of a demolition, grading, or building permit. Prior to removal of any protected trees, per the Protected Tree Ordinance, located on the project site or in the public right-of-way adjacent to the project, the project applicant must secure a tree removal permit from the Tree Division of the Public Works Agency, and abide by the conditions of that permit.

- **SCA 46: Tree Replacement Plantings.**

Prior to issuance of a final inspection of the building permit. Replacement plantings shall be required for erosion control, groundwater replenishment, visual screening and wildlife habitat, and in order to prevent excessive loss of shade, in accordance with the following criteria:

- 1) No tree replacement shall be required for the removal of nonnative species, for the removal of trees which is required for the benefit of remaining trees, or where insufficient planting area exists for a mature tree of the species being considered.
- 2) Replacement tree species shall consist of *Sequoia sempervirens* (Coast Redwood), *Quercus agrifolia* (Coast Live Oak), *Arbutus menziesii* (Madrone), *Aesculus californica* (California Buckeye) or *Umbellularia californica* (California Bay Laurel) or other tree species acceptable to the Tree Services Division.
- 3) Replacement trees shall be at least of twenty-four (24) inch box size, unless a smaller size is recommended by the arborist, except that three fifteen (15) gallon size trees may be substituted for each twenty-four (24) inch box size tree where appropriate.

- 4) Minimum planting areas must be available on site as follows:
 - For *Sequoia sempervirens*, three hundred fifteen square feet per tree;
 - For all other species listed in #2 above, seven hundred (700) square feet per tree.
 - 5) In the event that replacement trees are required but cannot be planted due to site constraints, an in lieu fee as determined by the master fee schedule of the City may be substituted for required replacement plantings, with all such revenues applied toward tree planting in city parks, streets and medians.
 - 6) Plantings shall be installed prior to the issuance of a final inspection of the building permit, subject to seasonal constraints, and shall be maintained by the project applicant until established. The Tree Reviewer of the Tree Division of the Public Works Agency may require a landscape plan showing the replacement planting and the method of irrigation. Any replacement planting which fails to become established within one year of planting shall be replanted at the project applicant's expense.
- **SCA 47: Tree Protection during Construction.**
Prior to issuance of a demolition, grading, or building permit. Adequate protection shall be provided during the construction period for any trees which are to remain standing, including the following, plus any recommendations of an arborist:
 - 1) Before the start of any clearing, excavation, construction or other work on the site, every protected tree deemed to be potentially endangered by said site work shall be securely fenced off at a distance from the base of the tree to be determined by the City Tree Reviewer. Such fences shall remain in place for duration of all such work. All trees to be removed shall be clearly marked. A scheme shall be established for the removal and disposal of logs, brush, earth and other debris which will avoid injury to any protected tree.
 - 2) Where proposed development or other site work is to encroach upon the protected perimeter of any protected tree, special measures shall be incorporated to allow the roots to breathe and obtain water and nutrients. Any excavation, cutting, filing, or compaction of the existing ground surface within the protected perimeter shall be minimized. No change in existing ground level shall occur within a distance to be determined by the City Tree Reviewer from the base of any protected tree at any time. No burning or use of equipment with an open flame shall occur near or within the protected perimeter of any protected tree.
 - 3) No storage or dumping of oil, gas, chemicals, or other substances that may be harmful to trees shall occur within the distance to be determined by the Tree Reviewer from the base of any protected trees, or any other location on the site from which such substances might enter the protected perimeter. No heavy construction equipment or construction materials shall be operated or stored within a distance from the base of any protected trees to be determined by the tree reviewer. Wires, ropes, or other devices shall not be attached to any protected tree, except as needed for support of the tree. No sign, other than a tag showing the botanical classification, shall be attached to any protected tree.
 - 4) Periodically during construction, the leaves of protected trees shall be thoroughly sprayed with water to prevent buildup of dust and other pollution that would inhibit leaf transpiration.

- 5) If any damage to a protected tree should occur during or as a result of work on the site, the project applicant shall immediately notify the Public Works Agency of such damage. If, in the professional opinion of the Tree Reviewer, such tree cannot be preserved in a healthy state, the Tree Reviewer shall require replacement of any tree removed with another tree or trees on the same site deemed adequate by the Tree Reviewer to compensate for the loss of the tree that is removed.
 - 6) All debris created as a result of any tree removal work shall be removed by the project applicant from the property within two weeks of debris creation, and such debris shall be properly disposed of by the project applicant in accordance with all applicable laws, ordinances, and regulations.
- **SCA-72: Vegetation Management Plan on Creekside Properties.**

Prior to issuance of a demolition, grading, and/or construction and Ongoing. The project applicant shall submit a vegetation management plan for review and approval by the Planning and Zoning Division, Fire Services Division, and Environmental Services Division of the Public Works Agency that includes, if deemed appropriate, the following measures:

 - a) Identify and do not disturb a 20-foot creek buffer from the top of the creek bank. If the top of bank cannot be identified, leave a 50-foot buffer from the centerline of the creek or as wide a buffer as possible between the creek centerline and the proposed site development.
 - b) Identify and leave "islands" of vegetation in order to prevent erosion and landslides and protect nesting habitat.
 - c) Leave at least 6 inches of vegetation on the site.
 - d) Trim tree branches from the ground up (limbing up) and leave tree canopy intact.
 - e) Leave stumps and roots from cut down trees to prevent erosion.
 - f) Plant fire-appropriate, drought-tolerant, preferably native vegetation.
 - g) Err on the side of caution. If you don't know if a plant, tree or area is sensitive, ask for a second opinion before you cut.
 - h) Provide erosion and sediment control protection if cutting vegetation on a steep slope.
 - i) Leave tall shrubbery at least 3-feet high.
 - j) Fence off sensitive plant habitats and creek areas to protect from goat grazing.
 - k) Obtain a tree protection permit for a protected tree (includes all mature trees except eucalyptus and Monterey pine).
 - l) Contact the City Tree Department (615-5850) for dead trees.
 - m) Do not clear-cut vegetation. This can lead to erosion and severe water quality problems and destroy important habitat.
 - n) Do not remove vegetation within 20-feet of the top of bank. If the top of bank cannot be identified, do not cut within 50-feet of the centerline of the creek or as wide a buffer as possible between the creek centerline and the proposed site development.

- o) Do not trim/prune branches that are larger than 4 inches in diameter.
- p) Do not remove tree canopy.
- q) Do not dump cut vegetation in a creek.
- r) Do not cut tall shrubbery to less than 3-feet high.
- s) Do not cut of short vegetation (grasses, ground-cover) to less than 6-inches high.

- **SCA-82: Erosion, Sediment, and Debris Control Measures.**

Prior to issuance of demolition, grading, or construction-related permit. The project applicant shall submit an erosion and sedimentation control plan for review and approval by the Building Services Division. All work shall incorporate all applicable “Best Management Practices (BMPs) for the construction industry, and as outlined in the Alameda Countywide Clean Water Program pamphlets, including BMP’s for dust, erosion and sedimentation abatement per Chapter Section 15.04 of the Oakland Municipal Code. The measures shall include, but are not limited to, the following:

- On sloped properties, the downhill end of the construction area must be protected with silt fencing (such as sandbags, filter fabric, silt curtains, etc.) and hay bales oriented parallel to the contours of the slope (at a constant elevation) to prevent erosion into the creek.
- In accordance with an approved erosion control plan, the project applicant shall implement mechanical and vegetative measures to reduce erosion and sedimentation, including appropriate seasonal maintenance. One hundred (100) percent degradable erosion control fabric shall be installed on all graded slopes to protect and stabilize the slopes during construction and before permanent vegetation gets established. All graded areas shall be temporarily protected from erosion by seeding with fast growing annual species. All bare slopes must be covered with staked tarps when rain is occurring or is expected.
- Minimize the removal of natural vegetation or ground cover from the site in order to minimize the potential for erosion and sedimentation problems. Maximize the replanting of the area with native vegetation as soon as possible.
- All work in or near creek channels must be performed with hand tools and by a minimum number of people. Immediately upon completion of this work, soil must be repacked and native vegetation planted.
- Install filter materials (such as sandbags, filter fabric, etc.) acceptable to the Engineering Division at the storm drain inlets nearest to the project site prior to the start of the wet weather season (October 15); site dewatering activities; street washing activities; saw cutting asphalt or concrete; and in order to retain any debris flowing into the City storm drain system. Filter materials shall be maintained and/or replaced as necessary to ensure effectiveness and prevent street flooding.
- Ensure that concrete/granite supply trucks or concrete/plaster finishing operations do not discharge wash water into the creek, street gutters, or storm drains.
- Direct and locate tool and equipment cleaning so that wash water does not discharge into the creek.

- Create a contained and covered area on the site for storage of bags of cement, paints, flammables, oils, fertilizers, pesticides, or any other materials used on the project site that have the potential for being discharged to the storm drain system by the wind or in the event of a material spill. No hazardous waste material shall be stored on site.
 - Gather all construction debris on a regular basis and place them in a dumpster or other container which is emptied or removed on a weekly basis. When appropriate, use tarps on the ground to collect fallen debris or splatters that could contribute to stormwater pollution.
 - Remove all dirt, gravel, refuse, and green waste from the sidewalk, street pavement, and storm drain system adjoining the project site. During wet weather, avoid driving vehicles off paved areas and other outdoor work.
 - Broom sweep the street pavement adjoining the project site on a daily basis. Caked-on mud or dirt shall be scraped from these areas before sweeping. At the end of each workday, the entire site must be cleaned and secured against potential erosion, dumping, or discharge to the creek, street, gutter, stormdrains.
 - All erosion and sedimentation control measures implemented during construction activities, as well as construction site and materials management shall be in strict accordance with the control standards listed in the latest edition of the Erosion and Sediment Control Field Manual published by the Regional Water Quality Board (RWQB).
 - Temporary fencing is required for sites without existing fencing between the creek and the construction site and shall be placed along the side adjacent to construction (or both sides of the creek if applicable) at the maximum practical distance from the creek centerline. This area shall not be disturbed during construction without prior approval of Planning and Zoning.
 - All erosion and sedimentation control measures shall be monitored regularly by the project applicant. The City may require erosion and sedimentation control measures to be inspected by a qualified environmental consultant (paid for by the project applicant) during or after rain events. If measures are insufficient to control sedimentation and erosion then the project applicant shall develop and implement additional and more effective measures immediately.
- **SCA 83: Creek Protection Plan.**

Prior to and ongoing throughout demolition, grading, and/or construction activities.

- The approved creek protection plan shall be included in the project drawings submitted for a building permit (or other construction-related permit). The project applicant shall implement the creek protection plan to minimize potential impacts to the creek during and after construction of the project. The plan shall fully describe in plan and written form all erosion, sediment, stormwater, and construction management measures to be implemented on-site.
- If the plan includes a stormwater system, all stormwater outfalls shall include energy dissipation that slows the velocity of the water at the point of outflow to maximize infiltration and minimize erosion. The project shall not result in a substantial increase in stormwater runoff volume to the creek or storm drains.

- **SCA-86: Creek Landscaping Plan.**

Prior to issuance of a demolition, grading, or building permit within vicinity of the creek.

The project applicant shall develop a final detailed landscaping and irrigation plan for review and approval by the Planning and Zoning Division prepared by a licensed landscape architect or other qualified person. Such a plan shall include a planting schedule, detailing plant types and locations, and a system for temporary irrigation of plantings.

- Plant and maintain only drought-tolerant plants on the site where appropriate as well as native and riparian plants in and adjacent to riparian corridors. Along the riparian corridor, native plants shall not be disturbed to the maximum extent feasible. Any areas disturbed along the riparian corridor shall be replanted with mature native riparian vegetation and be maintained to ensure survival.
- All landscaping indicated on the approved landscape plan shall be installed prior to the issuance of a Final inspection of the building permit, unless bonded pursuant to the provisions of Section 17.124.50 of the Oakland Planning Code.
- All landscaping areas shown on the approved plans shall be maintained in neat and safe conditions, and all plants shall be maintained in good growing condition and, whenever necessary replaced with new plant materials to ensure continued compliance with all applicable landscaping requirements. All paving or impervious surfaces shall occur only on approved areas.

- **SCA-87: Creek Dewatering and Aquatic Life.**

Prior to the start of and ongoing throughout any in-water construction activity.

- If any dam or other artificial obstruction is constructed, maintained, or placed in operation within the stream channel, ensure that sufficient water is allowed to pass down channel at all times to maintain aquatic life (native fish, native amphibians, and western pond turtles) below the dam or other artificial obstruction.
- The project applicant shall hire a biologist, and obtain all necessary State and federal permits (e.g. CDFW Scientific Collecting Permit), to relocate all native fish/native amphibians/pond turtles within the work site, prior to dewatering. The applicant shall first obtain a project-specific authorization from the CDFW and/or the USFWS, as applicable to relocate these animals. Captured native fish/native amphibians/pond turtles shall be moved to the nearest appropriate site on the stream channel downstream. The biologist/contractor shall check daily for stranded aquatic life as the water level in the dewatering area drops. All reasonable efforts shall be made to capture and move all stranded aquatic life observed in the dewatered areas. Capture methods may include fish landing nets, dip nets, buckets, and by hand. Captured aquatic life shall be released immediately in the nearest appropriate downstream site. This condition does not allow the take or disturbance of any state or federally listed species, nor state-listed species of special concern, unless the applicant obtains a project specific authorization from the CDFW and/or the USFWS, as applicable.

- **SCA-88: Creek Dewatering and Diversion.**

Prior to the start of any in-water construction activities. If installing any dewatering or diversion device(s), the project applicant shall develop and implement a detailed dewatering and diversion plan for review and approval by the Building Services Division. All proposed dewatering and diversion practices shall be consistent with the requirements of the Streambed Alteration Agreement issued by the California Department of Fish and Game.

- Ensure that construction and operation of the devices meet the standards in the latest edition of the Erosion and Sediment Control Field Manual published by the Regional Water Quality Control Board (RWQCB).
- Construct coffer dams and/or water diversion system of a non-erodable material which will cause little or no siltation. Maintain coffer dams and the water diversion system in place and functional throughout the construction period. If the coffer dams or water diversion system fail, repair immediately based on the recommendations of a qualified environmental consultant. Remove devices only after construction is complete and the site stabilized.
- Pass pumped water through a sediment settling device before returning the water to the stream channel. Provide velocity dissipation measures at the outfall to prevent erosion.

- **SCA D: Bird Collision Reduction**

Prior to issuance of a building permit and ongoing. The project applicant, or his or her successor, including the building manager or homeowners' association, shall submit plans to the Planning and Zoning Division, for review and approval, indicating how they intend to reduce potential bird collisions to the maximum feasible extent. The applicant shall implement the approved plan, including all mandatory measures, as well as applicable and specific project Best Management Practice (BMP) strategies to reduce bird strike impacts to the maximum feasible extent.

- a) Mandatory measures include **all** of the following:
 - i. Comply with federal aviation safety regulations for large buildings by installing minimum intensity white strobe lighting with three second flash instead of blinking red or rotating lights.
 - ii. Minimize the number of and co-locate rooftop-antennas and other rooftop structures.
 - iii. Monopole structures or antennas shall not include guy wires.
 - iv. Avoid the use of mirrors in landscape design.
 - v. Avoid placement of bird-friendly attractants (i.e. landscaped areas, vegetated roofs, water features) near glass.
- b) Additional BMP strategies to consider include the following:
 - i. Make clear or reflective glass visible to birds using visual noise techniques. Examples include:
 - 1. Use of opaque or transparent glass in window panes instead of reflective glass.
 - 2. Uniformly cover the outside clear glass surface with patterns (e.g., dots, decals, images, abstract patterns). Patterns must be separated by a minimum 10 centimeters (cm).
 - 3. Apply striping on glass surface. If the striping is less than 2 cm wide it must be applied vertically at a maximum of 10 cm apart (or 1 cm wide strips at 5 cm distance).

4. Install paned glass with fenestration patterns with vertical and horizontal mullions of 10 cm or less.
 5. Place decorative grilles or louvers with spacing of 10 cm or less.
 6. Apply one-way transparent film laminates to outside glass surface to make the window appear opaque on the outside.
 7. Install internal screens through non-reflective glass (as close to the glass as possible) for birds to perceive windows as solid objects.
 8. Install windows which have the screen on the outside of the glass.
 9. Use UV-reflective glass. Most birds can see ultraviolet light, which is invisible to humans.
 10. If it is not possible to apply glass treatments to the entire building, the treatment should be applied to windows at the top of the surrounding tree canopy or the anticipated height of the surrounding vegetation at maturity.
- ii. Mute reflections in glass. Examples include:
1. Angle glass panes toward ground or sky so that the reflection is not in a direct line-of-sight (minimum angle of 20 degrees with optimum angle of 40 degrees).
 2. Awnings, overhangs, and sunshades provide birds a visual indication of a barrier and may reduce image reflections on glass, but do not entirely eliminate reflections.
- iii. Reduce Light Pollution. Examples include:
1. Turn off all unnecessary interior lights from 11 p.m. to sunrise.
 2. Install motion-sensitive lighting in lobbies, work stations, walkways, and corridors, or any area visible from the exterior and retrofitting operation systems that automatically turn lights off during after-work hours.
 3. Reduce perimeter lighting whenever possible.
- iv. Institute a building operation and management manual that promotes bird safety. Example text in the manual includes:
1. Donation of discovered dead bird specimens to authorized bird conservation organization or museums to aid in species identification and to benefit scientific study, as per all federal, state and local laws.
 2. Production of educational materials on bird-safe practices for the building occupants.
 3. Asking employees to turn off task lighting at their work stations and draw office blinds or curtains at end of work day.
 4. Schedule nightly maintenance during the day or to conclude before 11 p.m., if possible.

4.3.3 Impacts and Mitigation Measures

Significance Criteria

Adoption and development under the Specific Plan would have a significant impact on the environment if it were to:

1. 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 CDFW or USFWS;
2. 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 CDFW or USFWS;
3. Have a substantial adverse effect on federally protected wetlands (as defined by Section 404 of the Clean Water Act) or state protected wetlands, through direct removal, filling, hydrological interruption, or other means;
4. Substantially interfere 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;
5. Fundamentally conflict with any applicable habitat conservation plan or natural community conservation plan;
6. Fundamentally conflict with the City of Oakland Tree Protection Ordinance (OMC Chapter 12.36) by removal of protected trees under certain circumstances [NOTE: Factors to be considered in determining significance include the number, type, size, location and condition of (a) the protected trees to be removed and/or impacted by construction and (b) protected trees to remain, with special consideration given to native trees.³ Protected trees include *Quercus agrifolia* (California or coast live oak) measuring four inches diameter at breast height (dbh) or larger, and any other tree measuring nine inches dbh or larger except eucalyptus and *pinus radiata* (Monterey pine); provided, however, that Monterey pine trees on City property and in development-related situations where more than five Monterey pine trees per acre are proposed to be removed are considered to be protected trees.];
7. Fundamentally conflict with the City of Oakland Creek Protection Ordinance (OMC Chapter 13.16) intended to protect biological resources. Although there are no specific, numeric/quantitative criteria to assess impacts, factors to be considered in determining significance include whether there is substantial degradation of riparian and/or aquatic habitat through: (a) discharging a substantial amount of pollutants into a creek; (b) significantly modifying the natural flow of the water; (c) depositing substantial amounts of new material into a creek or causing substantial bank erosion or instability; or (d) adversely impacting the riparian corridor by significantly altering vegetation or wildlife habitat.

³ Oakland Planning Code section 17.158.280(E)(2) states that “Development related” tree removal permits are exempt from CEQA if no single tree to be removed has a dbh of 36 inches or greater **and** the cumulative trunk area of all trees to be removed does not exceed 0.1 percent of the total lot area.

Approach to Analysis

Potential impacts resulting from adoption and development under the Specific Plan were evaluated on the following sources:

- 1) Existing resource information and aerial photographs of the Plan Area and vicinity;
- 2) Data presented in the CNDDDB (CDFW 2013), CNPS Electronic Inventory of Rare and Endangered Vascular Plants of California (CPNS 2013) for Oakland West, Oakland East, Briones Valley, and Richmond U.S. Geological Survey 7.5-minute topographic quadrangles and USFWS *Official List of Federal Endangered and Threatened Species* for Alameda County (USFWS, 2013) which include the Plan Area and vicinity;
- 3) Standard biological references (e.g., field guides);
- 4) Surveys and environmental documents including specific information on species or habitats found in the Plan Area;
- 5) Other available literature regarding the natural resources of the area.

Based on the Plan Area and its geographical location, adoption and development under the Specific Plan would not result in impacts related to the following criteria. No impact discussion is provided for these topics for the following reasons:

- **Conservation Plans:** There are no adopted Habitat Conservation Plans, Natural Community Conservation Plans, or other approved local, regional, or state habitat conservation plans that apply to the Plan Area. The Specific Plan would complement the City of Oakland's General Plan, Land Use and Transportation Element (LUTE) by enhancing parameters for future urban development in an existing context not currently fulfilling its potential. Additionally, adoption and development under the Specific Plan would lessen potential impacts to areas protected with habitat and/or natural community conservation plans as it encourages urban growth in an area currently devoid of sensitive natural communities.

Impacts

The Plan Area is located within and immediately adjacent to a fully developed urban environment. The development anticipated in the Broadway Valdez Development Program relative to the proximity of Mosswood Park, Oak Glen Park, and Adams Park is not expected to have direct or indirect impacts on biological resources located within these parks or in the Plan Area. Future analysis for future projects under the Specific Plan, are expected to focus primarily on ensuring landscape trees are removed without disturbing nesting birds, as well as ensuring adherence to local tree preservation ordinances found in the Oakland Municipal Code.

Impact BIO-1: Adoption and development under the Specific Plan could adversely affect, either directly or through habitat modifications, 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 (Criterion 1). (Less than Significant)

Due to the high level of ongoing activity present, there are few special-status animals that could be impacted in and around the Plan Area. As noted above, species listed in Table 4.3-1 could be of concern however, historically, species richness and densities of individual species frequently decline with an increasing number of buildings, given the urban context (Evans et al., 2009). Species potentially impacted by adoption and development under the Specific Plan are likely to have adapted to continuously evolving environments by which this portion of Oakland is defined. Given the existence of substantial commercial development, including heavy vehicle traffic along Broadway that has occurred for more than 90 years in this area, the site is not a part of an established native resident or migratory wildlife corridor (WRT, 2009). Some species use the Plan Area on occasion, however have established habitats outside the Plan Area.

Adoption and development under the Specific Plan is considered more suitable for the proposed location than adjacent areas since 150 years of urban development has replaced any former native biotic habitats and natural vegetation. For example; because avian populations are more concentrated in other areas within the region; such as the Briones Valley, Oakland Estuary, and the Oakland Harbor; the urban context of the Broadway-Valdez area fails to provide a sufficient migratory environment or habitat.

Overall, the Plan Area environment has not been conducive to natural habits sought by special-status species therefore, the impacts related to the potential loss of habitat is deemed less than significant.

Mitigation: None Required.

Impact BIO-2: Adoption and development under the Specific Plan 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 (Criterion 2). (Less than Significant)

The Glen Echo Creek corridor is located along the eastern boundary of the Plan Area, between 28th and 30th Streets, and is daylighted between 29th and 30th Streets. However, depending on the location of proposed new construction in the Plan Area, construction activities may have the potential to disturb wildlife in this corridor through elevated noise levels, and changes in air and water quality. Additionally, damage to mature trees hanging over 30th Street at Richmond Boulevard could occur if large equipment is driven along that stretch of road. Riparian corridors are protected by the CDFW code 1600-1616, which require a Streambed Alteration Agreement for modification of creek banks and associated vegetation when CDFW determines that a proposed project would substantially adversely affect fish or wildlife resources.

As stated above, there are no natural sensitive communities within the Plan Area. Typically, natural sensitive communities in urban contexts, such as the City of Oakland, often lie within designated Open Space. The Plan Area does not contain Open Space, however designations reside in the immediate vicinity, including Mosswood Park, Oak Glen Park, Lake Merritt and Lakeside Park (Note: Adams Park is not identified as Open Space in the General Plan).

In the Plan Area (i.e., near 30th Street and Richmond Boulevard), the creek's canopy vegetation is mostly dominated by Eucalyptus trees with a few mature remnant coast live oak trees along the banks. Recent restoration activities have been implemented along the western bank at 30th and Richmond Boulevard. A number of animal species adapted to human habitation were found using this area such as: raccoon, striped skunk, Virginia opossum, gray squirrel, American starling, mourning dove, and American robin. There are no recorded sightings of special status animal species in this area, and it is not likely that special status animals would tolerate the elevated human presence in this area, although tree nesting birds including raptors could nest in the taller Eucalyptus trees.

Incorporation of the City's SCAs relating to tree preservation would address potential degradation of natural resources that could result from construction of future projects in the Plan Area and reduce these potential impacts to less-than-significant levels. SCA 43, *Tree Removal Permit on Creekside Properties*; SCA 44, *Tree Removal During Breeding Season*; SCA 45, *Tree Removal Permit*; SCA 46, *Tree Replacement Plantings*; and SCA 47, *Tree Protection during Construction* are relevant and would minimize potential indirect impacts to the Plan Area to less-than-significant levels.

Mitigation: None Required.

Impact BIO-3: Adoption and development under the Specific Plan could have a substantial adverse effect on federally protected wetlands (as defined by Section 404 of the Clean Water Act) or state protected wetlands, through direct removal, filling, hydrological interruption, or other means (Criterion 3). (Less than Significant)

Adoption and development under the Specific Plan is not expected to increase stormwater runoff since work is only expected to take place on areas that are already fully developed. However, potential increases in transmittal of oil, diesel fuel, transmission fluids, and other toxic materials from construction activities via runoff from the impermeable surfaces of the site, could result in significant adverse impacts to wetlands and/or other waters within the Plan Area.

Incorporation of the City's SCAs relating to erosion control, stormwater management, and hazardous materials would address potential degradation of water quality that could result from construction and reduce these potential impacts to less-than-significant levels. SCA 55, *Erosion and Sedimentation Control Plan*, 35, *Hazards Best Management Practices*, 75, *Stormwater Pollution Prevention Plan*, and 80, *Post-construction Stormwater Management Plan*, are relevant and would minimize potential indirect impacts to water quality in Glen Echo Creek to less-than-

significant levels. These SCAs are discussed in Section 4.5, *Geology, Soils and Geohazards*; Section 4.7, *Hazardous Materials*; and Section 4.8, *Hydrology and Water Quality*, of this Draft EIR. Therefore, adoption and development under the Specific Plan would have a less than significant effect on federally protected wetlands.

Mitigation: None Required.

Impact BIO-4: Adoption and development under the Specific Plan could substantially interfere 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 (Criterion 4). (Less than Significant)

No aquatic habitats or jurisdictional waters potentially supporting migratory fish or birds are present within the Plan Area. Glen Echo Creek, having only a small segment of channel within or adjacent to the Plan Area, does not support a native fishery, and impediments to fish passage and wildlife movement make the creek an unlikely location for aquatic resources (WRT, 2009). Very little natural vegetation exists, none of which is connected to other nearby natural habitats to constitute a wildlife corridor. Landscape trees in the Plan Area could be considered nursery sites for native nesting birds, but any potential impacts on nesting birds from adoption and development under the Specific Plan would be reduced to less-than-significant levels by SCA 44, *Tree Removal During Breeding Season*. Construction activities associated with the Specific Plan would not have any impacts on native wildlife nursery sites or wildlife corridors. Adoption and development under the Specific Plan is not expected to impact wildlife potentially in the Plan Area, as undisturbed wildlife populations are obsolete.

Mitigation: None Required.

Impact BIO-5: Adoption and development under the Specific Plan could fundamentally conflict with the City of Oakland Tree Protection Ordinance (Oakland Municipal Code Chapter 12.36) by removal of protected trees under certain circumstances (Criterion 6). (Less than Significant)

Portions of the Plan Area may qualify as protected under the City of Oakland Tree Protection Ordinance (Oakland Municipal Code, Title 12, Chapter 12.36). Construction-related activities related to adoption and development under the Specific Plan may potentially impact protected trees through direct removal or through loss from adjacent construction. SCA 46, *Tree Replacement Plantings*, requires replacement plantings for impacted protected trees. SCA 47, *Tree Protection during Construction*, provides for adequate protection, during construction, of any trees that are to remain standing. Both SCA 46 and SCA 47 would be incorporated into development considered under the Broadway-Valdez Development Program and would ensure the impact is less than significant.

Mitigation: None Required.

Impact BIO-6: Adoption and development under the Specific Plan could fundamentally conflict with the City of Oakland Creek Protection Ordinance (OMC Chapter 13.16) intended to protect biological resources (Criterion 7). (Less than Significant)

Oakland's Creek Protection Ordinance (Oakland Municipal Code, Title 13, Chapter 13.16.120) requires a Creek Protection Permit for construction that would take place within close proximity to a creek, as defined in the Ordinance. As a result, conflicts with the Ordinance would be addressed through this permitting process. Within the Plan Area, Glen Echo Creek would be the only feature protected under the City of Oakland Creek Protection Ordinance. Development or construction in or around the creek would be regulated by this Ordinance and require a Creek Protection Permit if work falls within the following four categories:

- **Category 1:** Interior construction and alterations including remodeling.
- **Category 2:** Exterior work that does not include earthwork and is located more than 100 feet from the centerline of the Creek.
- **Category 3:** Exterior work that is located between 20 feet from the top of the Creek bank and 100 feet from the centerline of the Creek; or Exterior work that includes earthwork involving more than three (3) cubic yards of material, beyond 20 feet from the top of the Creek bank.
- **Category 4:** Exterior work conducted from the centerline of the Creek to within 20 feet from the top of the Creek bank.

Projects exempt from the Creek Protection Permit requirement must comply with the remaining portions of the Ordinance and must incorporate site design/landscape characteristics which maximize infiltration (where appropriate), provide retention or detention, slow runoff, and minimize impervious land coverage (i.e., use hydrologic source controls) to the maximum extent practicable.

Development under the Broadway Valdez Development Program would not directly result in additional culverts or daylighted portions of the creek.⁴ Further, adoption and development under the Specific Plan is not expected to increase stormwater runoff since work is only expected to replace existing structures and within areas that are already fully developed. However, construction related activities could increase sediment deposition into the creek, which could adversely impact the creek.

Any future projects within the Plan Area would comply with the City of Oakland's Creek Protection Ordinance (Oakland Municipal Code, Title 13, Chapter 13.16.120). Also, incorporation of the City's SCAs relating to erosion control, stormwater management, and hazardous materials would address potential degradation of water quality that could result from

⁴ Daylighting is the redirection of a stream into an above-ground channel.

construction. These include SCAs 83, *Creek Protection Plan*; 55, *Erosion and Sedimentation Control Plan*; 57, *Vibrations Adjacent to Historic Structures*; 35, *Hazards Best Management Practices*, 75, *Stormwater Pollution Prevention Plan*, and 80, *Post-construction Stormwater Management Plan*, which would ensure that development under the Specific Plan is in compliance with all aspects of the Creek Protection Ordinance, and would reduce the potential impacts on water quality to less than significant.

Mitigation: None Required.

Cumulative Impacts

Impact BIO-7: Construction activity and operations of adoption and development under the Specific Plan, in combination with past, present, existing, approved, pending and reasonably foreseeable future projects in the Plan Area, would not result in impacts on special-status species, sensitive habitats, wildlife movement corridors, wetlands, and other waters of the U.S. (Less than Significant)

Geographic Context

The cumulative geographical context for biological resources for the Broadway-Valdez Development Program consists of the areas of Glen Echo Creek, Mosswood Park, Adams Park, and Lake Merritt.

Impacts

The cumulative analysis considers the effect of the Broadway-Valdez Development Program in combination with past, present, existing, approved, pending and reasonably foreseeable future projects within and in the vicinity of the Plan Area (as described in Major Projects List in Appendix B to this Draft EIR). The Plan Area largely includes areas that have previously been developed. Future projects under the Specific Plan are not anticipated to significantly impact any wetlands and/or other waters.

Incorporation of the City's SCAs relating to erosion control, stormwater management, and hazardous materials (57, *Vibrations Adjacent to Historic Structures*; 35, *Hazards Best Management Practices*; 55, *Erosion and Sedimentation Control Plan*; 75, *Stormwater Pollution Prevention Plan*; and 80, *Post-construction Stormwater Management Plan*) would ensure indirect impacts to wetland and/or other waters are less than significant. Additionally, incorporation of the City of Oakland's SCA 44, *Tree Removal During Breeding Season*; 45, *Tree Removal Permit*; 46, *Tree Replacement Plantings*; 47, *Tree Protection during Construction*; A, *Bird Collision Reduction*; and 83, *Creek Protection Ordinance*, among other applicable requirements, would also ensure that potential impacts to special status resources are less than significant.

Environmentally protective laws and regulations have been applied with increasing rigor since the early 1970s and include the CESA, FESA, and the CWA, as described earlier in this section. Adoption and development under the Specific Plan, as well as other future projects within the

cumulative geographic context of the Plan Area, would be required to comply with local, state, and federal laws and policies and all applicable permitting requirements of the regulatory and oversight agencies intended to address potential impacts on biological resources, including waters of the U.S., and special-status species. Additionally, future projects would be required to demonstrate that they would not have significant effects on these biological resources, although it is possible that some projects may be approved even though they would have significant, unavoidable impacts on biological resources.

Therefore, overall, considering adoption and development under the Broadway-Valdez Development Program, with effects of past, present, pending and reasonably foreseeable future projects within the geographic context for this analysis, the cumulative effect on biological resources would be less than significant.

Mitigation: None Required.

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4.4 Cultural Resources

This section provides background information with respect to cultural resources in the Specific Plan Area. Cultural resources are defined as prehistoric or historic-era archaeological sites, historic architectural resources, and paleontological resources. This section describes the environmental and regulatory setting relevant to cultural resources in the Plan Area, and summarizes the relevant and applicable regulations and policies. It identifies known cultural resources in the Plan Area as defined for CEQA purposes. Potential impacts are discussed and evaluated, and appropriate mitigation measures or Standard Conditions of Approval (SCA) are identified, as necessary.

4.4.1 Environmental Setting

An overview of the history and development of the City of Oakland is contained in the *City of Oakland Historic Preservation Element* (1998; pp. 1-2 through 1-9), and is hereby incorporated by reference. The Oakland City Planning Department's Cultural Heritage Survey project has prepared extensive neighborhood histories, thematic context statements, and individual property and district documentation that can be consulted for further information. The following discussion includes a brief summary of the Plan Area's history as adapted in part from the *Historic Preservation Element*, as well as the *Broadway Valdez Specific Plan Historic Resources Inventory* (2009 HRI) (see Appendix D).

There is a moderate potential that prehistoric archaeological resources, including Native American artifacts and sites, are present within the geological zone generally located in a north-south strip between Broadway and the Glen Echo Creek corridor. Although now obscured by recent development, such resources may exist beneath the ground surface, and as such, ground disturbance resulting from adoption of and development under the Specific Plan could inadvertently damage or destroy such resources. There are a number of historic architectural resources in the Plan Area that could be affected by adoption and development under the Specific Plan.

Prehistoric Setting

The Plan Area is now urbanized, although prehistorically it was a biologically rich alluvial plain and estuarine environment between the East Bay Hills and San Francisco Bay. The natural marshland biotic communities along the edges of bays and channels were the principal source for human subsistence and other activities during the prehistory of the San Francisco Bay region.

Many of the original surveys of archaeological sites in the Bay region were conducted between 1906 and 1908 by Stanford (and, later, UC Berkeley) archaeologist N.C. Nelson. Such surveys yielded the initial documentation of nearly 425 "earth mounds and shell heaps" along the littoral zone of the Bay (Nelson, 1909).¹ None of these shellmound sites is located in the Plan Area; the nearest is approximately 1 mile away south of Lake Merritt. From these beginnings, the most notable sites in the Bay region were excavated scientifically, like the Emeryville shellmound (CA-ALA-309), the Ellis Landing Site (CA-CCO-295) in Richmond, and the Fernandez Site

¹ The "littoral zone" is the part of a body of water that is close to the shore.

(CA-CCO-259) in Rodeo Valley (Moratto, 1984). These dense midden² sites, such as CA-ALA-309, have been carbon 14-dated to be 2310 ± 220 years old, but other evidence from around the Bay suggests that human occupation in the region began earlier, at least by around 5000 B.C. (Davis & Treganza, 1959 as cited in Moratto, 1984). These very early sites, from the Paleoindian Period (c. 10,000 to 6000 B.C.) and a subsequent unnamed period (c. 6000 to 2500 B.C.), are not well documented in the Bay Area, as they are believed to exist under alluvial deposits that have reshaped the bayshore since the end of the Pleistocene (Meyer and Rosenthal, 2007).

The Windmill Pattern (c. 2500 B.C. to 1500 B.C.) is characterized by relatively sparse, small sites situated on small knolls above seasonal floodplains on valley floors. Beginning around 2000 B.C., the bayshore and marsh-adapted peoples representing the so-called Berkeley Pattern appeared in the archaeological record. This artifact pattern was represented by minimally-shaped cobble mortars and pestles, dart and atlatl hunting technology, and a well-developed bone carving industry. Given the size of these settlements, it is probable that the populations were denser and more sedentary, yet continued to exploit a diverse resource base from woodland to grassland and marshland, to bayshore and riverine resources throughout the San Francisco Bay Area (King, 1974 as cited in Moratto, 1984). Many of the Berkeley Pattern traits diffused throughout the region and spread to the interior areas of central California during this time period.

The late prehistoric period, appearing in the archaeological record as the Augustine Pattern (c. A.D. 1000 until European contact), shows substantial population growth, increased trade and social exchange networks, increased ceremonial activity, and more intensive use of acorns as a staple food in addition to fish, shellfish, and a wide variety of hunted animals and gathered plant resources. Technological changes are shown in the adoption of the bow and arrow for hunting, and use of bone awls for basketry manufacture. The people of this period were the ancestors of the groups encountered by the first Spanish explorers.

Ethnographic Setting

Prior to Euroamerican contact, the Ohlone (also known by their linguistic group, Costanoan³) occupied the area that is currently Alameda County. Politically, the Ohlone were organized into sovereign groups that held a defined territory and exercised control over the resources within that territory. Oakland and a large surrounding area of the East Bay are located within the territory; at this time, at least four villages were probably settled within the boundaries of modern Oakland, although the exact locations are now unknown.

The Ohlone economy was based on fishing, gathering, and hunting, with the land and waters providing a diversity of resources including acorns, various seeds, salmonids and other fish, deer, rabbits, insects, and quail. The acorn was a very important dietary staple of the Ohlone. Acorns

² A midden is a mound of domestic refuse generally containing culturally darkened soils, shells and animal bones, as well as other indices of past human life and habitation. Middens mark the site of an indigenous settlement, and may contain human burials related to that settlement.

³ “Costanoan” is derived from the Spanish word *Costaños* meaning “coast people.” No native name of the Costanoan-speaking people as a whole existed in prehistoric times as the Costanoan language was shared between multiple ethnic groups and political entities. Most modern descendants of Costanoan-speaking peoples prefer to be known as Ohlone, a name derived from one of the tribal groups that occupied the San Gregorio watershed in San Mateo County.

from several varieties of oaks were ground in mortars to produce a meal that was then leached to remove the bitter tannins. The Ohlone crafted tule reed balsas (a type of raft) for transportation along rivers and through marshlands; ground stone tools such as mortars and metates (a mortarlike flat bowl used for grinding grain); flaked stone arrow points, knives, scrapers, and other tools; and artfully wove and twined basketry. Houses were conical and likely thatched with tule reeds (Levy, 1978).

During the Mission Period, 1770-1835, the Ohlone people experienced cataclysmic changes in almost all areas of their life, particularly a massive decline in population due to introduced diseases and a declining birth rate, resulting in large part from colonization by the Spanish missionaries (Milliken, 1995). Many Chochenyo speakers moved, either by choice or by force, from the Oakland area to Mission San Jose. Following the secularization of the missions by the Mexican government in the 1830s, most Ohlone gradually left the missions to work as manual laborers on the ranchos that were established in the surrounding areas. It is estimated that by the late 1800s, perhaps ten percent of the pre-contact Ohlone population remained (Kroeber, 1932). Today, descendants of these survivors live throughout the Bay Area, and have formed modern tribal groupings to revive and promote their traditional arts, languages, and other cultural elements. There are nine culturally-affiliated tribes or individuals associated with the Oakland area; however none have been federally recognized.

Historic Setting

The Plan Area is within the Rancho San Antonio land grant that was granted to Luis Maria Peralta on August 3, 1820 for his service to the Spanish government. The 43,000-acre rancho included the present-day cities of Oakland, Berkeley, Alameda, Albany, El Cerrito, San Leandro and Piedmont. The Gold Rush and California statehood brought miners, businessmen, lumbermen and other speculators to the area in search of opportunities. Early settlers of that period include Edson Adams, Andrew Moon, and Horace Carpentier, who squatted on 480 acres of Luis Peralta's son Vicente's land. Adams, Moon, and Carpentier subsequently hired Julius Kellersberger, an Austrian-educated Swiss military engineer, to plot a new city—Oakland—which was incorporated in 1852.

The city originally encompassed the area roughly bordered by the Oakland Estuary on the south, Market Street on the west, 14th Street on the north, and the Lake Merritt Channel on the east. Broadway served as the main street, with the majority of the early city dwellers living near the foot of Broadway in proximity to the estuary. In 1869, transcontinental rail service began. With the arrival of the railroad, Oakland was transformed into a commercial and industrial center with a rapidly growing population. The city's population tripled from 10,500 in 1870 to 34,555 in 1880. In the Plan Area, development moved north along street car lines of Broadway and towards the Oakland Hills. Between 1889 and 1928, Saint Mary's College was located at what is now 3093 Broadway. This building is now gone, but the site is California Historical Landmark No. 676.

The 1906 earthquake and fire in San Francisco prompted a population increase in Oakland, and by 1910 the city's population of 150,000 was more than double the 1900 level of 67,000. Older neighborhoods became more densely populated as apartment buildings and apartment conversions became part of Oakland's residential fabric. Shopping districts expanded to meet this demand. The

post-earthquake development boom defined much of central Oakland as it is known today, resulting in most of the city's notable early 20th century architecture.

Broadway's Auto Row

Initially owned solely by the wealthy, automobiles became the standard mode of transportation for many Americans of all classes by the 1920s. By 1920 there were 210,000 registered vehicles in Alameda County. The number of automobile showrooms and service facilities that appeared on Broadway in the early 20th century was related to Oakland's role at the forefront of the West Coast's fledgling automobile industry. General Motors founder William C. Durant joined forces with French racecar driver Louis Chevrolet and formed the Chevrolet Motor Car Company. In 1916, a Chevrolet plant opened in East Oakland.

Both San Pablo and Telegraph Avenue were in existence by 1857 as country roads leading north. By 1870, Broadway was extended north of 14th Street - the original town - when this outlying area was mainly occupied by agricultural uses. The blocks now forming the Plan Area were subdivided and built up with medium sized, single family houses by 1903. At the turn of the century, Sanborn maps show Broadway as having been predominantly occupied by residential buildings, as well as associated schools and hospitals. Garages and other associated automobile buildings began appearing along Broadway by 1911, and the auto service area, with sales centers located along Broadway, had developed a strong presence by the 1920s.

Directories in the early 1910s show Oakland's center for automobile service and sales shifting from 12th, Jackson, and Madison Streets to upper Broadway beyond 20th Street. This pattern continued through and beyond the 1920s, with service and parts becoming concentrated on the side streets in an area roughly bounded by Telegraph Avenue, Webster, and 23rd Streets. Dealerships and service garages along Broadway mirrored the nationwide explosion of automobile ownership.

Broadway developed as an auto row primarily due to its location near to, but immediately outside of, downtown Oakland where commercial real estate was slightly less expensive and dealers were able to assemble fairly large lots for the display of automobiles along a major commercial thoroughfare leading directly into town. Eventually becoming more commercial than residential in focus, the properties along Broadway developed into the second most important automobile retail center in the Bay Area, after Van Ness Avenue in San Francisco.

Broadway and Telegraph Avenue were major roadways connecting Oakland to Berkeley, and streetcars transported residents and commuters from one community to another until the system was dismantled in 1948. As a major roadway leading out of Oakland, Broadway was the route to the outlying prosperous Piedmont and Rockridge residential areas, whose development owed a great deal to the automobile. By 1912, there were reportedly 4,500 automobiles registered in Oakland, and by the mid-1910s, Upper Broadway was referred to as "Broadway Auto Row." The majority of the buildings located within the Broadway Auto Row were constructed between the 1910s and 1940s, and revolved around the growing auto industry. The main building types are identified as Beaux Arts and Moderne automobile showrooms, early 20th century utilitarian service garages, and 1920s decorative brick commercial buildings.

Paleontological Setting

On a regional scale, fossilized plants, animals and microorganisms are prevalent throughout the East Bay Area. Many of the hills in the East Bay are made up of sedimentary bedrock that is known to contain a wide range of fossils, including radiolaria, mollusks, diatoms, foraminifera, and non-marine vertebrates. In addition, even geologically young fluvial deposits have been known to contain freshwater mollusks and extinct late-Pleistocene vertebrate fossils (Graymer, 2000).

The series of stream courses that deposited sediments during the Pleistocene no longer exist, and those ancient sediments have been cut into by modern-day streams. As a result, many of the Pleistocene-age fluvial and alluvial fan deposits exist as subtle topographic highs between the bay margin and the East Bay Hills. The Pleistocene deposits are similar in composition and character to sediments deposited by present-day streams, but owing to their age, they are denser, more consolidated, and have locally preserved the remains of Pleistocene flora and fauna.

In their regional geologic map, Witter and other of the USGS (2006) have identified the Plan Area as primarily underlain by the Pleistocene-age deposits discussed above, except for some areas along the Plan Area's edges, which are younger (less than 10,000 years old) (see **Figure 4.4-1**). Ground-disturbing development within Pleistocene-age deposits which underlay portions of the Specific Plan could affect previously unrecorded paleontological resources.

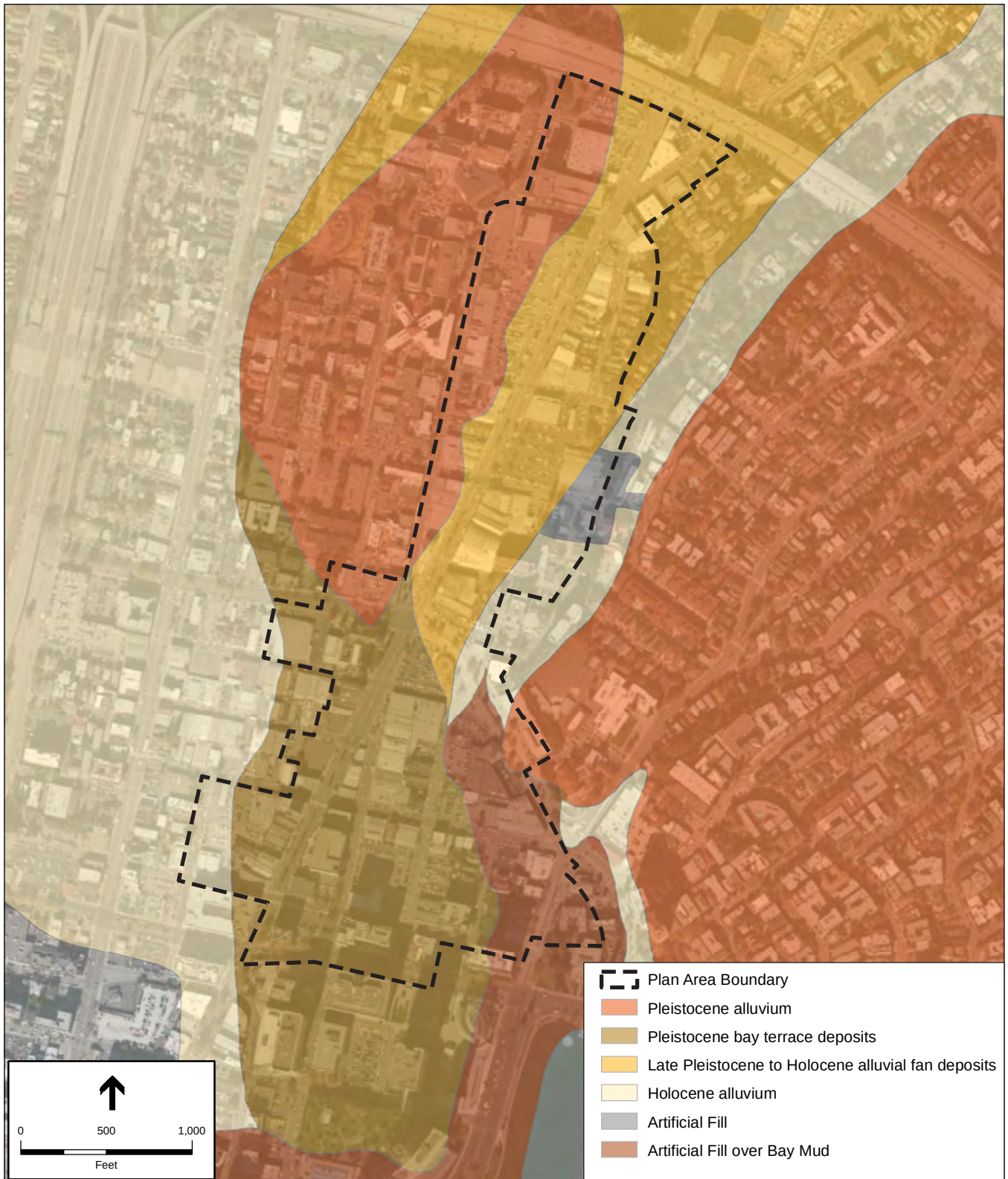
4.4.2 Regulatory Setting

National Historic Preservation Act, National Register of Historic Places, and National Historic Landmarks

National Historic Preservation Act and National Register of Historic Places. The National Historic Preservation Act of 1966 as amended (NHPA) addresses those concerns pertinent to the effect of federal actions on cultural resources (16 USC § 470 *et seq.*). The NHPA sets forth the federal government's policy on historic preservation, including establishing the National Register of Historic Places (NRHP, National Register). The National Register is the nation's official list of cultural resources worthy of preservation. Properties listed in the NRHP include districts, sites, buildings, structures, and objects that are significant in American history, architecture, archaeology, engineering, and culture.

To be listed on the National Register, a property must be shown to be "significant" at the local, state, or national level under one or more of the following criteria (36 CFR 60.4). Eligible resources are those:

1. That are associated with events that have made a significant contribution to the broad patterns of our history (Criterion A - Event);
2. That are associated with the lives of persons significant in our past (Criterion B - Person);



SOURCE: Witter et al., 2006

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Figure 4.4-1
Geology in the Plan Area

3. That embody the distinctive characteristics of a type, period or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction (Criterion C - Design/Construction); or
4. That have yielded, or may be likely to yield, information important in prehistory or history (Criterion D - Information Potential).

The property must also possess historic “integrity.” Integrity is defined as “the ability of a property to convey its significance.” The National Register criteria recognize seven qualities that define integrity: location, design, setting, materials, workmanship, feeling, and association.

- “Location” refers to the place where the historic property was originally constructed or situated.
- “Design” is the combination of architectural elements that create the form, structure and style of the property.
- “Setting” is the physical environment surrounding a historic resource.
- “Materials” are the original physical components that were combined during a particular period in time and in a particular pattern to form the historic resource.
- “Workmanship” is the physical evidence of the building crafts and skills of a particular culture during a given period.
- “Feeling” is a property’s expression of the aesthetic or historic sense of a particular period of time.
- “Association” is the direct link between an important historic event or person and a cultural resource.

Special considerations apply to moved or reconstructed properties, cemeteries, religious or commemorative properties, and properties achieving significance within the past 50 years. As indicated in Section 101(d)(6)(A) of the NHPA, properties of traditional religious and cultural importance to an Indian Tribe are eligible for inclusion in the National Register. The National Register eligibility criteria and considerations are used as a standard in other programs such as the California Register of Historic Resources and many local evaluation and designation systems, including Oakland’s.

Section 106 of the NHPA requires review by the Advisory Council on Historic Preservation and/or State Historic Preservation Officer (SHPO) of any federal actions (including federally funded grants or loans) that may adversely affect properties listed on, eligible for, or *potentially eligible* for the National Register. National Register listing is normally initiated by an application to the State Historical Resources Commission. Determinations of eligibility usually take place as part of federally related project reviews. Properties officially determined eligible for the National Register have the same protections and the same standing in environmental review as those properties that have already been listed; however, only listed properties may qualify for a 20 percent federal investment tax credit.

There are no buildings listed in, or determined eligible for listing in, the National Register in the Plan Area. The closest National Register-listed building to the Plan Area is the Paramount Theater, located at 2025 Broadway, approximately 0.2 mile south of the Plan Area.

National Historic Landmarks. National Historic Landmarks (NHLs) are nationally significant historic places designated by the Secretary of the Interior because they possess exceptional value or quality in illustrating or interpreting the heritage of the United States. National Historic Landmarks are given special protection by Section 110(f) of the NHPA.

There are no NHLs in the Plan Area. The closest designated NHL to the Plan Area is the Paramount Theatre, located at 2025 Broadway and 21st Street, approximately 0.2 mile south of the Plan Area.

California Environmental Quality Act, California Register of Historical Resources, and California State Historical Landmarks

CEQA requires lead agencies in California to consider the effects of proposed actions on historic resources, defined as those resources *meeting the criteria* for listing on the California Register of Historic Resources (CRHR, California Register). This definition of “historic resources” includes buildings, structures, objects, sites, and districts determined to be eligible for or listed on the California Register, the National Register, or a local register of historic resources. A lead agency may also determine a resource to be significant for purposes of CEQA. Section 15064.5 of CEQA assigns special importance to human remains and specifies procedures to be followed when Native American remains are discovered.

The California Register was established as the authoritative guide to the state’s cultural resources, and provides the standards by which properties are considered significant for CEQA purposes. The California Register program encourages public recognition and protection of resources of architectural, historical, archaeological and cultural significance, identifies historical resources for state and local planning purposes, determines eligibility for state historic preservation grant funding and affords certain protections under CEQA. The California Register includes resources listed in or formally determined eligible for listing in the National Register; California State Historical Landmarks; and California Points of Historical Interest. The State Office of Historic Preservation (OHP) maintains a list of historical resources by county in their Directory of Properties in the Historic Property Data File. A building or structure identified in OHP’s Directory with a rating of 1 or 2 (on or determined eligible for the National Register) is considered to be “listed” on the California Register. No properties within the Plan Area are listed in or determined eligible for listing in the California Register.

Properties of local significance that have been designated under a local preservation ordinance (i.e., local landmarks), or that have been identified as significant in a local historical resources inventory may also be eligible for listing in the California Register and are presumed to be significant resources for purposes of CEQA.

In order for a resource to meet the criteria for listing in the California Register, it must satisfy all of the following three provisions:

1. It meets one or more of the following four criteria of significance (PRC 5024.1[c] and CEQA Guidelines 15064.5):
 - A. the resource “is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;”
 - B. the resource “is associated with the lives of persons important in our past;”
 - C. the resource “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
 - D. the resource “has yielded, or may be likely to yield information important in prehistory or history” (this criterion applies primarily to archaeological sites).
2. The resource retains historic integrity; and
3. It is fifty years old or older (except where it can be demonstrated that sufficient time has passed to understand the historical importance of the resource).

California Historical Landmarks recognize sites, buildings, features, or events that are of statewide significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value. The specific standards now in use were first applied in the designation of Landmark #770. California Historical Landmarks #770 and above are automatically listed in the California Register of Historical Resources.

There is one California Historical Landmark in the Plan Area: CHL 676, the site of Saint Mary’s College, which existed from 1889 to 1928 on the parcel now occupied by 3093 Broadway. This site is not listed in the California Register, because only those CHL’s numbered 770 and higher are automatically listed in this register, and this one has not been separately nominated.

Senate Bill (SB) 18

Effective January 2005 and in conformance with SB 18, which was signed into law by the Governor of California in September 2004, starting on March 1, 2005 local governments are required to consult with tribes before making certain planning decisions and to provide notice to tribes at certain key points in the planning process. The intent 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” (State of California, 2005).

According to the *Tribal Consultation Guidelines: Supplement to General Plan Guidelines* (2005), the following identifies the contact and notification responsibilities of local governments:

- Prior to the adoption or any amendment of a general plan or specific plan, a local government must notify the appropriate tribes (on the contact list maintained by the Native American Heritage Commission [NAHC]) of the opportunity to conduct consultations for the purpose

of preserving, or mitigating impacts to, cultural places located on land within the local government's jurisdiction that is affected by the proposed plan adoption or amendment. Tribes have 90 days from the date on which they receive notification to request consultation, unless a shorter timeframe has been agreed to by the tribe (Government Code § 65352.3).

- Prior to the adoption or substantial amendment of a general plan or specific plan, a local government must refer the proposed action to those tribes that are on the NAHC contact list and have traditional lands located within the city or county's jurisdiction. The referral must allow a 45-day comment period (Government Code § 65352). Notice must be sent regardless of whether prior consultation has taken place. Such notice does not initiate a new consultation process.
- Local government must send a notice of a public hearing, at least 10 days prior to the hearing, to tribes who have filed a written request for such notice (Government Code § 65092).

Local Plans and Policies

In the City of Oakland, a historical resource under CEQA is defined by the City's CEQA Thresholds of Significance as a resource that meets any of the following criteria:

1. A resource listed in, or determined to be eligible for listing in, the California Register of Historic Resources;
2. A resource included in Oakland's Local Register of Historical Resources (defined below), unless the preponderance of evidence demonstrates that it is not historically or culturally significant;
3. A resource identified as significant (e.g., rated 1–5) in a historical resource survey recorded on Department of Parks and Recreation Form (DPR) 523, unless the preponderance of evidence demonstrates that it is not historically or culturally significant;
4. Any object, building, structure, site, area, place, record, or manuscript which the Oakland City Council determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the determination is supported by substantial evidence in light of the whole record. Generally, a resource is considered "historically significant" if it meets the criteria for listing on the California Register of Historical Resources CEQA Guidelines section 15064.5; or
5. A resource that is determined by the City Council to be historically or culturally significant even though it does not meet the other four criteria listed here.

City of Oakland General Plan Historic Preservation Element

In March 1994, the Oakland City Council adopted a Historic Preservation Element (HPE) of the General Plan (amended July 21, 1998), which sets forth goals, objectives, policies, and actions for historic preservation in the City of Oakland. The HPE creates a wide-reaching, multifaceted "Historic Preservation Strategy" that addresses a wide variety of properties and is intended to help revitalize Oakland's districts and neighborhoods. Guiding the HPE are the two broad, ambitious goals at its core:

Goal 1: To use historic preservation to foster the economic vitality and quality of life in Oakland by:

- (1) Stressing the positive community attributes expressed by well-maintained older properties;
- (2) Maintaining and enhancing throughout the City the historic character, distinct charm, and special sense of place provided by older properties;
- (3) Establishing and retaining positive continuity with the past thereby promoting pride, a sense of stability and progress, and positive feelings for the future;
- (4) Stabilizing neighborhoods, enhancing property values, conserving housing stock, increasing public and private economic and financial benefits, and promoting tourist trade and interest through preservation and quality maintenance of significant older properties;
- (5) Preserving and encouraging a city of varied architectural styles and environmental character reflecting the distinct phases of Oakland's cultural, social, ethnic, economic, political, and architectural history; and
- (6) Enriching the quality of human life in its educational, spiritual, social, and cultural dimensions through continued exposure to tangible reminders of the past.

Goal 2: To preserve, protect, enhance, perpetuate, use, and prevent the unnecessary destruction or impairment of properties or physical features of special character or special historic, cultural, educational, architectural or aesthetic interest or value.

The chapters of the HPE address identification, designation, incentives and regulations, preservation in ongoing city activities, and education and information. The HPE sets out a graduated system of ratings and designations based on the Oakland Cultural Heritage Survey (OCHS) information and implemented in the Oakland Planning Code. Incentives and regulations for historic properties are similarly graduated based on the relative importance of the property.

Objectives and policies found in the HPE that are relevant to the Specific Plan are summarized below. They are relevant to the Plan because they provide guidance toward minimizing adverse effects to historic resources, and they have the potential to assist in implementation of beneficial HPE actions. Some of the actions related to these policies have already been completed, while some are ongoing.

Objective 1: Identifying Properties Potentially Warranting Preservation. Policies and actions related to this Objective adopt the Oakland Cultural Heritage Survey rating system, establish inventory goals and guidelines, and define the various types of Designated Historic Properties and Potential Designated Historic Properties (PDHP)s.

Policy 1.2: Potential Designated Historic Properties (PDHPs): The City considers any property with a rating of at least a contingency C or contributing or potentially contributing to a primary or secondary district to “warrant consideration for possible preservation.” These are called Potential Designated Historic Properties (PDHPs) and include approximately a fifth to a quarter of all buildings in Oakland. They are intended to be numerous enough to “significantly influence the City’s character.” The inclusion of contingency-rated properties as PDHPs is intended to highlight their

value as restoration opportunities. District contributors and potential contributors are classified as PDHPs to promote preservation of Oakland's distinctive neighborhoods.

Objective 2: Preservation Incentives and Regulations for Designated Historic Properties. This objective directs the City to develop a system of preservation incentives and regulations for specially designated significant older properties which (i) enhances economic feasibility for preservation; (ii) provides a predictable and appropriate level of protection, based on each property's importance; (iii) reasonably balances preservation with other concerns; and (iv) operates efficiently, avoiding unnecessary regulatory procedures and review periods.

Policy 2.1: The City will use a combination of incentives and regulations to encourage preservation of significant older properties and areas which have been designated as Landmarks, Preservation Districts, or Heritage Properties. The regulations will be applied according to the importance of each property, with the more important properties having stronger regulations. Policy 2.1 is a general policy which is expressed more specifically in this chapter's other policies and their related actions.

Policies 2.2 – 2.5 describe eligibility criteria, designation processes, and alteration and demolition regulations for Landmarks, Heritage Properties, and districts.

Policy 2.6: This policy recommends Preservation Incentives for Landmarks and Preservation District properties, including several financial incentives (e.g., Mills Act contracts, conservation easements, development assistance from historic preservation grants or historical rehabilitation bonds, fee waivers or reductions for City permits), use of the State Historical Building Code to provide more flexible construction standards, a broader range of permitted or conditionally permitted uses, and transferable development rights. Heritage Properties and compatible new development on vacant noncontributing parcels of a Preservation District are eligible for some of the same incentives.

Objective 3: Historic Preservation and Ongoing City Activities. This objective seeks to establish administrative procedures and criteria to promote preservation of significant older properties as a routine part of City-sponsored or assisted projects, programs and regulatory activities.

Policy 3.1: Avoid or minimize adverse historic preservation impacts related to discretionary City actions. Policy 3.1 is a general policy which is expressed more specifically in this Chapter's other policies and their related actions.

Policy 3.2: To the extent consistent with other Oakland General Plan objectives, the City will ensure that all City-owned or controlled properties will, in fact, be preserved, e.g. through designation or a formal historic preservation management procedure.

Policy 3.3: To the extent consistent with other General Plan goals, policies and objectives, as a condition for providing financial assistance to projects involving existing or Potential Designated Historic Properties, the City will require local designation.

Policy 3.4: City Acquisition for Historic Preservation Where Necessary. This policy proposes limited acquisition powers for extremely important properties in dire situations, including acquisition by eminent domain.

Policy 3.5: Historic Preservation and Discretionary Permit Approvals. This policy establishes design review findings for alterations and demolitions of Heritage Properties and PDHPs. This policy applies to both publicly and privately sponsored projects. Related actions include the development of appropriate design guidelines and standard conditions of approval for such projects.

Policy 3.6: Historic Preservation and City-Sponsored or Assisted Projects. This policy recommends that City-sponsored or assisted projects involving an existing or Potential Designated Historic Property “be selected and designed to avoid adverse effects...and to promote preservation and enhancement.” The Secretary of the Interior’s Standards for the Treatment of Historic Properties are used as one criterion for avoiding adverse effects. This policy extends the protections applied to federally related projects under Section 106 of the NHPA to “non-Federally funded City projects and to City projects that involve existing or Potential Designated Historic Properties.

Policy 3.7: As a condition of approval for all discretionary projects involving demolition of existing or Potential Designated Historic Properties, the City will normally require that reasonable efforts be made to relocate the properties to an acceptable site. Actions associated with this policy include preparation of relocation procedures and design guidelines, investigation of assistance programs, and review of permit regulations.

Policy 3.8: Definition of “Local Register of Historic Resources” and historic preservation “Significant Effects” for environmental review purposes. This policy defines the minimum set of historical resources that require consideration in environmental review and declares that complete demolition of a historic resource cannot normally be mitigated to a level of insignificance.

The Local Register is defined as:

All Designated Historic Properties (DHPs - Landmarks, Heritage Properties, Study List Properties, Preservation Districts, and S-7 and S-20 Preservation Combining Zone Properties); and

Those Potential Designated Historic Properties (PDHPs) that have an existing rating of “A” or “B,” or are located within an Area of Primary Importance (API).

Measures that may be considered to mitigate significant effects to a Historical Resource may include one or more of the following measures depending on the extent of the proposed addition or alterations⁴:

- 1) Modification of the project design to avoid adversely affecting the character defining elements of the property.
- 2) Relocation of the affected Historical Resource to a location consistent with its historical or architectural character.

If the above measures are not feasible, then other measures may be considered including, but not limited to the following:

- 3) Modification of the project design to include restoration of the remaining historic character of the property.

⁴ Per the provisions of CEQA, determination of whether mitigations are adequate to reduce a significant effect of a historical resource to a level less than significant will be determined by the Lead Agency on a case-by-case basis.

- 4) Modification of the project design to incorporate or replicate elements of the building's original architectural design.
- 5) Salvage and preservation of significant features and materials of the structure in a local museum or within the new project.
- 6) Measures to protect the Historical Resource from effects of on-site or other construction activities.
- 7) Documentation in a Historic American Buildings Survey report or other appropriate format: photographs, oral history, video, etc.
- 8) Placement of a plaque, commemorative, marker, or artistic or interpretive display on the site providing information on the historical significance of the resource.
- 9) Contribution to a Facade Improvement Fund, the Historic Preservation Revolving Loan Fund, the Oakland Cultural Heritage Survey, or other program appropriate to the character of the resource.

Policy 3.9: Consistency of zoning with existing or eligible preservation districts. This policy recommends including a historic preservation component in areawide and specific plans.

Policy 3.10: Historic preservation in response to earthquakes, fires or other emergencies.

Policy 3.11: Historic preservation and seismic retrofit and other building safety programs. Policies 3.10 and 3.11 direct that retrofit and repair be carried out in a manner that minimizes adverse effects on character-defining elements.

Policies 3.12 and 3.13 recommend an extensive program for dealing with substandard and nuisance properties, including repair rather than demolition, earlier intervention, repair with liens, property acquisition and transfer, financial assistance, and improved security of vacant properties.

Policy 3.14: Promotes commercial revitalization programs and California Main Street projects with a specific focus on preserving and enhancing designated and potential designated historic commercial properties and districts.

Objective 4: Archaeological Resources. This objective seeks to develop databases identifying existing and potential archaeological sites and adopt procedures for protecting significant archaeological resources. Related policies and actions describe the measures the City will take to protect significant archaeological resources during ground-disturbing activities associated with discretionary projects.

Objective 5: Information and Education. This objective seeks to provide and encourage informational and educational programs to enhance public and City staff appreciation of older properties and increase the level of technical knowledge. Associated policies and actions promote research and information dissemination programs; public recognition of historic properties and preservation efforts through plaques, certificates, walking tours and guidebooks; City-sponsored design assistance, rehabilitation training and apprenticeship programs, rehabilitation publications, and a preservation-related design and construction bookstore; public school curricula emphasizing Oakland's history and architectural heritage; and improved City records management.

As detailed below, the Plan Area contains 20 individual properties that meet the definition of the City of Oakland's Local Register and are considered significant for purposes of environmental review under CEQA. These resources are shown in **Table 4.4-1** and **Table 4.4-2** below and mapped on **Figure 4.4-2**.

TABLE 4.4-1
SUMMARY TABLE OF CEQA HISTORIC RESOURCES WITHIN PLAN AREA

Key #	Street Address	Year Built	Historic Name/Current Name	OCHS Rating/Survey Type
1	2355 Broadway	1913-14	Packard & Maxwell Don Lee Western Auto Bldg / Packard Lofts	B+1+, Study List, API contributor / Intensive Survey
2	2401 Broadway	1913-14	Pacific Kissel Kar salesroom and garage/Oakland Mitsubishi	Eb-1*, API contingency contributor (restoration potential)/ Intensive Survey
3	2601-19 Broadway	1913-14	First Presbyterian Church/same	A3, Study List/ Intensive Survey
4	2740 Broadway	1929	Pacific Nash Co. auto sales and garage/Volkswagen of Oakland	Cb+2+, proposed B rating in 2009 Survey/ Intensive Survey
5	2801-25 Broadway	1916	Arnstein-Field & Lee Star showroom/none	Cb+2+, proposed B-rating in 2009 Survey/ Intensive Survey
6	2863-69 Broadway	1892	Scherman building/none	B*2+/ Intensive Survey
7	2946-64 Broadway	1930	Firestone Tire & Rubber service station/Mercedes Benz of Oakland	B-2+/ Intensive Survey
8	3074 Broadway	1917	Grandjean Burman GM Co-Alzina garage / Window Tinting Plus	B-2+/ Intensive Survey
9	3330-60 Broadway	1917	Eisenback (Leo)-Strough (Val) showroom/Honda of Oakland	B*2+/ Intensive Survey
10	3093 Broadway	1947	Connell GMC Pontiac Cadillac/Bay City Chevrolet	Cb+2+, proposed B rating in 2009 Survey/ Intensive Survey
11	2332 Harrison St	1925-26	YWCA Blue Triangle Club/Lake Merritt Lodge	A3/ Intensive Survey
12	2333 Harrison St	1915-18	Seventh Church of Christ Scientist/unoccupied	A3/ Intensive Survey
13	2346 Valdez St	1909-10	Newsom Apartments/same	B+2+/ Intensive Survey
14	2735 Webster St	1924	Howard Automobile-Dahl Chevrolet showroom /Infiniti of Oakland	Cb+2+, proposed B-rating in 2009 Survey/ Intensive Survey
15	315 27th St	1962-64	Biff's II Coffee Shop/JJ's - /unoccupied	*b+3, Heritage Property, determined eligible as a Landmark status on 1/13/97 / Intensive Survey
25th Street Garage District (existing API)				

SOURCE: See Appendix D

**TABLE 4.4-2
CEQA HISTORIC RESOURCES WITHIN PLAN AREA IDENTIFIED IN A PREVIOUS EIR**

	Street Address	Year Built	Historic Name/Current Name	OCHS Rating and Notes
16	2335 Broadway	1920	Dinsmore Brothers Auto Accessories Building/Unoccupied	Eb+3. Heavily altered but with rehabilitation potential. Designed by renowned California architect Julia Morgan / Intensive Survey
17	2343 Broadway	1924-25	Kiel (Arthur) auto showroom/Unoccupied	Ec3. Heavily altered but with rehabilitation potential / Intensive Survey
18	2345 Broadway	1920	J.E. French Dodge showroom/Unoccupied	Eb-3. Heavily altered but with rehabilitation potential / Intensive Survey
19	2366-2398 Valley Street	1936	Art Deco warehouse/none	Cb-2+. Rehabilitation potential / Intensive Survey
20	440-448 23rd Street	1919	Elliot (C.T.) Shop-Valley Auto Garage/Unoccupied	Cb+2+. Rehabilitation potential / Intensive Survey

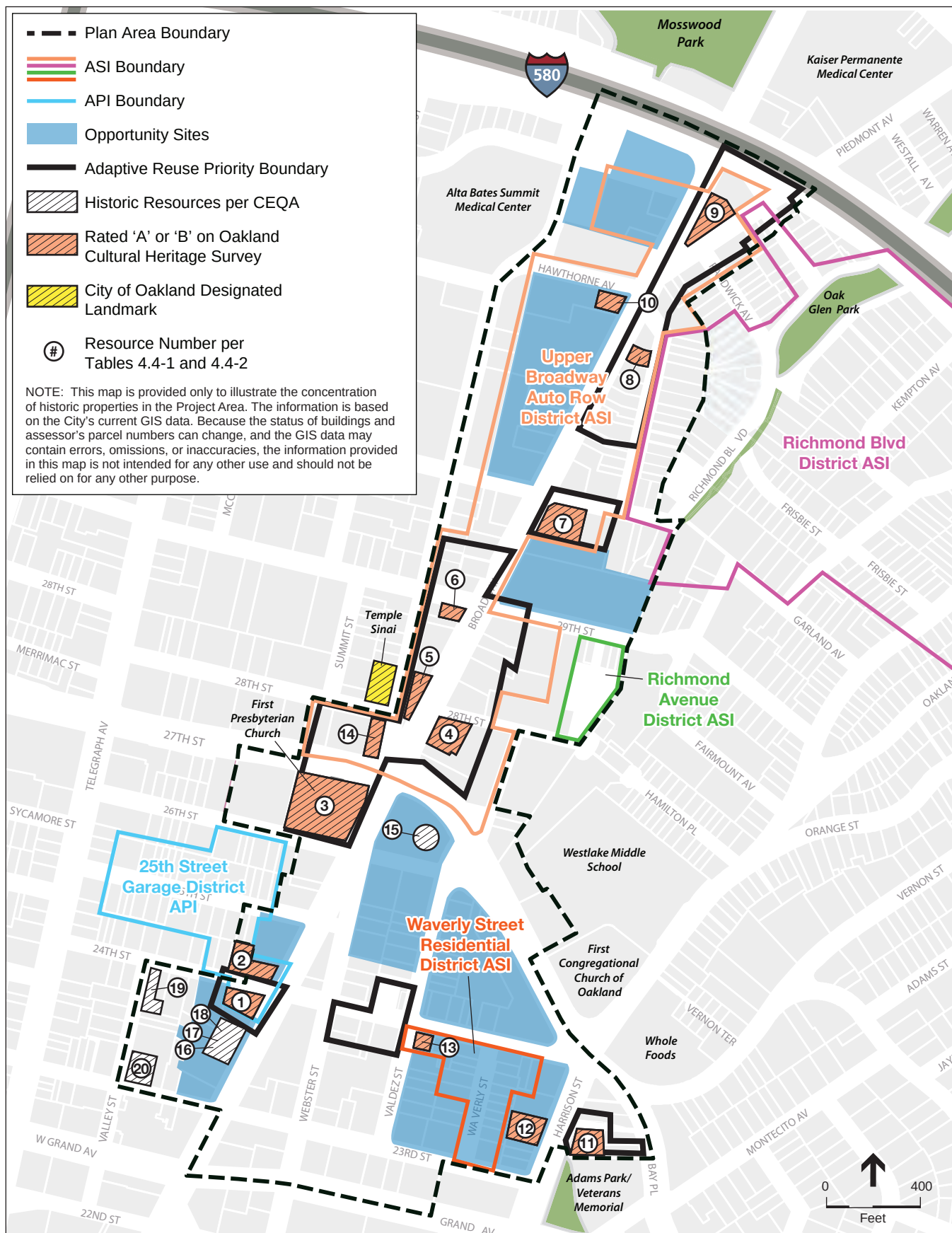
SOURCE: ESA, 2004, 2008

Oakland Cultural Heritage Survey

The Oakland Cultural Heritage Survey (OCHS) is the City Planning Department's comprehensive city-wide inventory of historic buildings and districts. Since 1979, the OCHS has created and maintained an inventory of historic resources throughout the city, providing a basis for many of the policies in the HPE. Every property in Oakland has at least a preliminary rating and estimated construction date from reconnaissance surveys conducted in 1985-1986 and 1996-1997. These preliminary surveys are intended to be confirmed or modified over time by the OCHS Intensive

Survey or project reviews. Most buildings in the Plan Area has been comprehensively researched, evaluated, and documented through intensive -level surveys between 1985 and 2009. Inclusion of a property in the OCHS has no direct regulatory effect; however, the ratings provide guidance to City staff and property owners in design review, code compliance, and similar ongoing City activities, and highest-rated properties are included in the Local Register. The intensive survey formal evaluation is based on the following criteria:

1. **Visual Quality/Design:** Evaluation of exterior design, interior design (if notable and visible), materials and construction, style or type, supporting elements, and importance of designer.
2. **History/Association:** Association with important person or organization, event, or patterns of history, and the age of the building.
3. **Context:** Continuity (district status) and familiarity of the building within the city, neighborhood, or district.
4. **Integrity and Reversibility:** The building's condition, its exterior and interior alterations, and any structural removals.



SOURCE: ESA

Broadway Valdez District Specific Plan . 208522
Figure 4.4-2
 Historic Resources in the Plan Area

Survey ratings describe both the individual building and its neighborhood (district) context. The OCHS rates individual properties using letters A through E plus *, and numbers for district status:

- A: Highest importance:** Of exceptional historical or architectural value, outstanding example, appearing clearly eligible for the National Register.
- B: Major importance:** Major historical or architectural value, fine example, likely eligible for the National Register.
- C: Secondary importance:** Superior or visually important example, very early, or otherwise noteworthy; these properties “warrant limited recognition” but generally do not appear individually eligible for the National Register.
- D: Minor importance:** Typical or representative example of a type, style, convention, or historical pattern.
- E: Of no particular interest:** not representative of any important pattern and visually undistinguished. *There are approximately 22 E-rated buildings in the Plan Area.*

*** or F: Not rated:** Too recent to rate or totally modernized.

Contingency Ratings (lower-case letter, as in “Dc” or “Fb”): potential rating under some condition, such as “if restored” or “when older” or “with more information.”

District status is indicated by numbers:

- 1: In an area of Primary Importance (API)** or National Register quality district.
- 2: In an Area of Secondary Importance (ASI)** or district of local interest.
- 3: Not in an identified district.**

For properties in districts, + indicates contributors, - noncontributors, * contingency contributors.

The HPE describes the district component of a rating as a Multiple Property Rating (1, 2, or 3) based on an assessment of the significance of the area in which the property is located. Properties within an Area of Primary Importance (API: areas that appear eligible for the National Register) are rated “1,” those located in an Area of Secondary Importance (ASI: likely not eligible for the National Register) are rated “2,” and those outside an identified district are rated “3.” A plus (+), minus (-), or asterisk (*) symbol indicates respectively whether the property contributes to the API or ASI, does not contribute, or potentially contributes.

APIs are defined in the HPE as historically or visually cohesive areas or property groupings that usually contain a high proportion of individual properties with ratings of “C” or higher and appear eligible for the National Register, either as a district or as a historically-related complex. At least two-thirds of the properties must be contributors to the API, reflecting the API’s principal historical or architectural themes, and must not have undergone major alterations. APIs and their contributors are included on the Local Register, and as such, are considered ‘historic resources’ for CEQA purposes.

ASIs are similar to APIs; however, remodeled buildings that are potential contributors to the ASI are counted for purposes of the two-thirds threshold as well as contributors. ASIs do not appear eligible for the National Register, usually because they are less intact than, or not as distinct as APIs. Although contributors to an ASI are not considered 'historic resources' by CEQA per se, they may have local importance that is worthy of recognition in specific planning efforts.

All these individual and district ratings are represented among the Plan Area properties:

A: Highest importance: There are three A rated buildings in the Plan Area:

- 1) First Presbyterian Church at 2601-19 Broadway,
- 2) Seventh Church of Christ Scientist at 2333 Harrison Street, and
- 3) YWCA Blue Triangle Club at 2332 Harrison Street.

B: Major importance: There are a total of 10 B rated buildings in the Plan Area. Six buildings in the Plan Area have existing B ratings, unchanged from earlier evaluations. These are:

- 1) Packard & Maxwell Don Lee Western Auto Building at 2355 Broadway (Packard Lofts),
- 2) Firestone Tire & Rubber Service Station at 2946-64 Broadway (Mercedes Benz),
- 3) Grandjean Burman -GM Co. Alzina garage at 3074 Broadway,
- 4) Eisenback (Leo)-Strough (Val) showroom/Honda of Oakland at 3330-60 Broadway,
- 5) Scharman building at 2863-69 Broadway, and
- 6) Newsom Apartments at 2346 Valdez Street.

Four other buildings in the Plan Area have proposed B ratings, revised as a result of the reconnaissance-level inventory completed for the Plan Area in 2009 reported in the 2009 HRI (see Appendix D). They have a proposed B rating because they have been restored or have become 50 years old since they were originally evaluated. These are:

- 7) Pacific Nash Co. Auto Sales and Garage at 2740 Broadway,
- 8) Arnstein-Field & Lee Star showroom at 2801-25 Broadway,
- 9) Connell GMC Pontiac Cadillac at 3093 Broadway, and
- 10) Howard Automobile-Dahl Chevrolet showroom at 2735 Webster Street.

C: Secondary importance: There are approximately 46 C rated buildings located in the Plan Area (out of about 10,000 citywide). Many of these buildings are contributors to the four ASIs (Area of Secondary Importance Historic District) in the Plan Area in addition to their individual PDHP status.

D: Minor importance: Many D and lower-rated properties are Potential Designated Historic Properties (PDHPs), either because they have higher contingency ratings or because they contribute or potentially contribute to a district. There are more than

25,000 D rated citywide, with approximately 60 located in the Plan Area. Many of these buildings are contributors to the four ASIs in the Plan Area.

E, Of no particular interest: There are approximately 22 E-rated buildings in the Plan Area, some with higher contingency ratings (restoration potential).

*** or F, Not rated:** Too recent to rate or totally modernized. Some of these also have higher contingency ratings. There are approximately 23 buildings with * or F ratings in the Plan Area.

APIs: Two parcels in the 25th Street Garage District API are located in the Plan Area. The buildings in this district are predominantly one-story brick and truss-roofed garages built between 1920 and 1929. The district is significant as a concentrated, intact, and homogeneous group of buildings of a distinctive type, dating from a specific period of Oakland's economic development. **2355 Broadway** is rated B+1+, and **2401 Broadway** is rated Eb-1* (contingency contributor, restoration potential). Both meet the HPE definition of Local Register properties: Potential Designated Historic Properties (PDHPs) that have an existing rating of "A" or "B," or are located within an API. Other buildings in the API are also historic resources for CEQA purposes, but they are outside the Plan Area and are not listed here.

ASIs: Four ASIs are wholly or partly in the Plan Area: 1) Broadway Auto Row District, 2) Waverly Street Residential District, 3) Richmond Avenue District, and 4) Richmond Boulevard District. Each of these ASIs is briefly described below, and they are shown on Figure 4.4-2.

The Broadway Auto Row District ASI is a distinctive early 20th century commercial district of approximately 49 buildings on 53 assessor's parcels, all of which are in the Plan Area. Approximately 34 properties contribute to the district's significance. Most buildings date from the 1910s through 1940s, and main property types are Beaux Arts and Moderne automobile showrooms, early 20th century utilitarian service garages, and 1920s decorative brick commercial buildings.

The Waverly Street Residential District ASI is an early twentieth century residential district consisting of 16 contributors on 19 assessor's parcels within the Valdez Triangle portion of the Plan Area. This collection of Colonial Revival and Craftsman-style residences, centered along Waverly Street between 23rd and 24th Streets, was constructed primarily between 1900 and 1925, mostly around 1908. The Newsom Apartments at 2346 Valdez Street is a contributor to this district, and is individually rated B. All contributors to this district are within the Plan Area.

The Richmond Avenue District ASI is a residential district of 13 homes on 13 assessor's parcels. All buildings are Craftsman cottages from the 1910s, either one or one and a half stories in height, and include examples of early residential garages. All contributors to this district are within the Plan Area.

The Richmond Boulevard District ASI is an architecturally distinguished turn of the century residential district of approximately 116 buildings on 137 parcels on seven blocks along Glen Echo Creek and Oak Glen Park. A portion of this district is in the Plan Area. Most buildings date from the 1900s-1920s. The buildings include predominantly Craftsman and Colonial Revival style single family homes, mostly two stories in height. Approximately 13 contributors to the

Richmond Boulevard District are within the Plan Area, including portions of Brook Street and 30th Street.

Designated Historic Properties

The Oakland Planning Code currently provides for five types of historic property designations: Oakland Landmarks, S-7 and S-20 Preservation Combining Zones (historic districts), Preservation Study List, and Heritage Properties. It also establishes the Landmarks Preservation Advisory Board (Landmarks Board) to oversee these properties. Designated Historic Properties (DHPs) are all automatically on the Local Register and are all historic resources for CEQA purposes.

Oakland Landmarks (Section 17.07.030(p) of the Planning Code). Properties designated as Oakland Landmarks are those having “special character or special historical, cultural, educational, architectural, aesthetic or environmental interest or value.” This definition is more specifically interpreted in the Landmark Board’s “Guidelines for Determination of Landmark Eligibility” (City of Oakland 1994: Appendix D of Historic Preservation Element). Designation is through a three-stage application process requiring public hearings and approval by the Landmarks Board, Planning Commission, and City Council. Landmarks are protected by Landmarks Board review of exterior alterations. Demolition of landmarks can be delayed by up to 240 days, and is subject to specific detailed findings.

There are about 150 designated landmarks in the City of Oakland. Although the A and B rated buildings described above are almost certainly eligible as Oakland Landmarks, there are no designated landmarks in the Plan Area. The closest landmark is Temple Sinai adjoining the Plan Area at 362 28th Street at Webster Street.

S-7 and S-20 Preservation Combining Zone (Sections 17.84 and 17.100B of the Planning Code). The S-7 and S-20 Preservation Combining Zones are the City’s historic preservation zoning districts. Areas eligible for S-7 designation are those having “special importance due to historical association, basic architectural merit, or the embodiment of a style or special type of construction, or other special character, interest, or value.” District boundaries can be established by historic tract boundaries and historic natural or man-made features that shaped the district’s development (e.g., the shoreline, railroad tracks), by later intrusion or demolition, or by practical considerations such as existence of an interested group of applicants. The S-20 zone is similar to the S-7 zone, but is designed for larger areas, typically with a large number of residential properties that may not be individually eligible for landmark designation but which as a whole constitute a historic district. Demolition and design regulations for S-7 and S-20 properties are similar to those for landmarks, as described above. In the S-20 zone, most design review follows ordinary City processes, with potential referral to Landmarks Board.

There are currently nine S-7 and S-20 preservation districts containing approximately 1,500 individual properties citywide, none of which is in or near the Plan Area.

Preservation Study List and Heritage Properties (Section 17.102.060 of the Planning Code). The Preservation Study List, used in the first three decades of the Landmarks Board’s existence, was defined as “a list of facilities under serious study for possible landmark designation or for

other appropriate preservation action.” The Landmarks Board, the Planning Commission, or the Planning Director could add properties to the list while it was active. For new listings, the Study List function has been superseded by the Local Register of Historical Resources (HPE Policy 3.5) and Heritage Property designation (HPE Policy 2.5). A new, formal designation called Heritage Property is established in the Preservation Element for “properties which definitively warrant preservation but which are not Landmarks or Preservation Districts.” Properties are eligible for nomination if they have at least an existing or contingency C (secondary) rating or could contribute to a preservation district. Heritage Property can be considered a less exclusive form of Landmark designation.

The Planning Director can postpone demolition of a Study List or Heritage Property for up to 120 days, during which time Landmark or other preservation designations may occur or other means to preserve the property can be investigated.

There are two Preservation Study List properties in the Plan Area:

- 1) *Packard & Maxwell Don Lee Western Auto Bldg at 2355 Broadway (Packard Lofts), and*
- 2) *First Presbyterian Church at 2601-19 Broadway.*

There is one Heritage Property in the Plan Area:

- 1) *Biff’s II Coffee Shop at 315 27th Street. Biff’s is on the City’s Local Register by virtue of Landmarks Board Determination of Eligibility on 1/13/97, which is equivalent to Heritage Property status. An EIR prepared by the City in 1997 for a proposed Chevron/McDonald’s project at this site also identified Biff’s Coffee Shop as a historic resource for CEQA purposes.*

Potential Designated Historic Properties - PDHPs

Under Policy 1.2 of the HPE, Potential Designated Historic Properties (PDHPs) are any properties that have an OCHS rating of at least a contingency C, or that contribute or potentially contribute to a primary or secondary district. These properties “warrant consideration for possible preservation.” PDHPs are a large group - approximately one-fifth to one-quarter of all buildings in Oakland. They are intended to be numerous enough to “significantly influence the City’s character.” The inclusion of contingency-rated properties as PDHPs is intended to highlight their value as restoration opportunities. District contributors and potential (contingency) contributors are classified as PDHPs to promote preservation of Oakland’s distinctive neighborhoods. *There are approximately 106 PDHPs in the Plan Area. Most of these are rated C or D and many are contributors to the four ASIs in the Plan Area.*

While most PDHPs do not appear obviously eligible for the National or California Registers and therefore (in the absence of Heritage Property designation or some other formal action) do not meet the CEQA definition of “historic resources,” they are recognized and protected under the HPE for their contribution to the Oakland environment, and warrant consideration for possible preservation, as described in the HPE. Chapter 5 (Policies 3.1 through 3.14 and Policy 1.2) of the HPE contain policies and actions for the protection and enhancement of PDHPs.

Local Register of Historical Resources

The HPE provides the following definition of the City of Oakland's Local Register of Historical Resources (Local Register), or properties considered significant for purposes of environmental review under CEQA:

1. All Designated Historic Properties (DHPs - Landmarks, Heritage Properties, Study List Properties, Preservation Districts, and S-7 and S-20 Preservation Combining Zone Properties); and
2. Those Potential Designated Historic Properties (PDHPs) that have an existing rating of "A" or "B," or are located within an Area of Primary Importance (API). An API is a district that appears eligible for the National Register.

In the Plan Area 20 individual properties, including two in an API, meet the criteria for the City of Oakland's Local Register, and are considered significant for purposes of environmental review under CEQA. These resources are shown in Tables 4.4-1, 4.4-2, and Table 4.4-3 and mapped on Figure 4.4-2.

**TABLE 4.4-3
CEQA HISTORIC DISTRICT WITHIN THE PLAN AREA**

District Name	District Contributor Name and Address
25th Street Garage District API	Packard & Maxwell Don Lee Western Auto Bldg / Packard Lofts – 2355 Broadway

City of Oakland Planning Code

In addition to providing definitions and procedures for the Designated Historic Properties (as discussed above under *City of Oakland General Plan Historic Preservation Element*), the Planning Code contains specific regulations for certain types of projects.

17.136.055 Special Regulations for Historic Properties in the Central Business Zones. This chapter of the Code applies to projects within Central Business Zones that involve existing or Potential Designated Historic Properties (PDHPs).⁵ It contains findings applicable to alterations, additions and new construction, and circumstances requiring hearings in front of the Landmarks Board. In short, these projects must ensure that the character-defining elements of a historic property are not adversely affected by the proposed project, and that such projects would be visually compatible with surrounding historic properties (if located in a historic district).

17.136.075 Regulations for Demolition or Removal of Designated Historic Properties and Potentially Designated Historic Properties. This chapter codifies regulations for approval of demolition or removal permits. With the exception of structures declared to be a public nuisance by the Building Official or City Council, Regular Design Review of the demolition or removal of

⁵ While no part of the Plan Area is currently within the Central Business District zoning classification, the rezoning that would accompany adoption of the Specific Plan would add the majority of the Valdez subarea into the Central Business District (see figures 3-3 through 3-6 in Chapter 3, *Project Description*). As such, Planning Code 17.136.055 would pertain to the parcels newly added to the Central Business District.

a Designated Historic Property or PDHP shall only be approved after the Regular Design Review of a replacement project at the subject site has been approved; however, demolition of nuisance structures must still undergo Regular Design Review for demolition. Regular Design Review approval for the demolition or removal of any Local Register property may be granted only if the proposal conforms to the general design review criteria, all other applicable design review criteria, and additional criteria set forth in the chapter. Demolition findings and documentation requirements are further spelled out in the Planning Department's "Demolition Findings for Category I / II / III Historic Properties." The Director of City Planning may postpone issuance of a demolition permit for up to 120 days from the date of permit application following Design Review approval.

Planning Code Section 17.136.075 (B) requires Design Review for the demolition or removal of any Landmark, Heritage Property, structure rated A or B by the Oakland Cultural Heritage Survey, or structure on the City's Preservation Study List that is not in an S-7 or S-20 zone or Area of Primary Importance (API). Approval may be granted only if the proposal conforms to the general design review criteria, all other applicable design review criteria, and the following additional criteria:

1. The applicant demonstrates that: a) the existing property has no reasonable use or cannot generate a reasonable economic return and that the development replacing it will provide such use or generate such return, or b) the applicant demonstrates that the structure constitutes a hazard and is economically infeasible to rehabilitate on its present site. For this finding, a hazard constitutes a threat to health and safety that is not immediate;
2. The design quality of the replacement facility is equal or superior to that of the existing facility; and
3. It is economically, functionally, architecturally, or structurally infeasible to incorporate the historic structure into the proposed development

Planning Code Section 17.136.075 (C) requires Regular Design Review for the demolition or removal of any structure in an S-7 or S-20 zone or Area of Primary Importance (API). Approval may be granted only if the proposal conforms the general design review criteria, all other applicable design review criteria, and the following additional criteria:

1. For the demolition of contributors to an S-7 or S-20 zone or API:
 - a. The applicant demonstrates that: i) the existing property has no reasonable use or cannot generate a reasonable economic return and that the development replacing it will provide such use or generates such return, or ii) the applicant demonstrates that the structure constitutes a hazard and is economically infeasible to rehabilitate on its present site. For this criterion, a hazard constitutes a threat to health and safety that is not immediate; and
 - b. It is economically, functionally architecturally, or structurally infeasible to incorporate the historic structure into the proposed development.
2. For the demolition of noncontributors to an S-7 zone, S-20 zone, or API: The existing structure is either: i) seriously deteriorated or a hazard, or ii) the existing design is

undistinguished and does not warrant retention. For this finding, a hazard constitutes a threat to health and safety that is not immediate;

3. For the demolition of any structure in an S-7 zone, S-20 zone or API:
 - a. The design quality of the replacement structure is equal or superior to that of the existing structure; and
 - b. The design of the replacement project is compatible with the character of the district, and there is no erosion of design quality at the replacement project site and in the surrounding area. Specific findings are spelled out.

Planning Code Section 17.136.075 (D) requires Design Review Approval for the demolition or removal of any structure that is rated C by the by the Oakland Cultural Heritage Survey or that contributes to an Area of Secondary Importance (ASI) as determined by OCHS. Approval may be granted only if the proposal conforms to the following general design review criteria (based on HPE Policy 3.5):

1. The design quality of the proposed replacement project is at least equal to that of the original structure and the proposed replacement project is compatible with the character of the neighborhood; or
2. The public benefits of the proposed replacement project outweigh the benefit of retaining the original structure and the proposed replacement project is compatible with the character of the neighborhood; or
3. The existing design is undistinguished and does not warrant retention and the proposed design is compatible with the character of the neighborhood.

City of Oakland Municipal Code Article III – Green Building Compliance Standards

(Section 18.02.100). This regulation requires all buildings or projects to comply with the requirements of the California Building Energy Efficiency Standards (Title 24, Part 6) of the California Building Code and includes special provisions for historic buildings. Applicants for any new construction projects resulting in removal of a historic resource or large additions and alterations to historic resources must consult with a Historic Preservation Planner, and seek LEED and Green Building certification, in addition to other specific requirements. The code also offers various incentives, such as lowered green building requirements when avoiding demolition of historic buildings, and conversely, higher green building requirements when demolishing historic buildings.

City of Oakland Standard Conditions of Approval and Uniformly Applied Development Standards Imposed as Standard Conditions of Approval

Standard Conditions of Approval (SCAs) relevant to the cultural resources that might be affected by the adoption of and development under the Specific Plan are listed below. If the Specific Plan is adopted by the City, all applicable SCAs will be adopted as conditions of approval to help ensure no significant impacts to cultural resources occur. Because the conditions of approval are incorporated as part of the Specific Plan, they are not listed as mitigation measures.

- **SCA 52: Archaeological Resources**

Ongoing throughout demolition, grading, and/or construction

- a. Pursuant to CEQA Guidelines section 15064.5 (f), “provisions for historical or unique archaeological resources accidentally discovered during construction” should be instituted. Therefore, in the event that any prehistoric or historic subsurface cultural resources are discovered during ground disturbing activities, all work within 50 feet of the resources shall be halted and the project applicant and/or lead agency shall consult with a qualified archaeologist or paleontologist to assess the significance of the find. If any find is determined to be significant, representatives of the project proponent and/or lead agency and the qualified archaeologist would meet to determine the appropriate avoidance measures or other appropriate measure, with the ultimate determination to be made by the City of Oakland. All significant cultural materials recovered shall be subject to scientific analysis, professional museum curation, and a report prepared by the qualified archaeologist according to current professional standards.
- b. In considering any suggested measure proposed by the consulting archaeologist in order to mitigate impacts to historical resources or unique archaeological resources, the project applicant shall determine whether avoidance is necessary and feasible in light of factors such as the nature of the find, project design, costs, and other considerations. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery) shall be instituted. Work may proceed on other parts of the project site while measure for historical resources or unique archaeological resources is carried out.
- c. Should an archaeological artifact or feature be discovered on-site during project construction, all activities within a 50-foot radius of the find would be halted until the findings can be fully investigated by a qualified archaeologist to evaluate the find and assess the significance of the find according to the CEQA definition of a historical or unique archaeological resource. If the deposit is determined to be significant, the project applicant and the qualified archaeologist shall meet to determine the appropriate avoidance measures or other appropriate measure, subject to approval by the City of Oakland, which shall assure implementation of appropriate measures recommended by the archaeologist. Should archaeologically-significant materials be recovered, the qualified archaeologist shall recommend appropriate analysis and treatment, and shall prepare a report on the findings for submittal to the Northwest Information Center.
- d. Archaeological Resources – Sensitive Areas. *Prior to issuance of a demolition, grading, or building permit*, the project applicant shall implement either Provision A (Intensive Pre-Construction Study) or Provision D (Construction ALERT Sheet). However, if in either case a high potential presence of historic-period archaeological resources on the project site is indicated, or a potential resource is discovered, the project applicant shall also implement all of the following provisions:
 - Provision B (Construction-Period Monitoring),
 - Provision C (Avoidance and/or Find Recovery), and
 - Provision D (to establish a Construction ALERT Sheet if the Intensive Pre-Construction Study was originally implemented per Provision A, or to update and provide more specificity to the initial Construction ALERT Sheet if a Construction ALERT Sheet was originally implemented per Provision D).

Provision A through Provision D are detailed as follows:

- *Provision A: Intensive Pre-Construction Study* – The project applicant, upon approval from the City Planning and Zoning Division, may choose to complete a site-specific, intensive archaeological resources study prior to soil-disturbing activities occurring on the project site. The purpose of the site-specific, intensive archaeological resources study is to identify early the potential presence of history-period archaeological resources on the project site. If that approach is selected, the study shall be conducted by a qualified archaeologist approved by the City Planning and Zoning Division. If prepared, at a minimum, the study shall include:
 - An intensive cultural resources study of the project site, including subsurface presence/absence studies, of the project site. Field studies conducted by the approved archaeologist(s) may include, but are not limited to, auguring and other common methods used to identify the presence of archaeological resources;
 - A report disseminating the results of this research;
 - Recommendations for any additional measures that could be necessary to mitigate any adverse impacts to recorded and/or inadvertently discovered cultural resources.

If the results of the study indicate a high potential presence of historic-period archaeological resources on the project site, or a potential resource is discovered, the project applicant shall hire a qualified archaeologist to monitor any ground disturbing activities on the project site during construction (see Provision B, Construction-Period Monitoring, below), implement avoidance and/or find recovery measures (see Provision C, Avoidance and/or Find Recovery, below), and prepare an ALERT Sheet that details what could potentially be found at the project site (see Provision D, Construction ALERT Sheet, below).

- *Provision B: Construction-Period Monitoring* – Archaeological monitoring would include briefing construction personnel about the type of artifacts that may be present (as referenced in the ALERT Sheet, require per Provision D, Construction ALERT Sheet, below) and the procedures to follow if any are encountered, field recording and sampling in accordance with the Secretary of Interior's *Standards and Guidelines for Archaeological Documentation*, notifying the appropriate officials if human remains or cultural resources are discovered, or preparing a report to document negative findings after construction is completed. If a significant archaeological resource is discovered during the monitoring activities, adherence to Provision C, Avoidance and/or Find Recovery, discussed below), would be required to reduce the impact to less than significant. The project applicant shall hire a qualified archaeologist to monitor all ground-disturbing activities on the project site throughout construction.
- *Provision C: Avoidance and/or Find Recovery* – If a significant archaeological resource is present that could be adversely impacted by the proposed project, the project applicant of the specific project site shall either:
 - Stop work and redesign the proposed project to avoid any adverse impacts on significant archaeological resource(s); or,

- If avoidance is determined infeasible by the City, design and implement an Archaeological Research Design and Treatment Plan (ARDTP). The project applicant shall hire a qualified archaeologist who shall prepare a draft ARDTP that shall be submitted to the City Planning and Zoning Division for review and approval. The ARDTP is required to identify how the proposed data recovery program would preserve the significant information the archaeological resource is expected to contain. The ARDTP shall identify the scientific/historic research questions applicable to the expected resource, the data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. The ARDTP shall include the analysis and specify the curation and storage methods. Data recovery, in general, shall be limited to the portions of the archaeological resource that could be impacted by the proposed project. Destructive data recovery methods shall not be applied to portions of the archaeological resources if nondestructive methods are practical. The project applicant shall implement the ARDTP. Because the intent of the ARDTP is to save as much of the archaeological resource as possible, including moving the resource, if feasible, preparation and implementation of the ARDTP would reduce the potential adverse impact to less than significant.
- *Provision D: Construction ALERT Sheet* – The project applicant, upon approval from the City Planning and Zoning Division, may choose to prepare a construction ALERT sheet prior to soil-disturbing activities occurring on the project site, instead of conducting site-specific, intensive archaeological resources pursuant to Provision A, above. The project applicant shall submit for review and approval by the City prior to subsurface construction activity an “ALERT” sheet prepared by a qualified archaeologist with visuals that depict each type of artifact that could be encountered on the project site. Training by the qualified archaeologist shall be provided to the project’s prime contractor; any project subcontractor firms (including demolition, excavation, grading, foundation, and pile driving); and/or utilities firm involved in soil-disturbing activities within the project site.

The ALERT sheet shall state, in addition to the basic archaeological resource protection measures contained in other standard conditions of approval, that in the event of discovery of the following cultural materials, all work must be stopped in the area and the City’s Environmental Review Officer contacted to evaluate the find: concentrations of shellfish remains; evidence of fire (ashes, charcoal, burnt earth, fire-cracked rocks); concentrations of bones; recognizable Native American artifacts (arrowheads, shell beads, stone mortars [bowls], humanly shaped rock); building foundation remains; trash pits, privies (outhouse holes); floor remains; wells; concentrations of bottles, broken dishes, shoes, buttons, cut animal bones, hardware, household items, barrels, etc.; thick layers of burned building debris (charcoal, nails, fused glass, burned plaster, burned dishes); wood structural remains (building, ship, wharf); clay roof/floor tiles; stone walls or footings; or gravestones.

Prior to any soil-disturbing activities, each contractor shall be responsible for ensuring that the ALERT sheet is circulated to all field personnel, including machine operators, field crew, pile drivers, and supervisory personnel.

If the project applicant chooses to implement Provision D, Construction ALERT Sheet, and a potential resource is discovered on the project site during ground disturbing activities during construction, the project applicant shall hire a qualified archaeologist to monitor any ground disturbing activities on the project site during construction (see Provision B, Construction-Period Monitoring, above), implement avoidance and/or find recovery measures (see Provision C, Avoidance and/or Find Recovery, above), and prepare an updated ALERT Sheet that addresses the potential resource(s) and other possible resources based on the discovered find found on the project site.

- **SCA 53: Human Remains**

Ongoing throughout demolition, grading, and/or construction. In the event that human skeletal remains are uncovered at the project site during construction or ground-breaking activities, all work shall immediately halt and the Alameda County Coroner shall be contacted to evaluate the remains, and following the procedures and protocols pursuant to Section 15064.5 (e)(1) of the CEQA Guidelines. If the County Coroner determines that the remains are Native American, the City shall contact the California Native American Heritage Commission (NAHC), pursuant to subdivision (c) of Section 7050.5 of the Health and Safety Code, and all excavation and site preparation activities shall cease within a 50-foot radius of the find until appropriate arrangements are made. If the agencies determine that avoidance is not feasible, then an alternative plan shall be prepared with specific steps and timeframe required to resume construction activities. Monitoring, data recovery, determination of significance and avoidance measures (if applicable) shall be completed expeditiously.

- **SCA 54: Paleontological Resources**

Ongoing throughout demolition, grading, and/or construction. In the event of an unanticipated discovery of a paleontological resource during construction, excavations within 50 feet of the find shall be temporarily halted or diverted until the discovery is examined by a qualified paleontologist (per Society of Vertebrate Paleontology standards [SVP 1995,1996]). The qualified paleontologist shall document the discovery as needed, evaluate the potential resource, and assess the significance of the find. The paleontologist shall notify the appropriate agencies to determine procedures that would be followed before construction is allowed to resume at the location of the find. If the City determines that avoidance is not feasible, the paleontologist shall prepare an excavation plan for mitigating the effect of the project on the qualities that make the resource important, and such plan shall be implemented. The plan shall be submitted to the City for review and approval.

- **SCA 56: Compliance with Policy 3.7 of the Historic Preservation Element (Property Relocation Rather than Demolition)**

Prior to issuance of a demolition permit. The project applicant shall make a good faith effort to relocate the affected building(s) to a site acceptable to the Planning and Zoning Division and the OCHS. Good faith efforts include, at a minimum, the following:

- a. Advertising the availability of the building by: (1) posting of large visible signs (such as banners, at a minimum 3' x 6') at the site; (2) placement of advertisements in Bay Area news media acceptable to the City; and (3) contacting neighborhood associations and for-profit and not-for-profit housing and preservation organizations;

- b. Maintaining a log of all the good faith efforts and submitting that along with photos of the subject building showing the large signs (banners) to the Planning and Zoning Division;
 - c. Maintaining the signs and advertising in place for a minimum of 90 days; and
 - d. Making the building available at no or nominal cost (the amount to be reviewed by the Landmarks Preservation Advisory Board) until removal is necessary for construction of a replacement project, but in no case for less than a period of 90 days after such advertisement.
- **SCA 57: Vibrations Adjacent to Historic Structures**
Prior to issuance of a demolition, grading or building permit. The project applicant shall retain a structural engineer or other appropriate professional to determine threshold levels of vibration and cracking that could damage the affected historic building(s) and design means and methods of construction that shall be utilized to not exceed the thresholds.

4.4.3 Study Results

Paleontological Resources

Aside from the geologic history of the site, documented fossil discoveries can further elaborate on the paleontological potential of the area. The University of California, Museum of Paleontology (UCMP) maintains the world's largest database of fossil discoveries and collections, with thousands of records for the East Bay. A search of the database by location and age (Quaternary) revealed 72 Pleistocene-age localities and 47 Recent (Holocene) localities within Alameda County. While many of these localities contain no recorded specimens, two localities about one mile from Plan Area report a total of 27 vertebrate fossils from a variety of now-extinct Pleistocene mammals. These were identified during deep excavations for the roadway tunnels connecting the island of Alameda to the mainland. Fourteen invertebrate fossils of Quaternary age were reported from various locations in Oakland, three of which were found in or around Lake Merritt. One plant fossil was also reported in Oakland, although a more specific location could not be determined (UCMP, 2008). Whether or not these fossils were found within the specific geologic units underlying the Plan Area could not be determined from the information in the UCMP database.

Archaeological Resources

A records search of pertinent survey and site data was conducted at the Northwest Information Center (NWIC) of the California Historical Resources Information System on February 13, 2009 (File No. 08-0943) and updated on January 8, 2013 (File No. 12-0661). The records were accessed by reference to the Oakland West USGS 7.5-minute quadrangle map. The review included the Plan Area along and the area within a ½-mile radius. Previous surveys and studies and archaeological site records were accessed as they pertained to the study area. Records were also accessed and reviewed in the *Directory of Properties in the Historic Property Data File for Alameda County* for information on sites of recorded historical significance. Properties listed include those on the *National Register of Historic Places*, the *California Register of Historical Resources*, the *California*

State Historic Resources Inventory, California Historical Landmarks, and California Points of Historical Interest.

The records search indicated that there were no recorded prehistoric or historic-period archaeological sites within a ½-mile radius of the Plan Area. The nearest recorded prehistoric archaeological site is approximately 1-½ miles to the south, nearer to the historic shoreline of the Bay tidal marshland.

In the Oakland area, known prehistoric sites tend to be located a half mile or less from a present or former water source on relatively stable landforms. Glen Echo Creek is located just east of the Plan Area and the historic tidal estuary of Lake Merritt is located ¼-mile to the south. The Plan Area is mapped as Pleistocene alluvium in the south and west sections and Holocene alluvium on the east side of Broadway toward Glen Echo Creek. Pleistocene landforms do not have the potential to contain deeply-buried archaeological resources, however Holocene alluvium has a high potential to contain buried surfaces that would have once been available for human use and occupation prior to being covered with sediment (Meyer and Rosenthal, 2007). Although no known prehistoric resources have been recorded in the Plan Area, there is a moderate potential that prehistoric archaeological resources are present along the east side of Broadway near the Glen Echo Creek corridor. The potential for containing previously unidentified prehistoric archaeological resources is based on the following factors: (1) the presence of relatively stable Holocene-age terrestrial landform; (2) proximity to the Glen Echo Creek, the Oakland estuary, and other water sources, and (3) the presence of landforms similar to those at nearby previously recorded prehistoric sites. These areas are identified on Figure 4.4-1.

Although no historic-period archaeological resources have been recorded in the Plan Area, there is a moderate potential for historic-period archaeological resources to be present. According to National Park Service guidelines, archaeological sites in urban areas “are likely to be more or less invisible, buried under modern created land surfaces.” Here, “the reconnaissance consists of field checking predictions made on the basis of archival research” (National Park Service, 1985:36). Archaeology undertaken for various projects in an urban environment (Meyer, 2002; Praetzelis, 2001, 2004) has demonstrated that historic-period archaeological features often survive within two feet of the modern ground surface. These features include pits, privies, wells, and sheet refuse associated with buildings shown on early Sanborn and other maps. Urban archaeological experience has also shown that pits and privies are most often located near the back of house lots, while wells tend to be closer to the rear of the building and can sometimes be located within the footprint of the house itself, typically at a rear or side addition. The significance of these features has been illuminated in numerous urban historical archaeology projects in Oakland (Koenig, et al., 2001; Praetzelis, 2001), San Francisco (Byrd et al., 2010; Ziesing, 2000), San Jose (Allen et al., 1999; Allen et al., 2002), and Sacramento (Praetzelis and Praetzelis, 1988) over the past few decades.

Broadway has been a main thoroughfare in Oakland since 1852. The earliest settlement was nearer to the estuary, but early maps show scattered structures in the Plan Area. The development of the Plan Area that began in the 1910s and 1920s may have destroyed subsurface historic-

period archaeological remains; however paved surfaces such as parking lots potentially cap and protect archaeological deposits.

Senate Bill 18 Consultation

In accordance with Senate Bill 18, a request was made to the Native American Heritage Commission (NAHC) for a search of the Sacred Lands file and a list of Native Americans who might have knowledge of cultural resources in the project vicinity. The NAHC identified no sacred lands within or near the Specific Plan Area. The NAHC identified individuals and organizations as Native American contacts for the City of Oakland. On May 16, 2013 the City of Oakland sent letters to each person on the NAHC list to invite them to participate in the local planning process. Consultation efforts will remain ongoing.

Historic Properties

The Plan Area has a high density of CEQA historic resources, primarily concentrated on the North End of the Plan Area, with a few resources in the Valdez Triangle on the southern end of the Plan Area. Figure 4.4-2 maps the CEQA historical resources in the Plan Area. They are also listed in Tables 4.4-1, 4.4-2 and 4.4.-3.

CEQA Resources: As described in the Regulatory Setting subsection above, the Plan Area contains a total of 20 individual CEQA historic resources, including three A rated buildings, 10 buildings with existing or proposed B ratings, two buildings on the Preservation Study List, one Heritage Property, and two building in an API historic district. Many of these resources have multiple and overlapping designations. These properties are all identified as historical resources for CEQA purposes.

Five buildings in the southwest corner of the Plan Area, on the block bounded by Broadway, Valley Street, 23rd Street and 24th Street, were identified by the City of Oakland as historic resources in a 2004 EIR for the proposed Broadway-West Grand Mixed Use Development (see Table 4.4-2). A 2008 addendum to this EIR assumed and analyzed the full demolition of each of these resources, as was proposed at the time. As currently proposed and approved in a 2013 addendum to this EIR, this project would rehabilitate and reuse four historic resources including 2335-37 Broadway, 2343 Broadway, 2345 Broadway, and 2366-2398 Valley Street / 467 24th Street. The project would demolish one historic resource at 440-448 23rd Street. The 2004 EIR and subsequent addenda for the Broadway West Grand Mixed Use Project identified significant and unavoidable impacts to these historic resources, and recommended mitigation measures to reduce such impacts. These buildings are considered historic resources for CEQA purposes because they were identified as such in a prior EIR, and remain physically unchanged since 2004.

Other Historic Properties: The Plan Area also contains four ASIs and approximately 106 individual PDHPs. These older buildings and secondary districts, while not meeting the technical definition of a historical resource for CEQA purposes, add texture and variety to the Plan Area, and will be considered in project reviews.

About half of the buildings in the Plan Area, or approximately 80 structures, were constructed prior to 1929, and nearly 90 percent were constructed before 1950. The majority of these buildings evolved out of the auto industry, with the primary building types being Beaux Arts and Moderne automobile showrooms, early 20th century utilitarian service garages, and 1920s decorative brick commercial buildings. Aside from remodeling, remarkably little changed in the latter half of the 20th century. The focus of development in the latter half of the 20th century remained primarily on automobile sales and service, while new, non-auto oriented development was limited. Smaller numbers of historic properties which reflect religious, residential, and non-auto oriented commercial uses are also represented in the Plan Area.

There is one portion of one CEQA Historic District in the Plan Area; the 25th Street Garage District API, containing one contributor (see Table 4.4-3). Although there are many other contributors to this API, they are located outside of the Plan Area, and are not listed here.

4.4.4 Impacts and Mitigation Measures

Significance Criteria

A project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment. For purposes of this section, a historical resource is one that meets the City of Oakland's CEQA definitions (see subsection *Local Plans and Policies*, above). The fact that a resource is not listed in or formally determined to be eligible for listing in the NRHP, CRHR, or a local register of historical resources, or not deemed significant pursuant to criteria set forth in subdivision (g) of Section 5024.1 of the Public Resources Code (PRC), shall not preclude the City from determining that the property may be a historical resource for purposes of this EIR.

Specifically, adoption of and development under the Specific Plan would have a significant impact on the environment if it were to:

1. Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines §15064.5. Specifically, a substantial adverse change includes physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the historical resource would be "materially impaired." The significance of a historical resource is "materially impaired" when a project demolishes or materially alters, in an adverse manner, those physical characteristics of the resource that convey its historical significance and that justify its inclusion on, or eligibility for inclusion on an historical resource list (including the California Register of Historical Resources, the National Register of Historical Resources, Local Register, or historical resources survey form (DPR Form 523) with a rating of 1-5);
2. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines §15064.5;
3. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or
4. Disturb any human remains, including those interred outside of formal cemeteries.

Approach to Analysis

Prior to approval of any future development under the Specific Plan, the project would be subject to the City's Standard Conditions of Approval (SCAs) and the goals and policies of the City's General Plan as outlined above. The approach used to analyze potentially significant impacts of the adoption of and development under the Specific Plan on cultural resources included an evaluation of the applicability of the SCAs for the protection of cultural resources, and identification of additional mitigation measures if such SCAs were deemed insufficient to fully mitigate potentially significant impacts. As direct and indirect impacts to cultural resources typically arise from ground-disturbing activities (excavation for building foundations and utilities) as well as new construction and demolition and alteration of existing buildings, the potential for such activities to occur as a result of future Specific Plan projects was the focus of the analysis.

The Broadway Valdez Development Program and the Physical Height Model (see Figure 3-11 in Chapter 3, *Project Description*) are the basis for this analysis. The Physical Height Model assumes development on the parcel containing Biff's II Coffee Shop, a Heritage Property determined eligible for Landmark status (see #15 on Table 4.4-1). It also shows development on the parcel containing the Pacific Kissel Kar salesroom and garage at 2401 Broadway (see #2 on Table 4.4-1). Three additional parcels containing CEQA historic resources are also assumed to have a high potential for development and are therefore analyzed in this section. These include the Connell GMC Pontiac Cadillac/Bay City Chevrolet building at 3903 Broadway (see #10 on Table 4.4-1), the Seventh Church of Christ, Scientist at 2333 Harrison Street (see #12 on Table 4.4-1), and the Newsom Apartments at 2346 Valdez Street (see #13 on Table 4.4-1).⁶

Impacts

Historical Resources

Impact CUL-1: Adoption of and development under the Specific Plan could result in the physical demolition, destruction, relocation, or alteration of historical resources that are listed in or may be eligible for listing in the federal, state, or local registers of historical resources (Criterion 1). (Significant and Unavoidable)

⁶ Development on the Connell GMC Pontiac Cadillac/Bay City Chevrolet building, Seventh Church of Christ Scientist, and the Newsom Apartments parcels, was not assumed at the time the Physical Height Model was developed (see Figure 3-11 and subsection 3.5, *Broadway Valdez Development Program*, in Chapter 3, *Project Description*). Although the Specific Plan does not specifically encourage development on these parcels, they are assumed to have a high potential for development, and thus their development is assumed and analyzed here under Cultural Resources. Development on these parcels would not alter the amount or type of *reasonably foreseeable maximum development* represented in the Broadway Valdez Development Program. Further, development on these parcels to the maximum height that would be assumed on adjacent parcels (75 feet for Connell GMC Pontiac Cadillac/Bay City Chevrolet and 65 feet for both the Newsom Apartments and the Seventh Church of Christ, Scientist) would not be visible from significant view corridors represented in Chapter 4.1, *Aesthetics, Shadow, and Wind*, nor would it cast new shadow that would reach solar collectors, passive solar heaters, public open spaces, or other historic resources. As such, development on these parcels, although not included in the Physical Height Model, is fully analyzed in other topic areas within this EIR.

Specific Plan Context

As described above, the Plan Area contains 20 individual properties, including two in an Area of Primary Importance, that are considered historical resources for CEQA purposes. There are also many older buildings which possess architectural merit, located within Areas of Secondary Importance or standing alone, that contribute to the variety and texture of the Plan Area.

The Specific Plan recognizes that the Plan Area contains many historic resources as well as a distinct neighborhood character created by its corridors and unique urban form. The Plan also recognizes that historic preservation contributes to the City's economy, image, and appeal, and represents a long-term enhancement of property values and neighborhood stability. The Specific Plan contains numerous goals, policies, strategies, and design guidelines which recognize the existence and importance of these resources, and encourages preservation and adaptive reuse. The following policy statements are relevant to the protection and enhancement of historical resources.

One of the Plan's key objectives, as established in Specific Plan **Goal LU-11**, is to encourage *Creative reuse of historic buildings that maintains a link to the area's social, cultural and commercial heritage while accommodating contemporary uses that further City objectives to establish a vibrant and visually distinctive retail and mixed use district*. Relevant policies within this Goal LU-11 include the following:

- **Policy LU-11.1:** Encourage landowners and developers of properties within an Adaptive Reuse Priority Area to explore the potential for adaptive reuse of existing older buildings as a means of preserving the area's character and enhancing district identity.
- **Policy LU-11.2:** On Retail Priority Sites, new development that furthers Specific Plan goals to provide destination retail uses will take precedence over adaptive reuse.

Additional Specific Plan policies relevant to the preservation of historic resources include:

- **Policy LU-8.7:** The Triangle will establish an identity as a unique, Oakland shopping district by integrating new high-quality buildings with attractively renovated and repurposed historic buildings (within Goal LU-8 regarding the Valdez Triangle subarea).
- **Policy LU-9.6:** Emphasis is placed on the renovation and repurposing of historic garage and auto showroom buildings primarily along Broadway to preserve a link to the corridor's past and enrich its character (within Goal LU-9 regarding the North End subarea).
- **Policy LU-10.7:** Establish development regulations that implement recommended height zones while being responsive to surrounding context by providing appropriate transitions between buildings of different scales, maintaining a consistent scale at street frontages, and respecting historic buildings and public open spaces (within Goal LU-10 regarding the regulatory framework).

Chapter 4.4.9 of the Plan, *Historic Resources and Preservation Strategies*, identifies "Adaptive Reuse Priority Areas," which are shown in Figure 4.7 in the Specific Plan and Figure 4.4-2, above. The Adaptive Reuse Priority Areas emphasize renovation and repurposing of historic garage and auto showroom buildings along Broadway (see also Policy LU-9.6). The intention of the Adaptive

Reuse Priority Areas is to include both designated historic resources and other existing buildings possessing architectural merit.

The Plan also notes that the historic buildings located within the Adaptive Reuse Priority Areas, as well as those outside of it, may be eligible for various incentive programs, such as façade improvement grants, façade easements, Transfer of Development Rights (TDR), Mills Act property tax abatements, alternative code requirements, relocation assistance, and other preservation programs.

Finally, a portion of the Specific Plan Appendix C: *Design Guidelines of the Broadway Valdez Specific Plan* is dedicated to realizing the vision for historic resources in the Plan Area. Design Guidelines 119 through 128 encourage new buildings that complement existing building forms, reinforce development patterns, reinforce the streetwall, and incorporate architectural details. Design Guideline 124 states that adaptive reuse of historic buildings should “Follow the Secretary of the Interior’s Standards for Rehabilitation when adapting and altering historic resources.”

Site-Specific Effects

While all of the Plan’s goals, policies, strategies, and design guidelines, including the proposed “Adaptive Reuse Priority Areas,” would help to reduce the level of impacts to historic resources within the Plan Area, and no land use changes are proposed on the parcels where most of the historic resources are located (as shown in Tables 4.4-1, 4.4-2, and 4.4-3 and mapped on Figure 4.4-2), the Broadway Valdez Development Program assumes approximately 3.7 million square feet of new development, including 1,800 residential units over the next 25 years, which could result in the future demolition, destruction, relocation, or alteration of CEQA historical resources (i.e., those which are listed in the federal, state, or local registers of historical resources, or otherwise determined by the City of Oakland to be considered for the purposes of CEQA).

As noted above in *Approach to Analysis*, in addition to the areas with proposed land use changes represented in the Physical Height Model (see Figure 3-11 in Chapter 3, *Project Description*), three additional parcels containing CEQA historic resources are assumed to have a high potential for development and are therefore analyzed in this section. These include the Connell GMC Pontiac Cadillac/Bay City Chevrolet building at 3903 Broadway (see #10 on Table 4.4-1), the Seventh Church of Christ, Scientist at 2333 Harrison Street (see #12 on Table 4.4-1), and the Newsom Apartments at 2346 Valdez Street (see #13 on Table 4.4-1).

The following site-specific significant impacts to historic resources would result from Plan implementation. Detailed information about the affected structures, their history, and their status as historic resources can be found in the 2009 HRI (see Appendix D).

The Specific Plan identifies the block containing Biff’s II Coffee Shop, a Heritage Property, as a Retail Priority Site (see Figure 3-9 in Chapter 3, *Project Description*). Further, the Physical Height Model assumes mixed-use up to 65 feet in height within this block (see Figure 3-11 in Chapter 3, *Project Description*). Demolition or substantial alteration of this property resulting from adoption of and development under the Specific Plan would be considered a significant impact under CEQA.

The Specific Plan identifies the blocks containing the Seventh Church of Christ, Scientist and the Newsom Apartments, OCHS A and B rated Historic Resources, respectively, and Designated Historic Properties on the Preservation Study List, as a Retail Priority Site (see Figure 3-9 in Chapter 3, *Project Description*). Further, the Physical Height Model assumes mixed-use of up to 65 feet in height within the majority these blocks (see Figure 3-11 in Chapter 3, *Project Description*). Demolition or substantial alteration of these properties resulting from adoption of and development under the Specific Plan would be considered a significant impact under CEQA.

The Specific Plan identifies the block containing the Connell GMC Pontiac Cadillac/Bay City Chevrolet building a Historic Resource proposed for B rating, as a Large Opportunity Site (see Figure 3-9 in Chapter 3, *Project Description*). Further, the Physical Height Model assumes mixed-use of up to 75 feet in height within the majority this block (see Figure 3-11 in Chapter 3, *Project Description*). Demolition or substantial alteration of this property resulting from adoption of and development under the Specific Plan would be considered a significant impact under CEQA.

While implementation of proposed Specific Plan policies, Oakland Municipal Code 17.136.075 *Regulations for Demolition or Removal of Designated Historic Properties and Potentially Designated Historic Properties*, as well as the City of Oakland's SCA 56, *Property Relocation Rather than Demolition*, and SCA 57, *Vibrations Adjacent to Historic Structures*, would provide some level of protection for historical properties that may be affected by adoption of and development under the Specific Plan, additional mitigation would be necessary to further reduce potential impacts to the historical resources identified above. Mitigation Measure CUL-1, provided below, is intended to reduce the impacts to historical resources throughout the Plan Area as well as the site-specific impacts associated with the demolition of individual historic resources.

Avoidance and adaptive reuse of historic properties are always the preferred mitigations when feasible. While relocation of an historical property to a location consistent with its historic or architectural character (SCA 56, *Property Relocation Rather than Demolition*) might reduce the impact, relocation is not always effective (e.g. if the property's location is an integral part of its significance) or feasible. For these reasons; although implementation of SCA 56 would be adopted as a condition of approval, incorporated as part of the Specific Plan, and required, as applicable, for development under the Specific Plan; SCA 56 is also listed within Mitigation Measure CUL-1 to be implemented should avoidance and adoption be deemed infeasible.

Impacts from Adjacent Development or Reuse

Incompatible new construction immediately adjacent to identified historic resources, as well as inappropriate reuse of such resources, could occur in the Plan Area. Implementation of Plan Policies such as LU-10.7 which encourages sensitive integration of new development in the immediate vicinity of historic buildings, as well as Specific Plan Design Guideline 124 which states that adaptive reuse of historic buildings shall follow the Secretary of the Interior's Standards for Rehabilitation, would reduce impacts to adjacent historic resources to a less-than-significant level. However, as described in Section 4.1, *Aesthetics, Shadow, and Wind*, shadows from development on parcels across Webster Street to the northeast of the Temple Sinai could extend south enough to shade the temple's stained glass windows during the early morning hours

(prior to 9 a.m.) in the spring, summer and fall, which would materially impair this resource's historic significance by altering those physical characteristics of the resource that convey its historical significance and that justify its inclusion in the California Register of Historic Resources. Implementation of Mitigation Measure AES-4, Shadow Analysis, cannot be guaranteed to reduce the impact to a less-than-significant level and therefore the impact would remain conservatively significant and unavoidable.

Mitigation Measure CUL-1, below, includes multiple mitigation measures and approaches. Some approaches could reduce impacts to historic resources to a less-than-significant level, and others could reduce impacts to historic properties, but not to a less-than-significant level.

Mitigation Measure CUL-1:

a) Avoidance, Adaptive Reuse, or Appropriate Relocation of Historically Significant Structures.

- *Avoidance.* The City shall ensure, where feasible, that all future development activities allowable under the Specific Plan, including demolition, alteration, and new construction, would avoid historical resources (i.e., those listed on federal, state, and local registers).
- *Adaptive Reuse.* If avoidance is not feasible, adaptive reuse and rehabilitation of historical resources shall occur in accordance with the *Secretary of Interior's Standards for the Treatment of Historic Properties*.
- *Appropriate Relocation.* If avoidance or adaptive reuse *in situ* is not feasible, SCA 56, *Compliance with Policy 3.7 of the Historic Preservation Element (Property Relocation Rather than Demolition)*, shall be implemented, as required. Projects that relocate the affected historical property to a location consistent with its historic or architectural character could reduce the impact less than significant (Historic Preservation Element Action 3.8.1), unless the property's location is an integral part of its significance, e.g., a contributor to a historic district.

b) Future Site-specific Surveys and Evaluations.

Although the Plan Area has been surveyed by the City of Oakland's OCHS and as part of the Broadway Valdez Specific Plan effort by ESA in 2009, evaluations and ratings may change with time and other conditions. There may be previously unidentified historical resources which would be affected by future development activities. For any future projects on or immediately adjacent to buildings 50 years old or older between 2013 and 2038, which is the build-out horizon for the Specific Plan (i.e., by the end of the Plan period, buildings constructed prior to 1988), the City shall require specific surveys and evaluations of such properties to determine their potential historical significance at the federal, state, and local levels. Intensive-level surveys and evaluations shall be completed by a qualified architectural historian who meets the *Secretary of the Interior's Standards*. For all historical resources identified as a result of site-specific surveys and evaluations, the City shall ensure that future development activities avoid, adaptively reuse and/or appropriately relocate such historical resources in accordance with measure "a" (Avoidance, Adaptive Reuse, or Appropriate Relocation of Historically Significant Structures), above. Site-specific

surveys and evaluations that are more than 5 years old shall be updated to account for changes which may have occurred over time.

c) Recordation and Public Interpretation.

If measure “a” (Avoidance, Adaptive Reuse, or Appropriate Relocation of Historically Significant Structures) is determined infeasible as part of a future project, the City shall evaluate the feasibility and appropriateness of recordation and public interpretation of such resources prior to any construction activities which would directly affect them. Should City staff decide recordation and or public interpretation is required, the following activities would be performed:

- *Recordation.* Recordation shall follow the standards provided in the National Park Service’s Historic American Building Survey (HABS) program, which requires photo-documentation of historic structures, a written report, and/or measured drawings (or photo reproduction of original plans if available). The photographs and report would be archived at the Oakland Planning Department and local repositories, such as public libraries, historical societies, and/or the Northwest Information Center at Sonoma State University. The recordation efforts shall occur prior to demolition, alteration, or relocation of any historic resources identified in the Plan Area, including those that are relocated pursuant to measure “a” (Avoidance, Adaptive Reuse, or Appropriate Relocation of Historically Significant Structures). Additional recordation could include (as appropriate) oral history interviews or other documentation (e.g., video) of the resource.
- *Public Interpretation.* A public interpretation or art program would be developed by a qualified historic consultant or local artist in consultation with the Landmarks Preservation Advisory Board and City staff, based on a City-approved scope of work and submitted to the City for review and approval. The program could take the form of plaques, commemorative markers, or artistic or interpretive displays which explain the historical significance of the properties to the general public. Such displays would be incorporated into project plans as they are being developed, and would typically be located in a publicly accessible location on or near the site of the former historical resource(s). Public interpretation displays shall be installed prior to completion of any construction projects in the Plan Area.

Photographic recordation and public interpretation of historically significant properties does not typically mitigate the loss of resources to a less-than-significant level [CEQA Section 15126.4(b)(2)].

d) Financial Contributions.

If measure “a” (Avoidance, Adaptive Reuse, or Appropriate Relocation of Historically Significant Structures) and measure “b” (Future Site-specific Surveys and Evaluations) are not satisfied, the project applicant shall make a financial contribution to the City of Oakland, which can be used to fund other historic preservation projects within the Plan Area or in the immediate vicinity. Such programs include, without limitation, a Façade Improvement Program or a Property Relocation Assistance Program.

This mitigation would conform to Action 3.8.1(9) of the Historic Preservation Element of the City of Oakland General Plan. Contributions to the fund(s) shall be determined by staff at the time of approval of site-specific project plans based on a formula to be determined by the Landmarks Preservation Advisory Board. However, such financial

contribution, even in conjunction with measure “c” (Recordation and Public Interpretation), would not reduce the impacts to less-than-significant levels.

Only avoidance of direct effects to historic resources, as would be achieved through measure “a” (Avoidance, Adaptive Reuse, or Appropriate Relocation of Historically Significant Structures), and measure “b” (Future Site-specific Surveys and Evaluations) would reduce the impacts to historic resources to a less-than-significant level. Therefore, if demolition or substantial alteration of historically significant resources is identified by the City as the only feasible option for development in the Plan Area, even with implementation of measure “c” (Recordation and Public Interpretation) and measure “d” (Financial Contributions), the impact of adoption of and development under the Specific Plan would be considered significant and unavoidable.

Significance after Mitigation: Significant and Unavoidable.

Archaeological Resources

Impact CUL-2: Adoption of and development under the Specific Plan could result in significant impacts to unknown archaeological resources (Criterion 2). (Less than Significant)

The records search at the NWIC indicated that no archaeological sites have been previously identified in the Plan Area and that the nearest known archaeological sites are approximately 1-½ miles to the south, nearer to the historic shoreline of the Bay tidal marshland. Although no known prehistoric resources have been recorded in the Plan Area, there is a moderate potential that prehistoric archaeological resources are present within the Holocene alluvium, which is generally located in a north-south strip between Broadway and the Glen Echo Creek corridor (i.e., the entire eastern side of Broadway to the easternmost Plan Area boundary) (Witter et al., 2006). The potential for containing previously unidentified prehistoric archaeological resources is based on the following factors: (1) the presence of relatively stable Holocene-age terrestrial landform; (2) proximity to the Glen Echo Creek, the Oakland estuary, and other water sources, and (3) the presence of landforms similar to those at previously recorded prehistoric sites located nearby. Development in the area, including construction-related subsurface disturbance, could inadvertently damage or destroy previously unidentified prehistoric period archaeological resources.

Although no historic-period archaeological resources have been recorded in the Plan Area, there is a moderate potential for historic-period archaeological resources to be present. While the development of the Plan Area that began in the 1910s and 1920s may have destroyed subsurface historic-period archaeological remains, paved surfaces such as parking lots potentially cap and protect archaeological deposits.

Potential impacts to archaeological resources has been addressed in the Oakland General Plan, the Land Use and Transportation Element (LUTE) EIR, as well as the City’s SCA. Compliance with (1) General Plan objectives and policies addressing archaeological resources; (2) the LUTE EIR mitigation measure that specifically direct the City to establish procedures for determining when

discretionary city approval of ground-disturbing activities warrant special conditions to safeguard archaeological resources; which has, in part, been incorporated into (3) the City's SCA's addressing archaeological resources, would reduced impacts on archaeological impacts to less than significant in most cases.

The area is recognized as potentially sensitive for the existence of archaeological and buried sites not visible due to urban development in the Plan Area. However, implementation of the City of Oakland's SCA 52, *Archaeological Resources*, is considered adequate to ensure that subsurface archaeological materials are dealt with according to regulatory guidance and would minimize the potential risk of impact to archaeological resources to a less-than-significant level. Through the City's project-level review of individual development project proposals, and *prior to issuance of a demolition, grading, or building permit*, the project applicant shall implement either Provision A (Intensive Pre-Construction Study) or Provision D (Construction ALERT Sheet) of the City of Oakland's SCA 52. However, if in either case a high potential presence of historic-period archaeological resources on the Plan Area is indicated, or a potential resource is discovered, the project applicant shall also implement all of the following provisions of the City of Oakland's SCA 52:

- Provision B (Construction-Period Monitoring),
- Provision C (Avoidance and/or Find Recovery), and
- Provision D (to establish a Construction ALERT Sheet if the Intensive Pre-Construction Study was originally implemented per Provision A, or to update and provide more specificity to the initial Construction ALERT Sheet if a Construction ALERT Sheet was originally implemented per Provision D).

Implementation of the City's SCA 52 ensures less-than-significant effects to archaeological resources in the Plan Area. The impact of adoption of and development under the Specific Plan to archaeological resources is less than significant.

Mitigation: None Required.

Paleontological Resources

Impact CUL-3: Adoption of and development under the Specific Plan could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature (Criterion 3). (Less than Significant)

As discussed above in the paleontological Setting, the paleontological sensitivity of the geologic units underlying the Plan Area is low to moderate. Deep excavations for building foundations associated with adoption of and development under the Specific Plan may disturb these geologic units of low to moderate paleontological sensitivity.

It is possible that fossils would be discovered during excavation within the Plan Area. Because the significance of such fossils would be unknown, such an event represents a potentially

significant impact to paleontological resources. However, SCA 54, *Paleontological Resources*, would be incorporated with adoption of and development under the Specific Plan and would ensure that the potential impact to fossils discovered within the rock units would be less than significant. No additional mitigation is required.

Mitigation: None Required.

Human Remains

Impact CUL-4: Adoption of and development under the Specific Plan could disturb human remains, including those interred outside of formal cemeteries (Criterion 4). (Less than Significant)

While there are no known locations of buried human remains in the Plan Area, the inadvertent discovery of human remains during ground disturbing activities cannot be entirely discounted. In the unlikely event that human remains are uncovered, implementation of SCA 53, *Human Remains*, provides adequate measures for prevention of adverse impacts to human remains that may be discovered with developments under the Specific Plan. Combining with SCA 52 would ensure the impact is reduced to less than significant.

Mitigation: None Required.

Cumulative Impacts

Impact CUL-5: Adoption of and development under the Specific Plan, combined with cumulative development in the Plan Area and citywide, including past, present, existing, approved, pending, and reasonably foreseeable future development, would contribute considerably to a significant adverse cumulative impact to cultural resources. (Significant and Unavoidable)

Geographic Context

The geographic context for the assessment of cumulative impacts to cultural resources consists of the Plan Area and surroundings, in addition to all parts of the city.

Impacts

Adoption of and development under the Specific Plan, when combined with the cumulative development citywide, could result in cumulative impacts to cultural resources. Cumulative effects could occur to resources beyond the Plan Area because cultural resources can include a resource type or theme such as libraries, railroad-related resources, and ethnic sites that occur throughout the city. Past projects in this area are included in the existing setting. Present projects would include any projects currently under construction within the geographic context area. Several past, present and reasonably foreseeable future projects are described in the Major Projects List in Appendix B to this Draft EIR.

Adoption of and development under the Specific Plan could result in significant impacts to cultural resources. Such impacts could combine with the significant impacts of the projects referenced above to form a significant cumulative impact to cultural resources. However, given the applicability of SCAs 52, 53, 54, 56, and 57 to all projects, Mitigation Measure CUL-1 identified above to reduce potential impacts, and the mitigation measures identified in the environmental documents for all cumulative projects in the geographic context area in Oakland, potentially significant cumulative impacts to cultural resources would, under most circumstances, be reduced to a less-than-significant level. In addition, past projects have been, and present and reasonably foreseeable future projects would be, subject to development guidance contained within the Historic Preservation Element of the General Plan and other applicable historic preservation zoning controls and landmark ordinances to ensure protection of cultural resources.

There is a possibility that if demolition or major alteration of a historical resource occurs with adoption of and development under the Specific Plan, and avoidance, adaptive reuse, and appropriate relocation as identified in SCA 56 and Mitigation Measure CUL-1 are not feasible, and the same circumstance occurs with other projects in the Plan Area vicinity that may likely affect potential historic resources (such as the Lake Merritt Station Area Plan now under consideration, and the Broadway West Grand Mixed Use Project, now approved, see discussion below), a significant and unavoidable cumulative impact could result, even with the application of recordation, public interpretation, and financial contributions as identified in Mitigation Measure CUL-1 and all SCAs incorporated to all development projects.

Specifically, the Broadway West Grand Mixed Use Project is included in the cumulative analysis because it is an approved and therefore reasonably foreseeable project in the Plan Area that would also affect historic resources. As currently approved, this project would rehabilitate and reuse four historic resources including 2335-37 Broadway, 2343 Broadway, 2345 Broadway, and 2366-2398 Valley Street / 467 24th Street. The project would demolish one historic resource at 440-448 23rd Street. The 2004 EIR and subsequent addenda for the Broadway West Grand Mixed Use Project identified significant and unavoidable impacts to these historic resources, and recommended mitigation measures to reduce such impacts. Adoption of the Specific Plan would not result in any new or additional impacts on this project block not already analyzed in the previous environmental documents. Implementation of mitigation measures identified in the 2004 EIR for the Broadway West Grand Mixed Use Project, well as Mitigation Measure CUL-1 and all applicable SCAs, would reduce the cumulative impact to historic resources in the Plan Area, but not to a less-than-significant level.

Based on the information in this section and for the reasons summarized above, adoption of and development under the Specific Plan could contribute considerably to the cumulative cultural resources impact, which could be considered significant and unavoidable.

Mitigation Measure CUL-5: Implement Mitigation Measure CUL-1.

Significance after Mitigation: Significant and Unavoidable (Historic Resources) for Cumulative Impact.

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4.5 Geology, Soils and Geohazards

This section describes geologic and seismic conditions in the Specific Plan Area to provide relevant background information with respect to potential geologic and seismic hazards. This section describes the environmental and regulatory setting relevant to geology, soils, and geohazards within the Plan Area. Potential impacts are discussed and evaluated, and appropriate mitigation measures or Standard Conditions of Approval (SCA) are identified, as necessary.

4.5.1 Environmental Setting

The Plan Area is located within the Coast Ranges Geomorphic Province¹ (Coast Ranges), characterized by northwest-southeast-trending mountain ridges and intervening valleys that have formed over millions of years due to movements along major regional faults. The bedrock of the Coast Ranges is primarily composed of ancient seafloor sediments and volcanic rocks. In most areas, these rocks have been significantly hardened, mineralized, folded and fractured by heat and pressure deep within the earth. This bedrock – broadly divided into the Franciscan Complex and Great Valley Sequence – forms most of the hills and mountains of the Bay Area, but may underlie the San Francisco Bay and adjacent plains at depths ranging from 200 to 2,000 feet.

The valleys, plains, estuaries, and bay floors of the region are filled by loose, geologically young deposits of mud, silt, sand and gravel. The character of these deposits varies significantly depending on their origin. For example, the Sacramento and San Joaquin Rivers deliver significant volumes of fine sediments (mud and silt), which slowly accumulate on the margins and floors of the San Pablo and San Francisco Bays where currents are gentle. In contrast, peak winter flows from local creeks and streams often convey pulses of coarse sediment (sand and gravel) to the region's valleys and plains, occasionally reaching estuarine sloughs. Over geologic time scales and with fluctuating sea levels, dominant geologic processes in any one place are always competing, overlapping or changing. Thus, the character of the flatland deposits such as those found beneath the Plan Area is variable over short distances and depths, producing heterogeneous geologic conditions.

Geology, Soils and Geologic Hazards

The following discussion describes the general geology of the Plan Area and identifies potential risks associated with such conditions. The primary sources of information for this section consist of publicly available maps and reports prepared by U.S. Geological Survey (USGS), the California Geological Survey (CGS; formerly the California Division of Mines and Geology), and the Natural Resource Conservation Service (NRCS). Maps of topography, bedrock, soil and mineral resources provide the basic setting of the Plan Area, and this information is used to describe the geologic hazards most likely to affect adoption and development under the Specific Plan.

¹ A geomorphic province is an area that possesses similar bedrock, structure, history, and age. California has 11 geomorphic provinces.

Site Topography

Elevations of the Plan Area range from 12 feet above mean sea level at 23rd and Harrison to 82 feet above mean sea level at 34th and Webster. Generally the Plan Area slopes from northwest to southeast (BKF, 2012). Slope gradients are primarily under five percent. Some bank areas bordering Glen Echo Creek and the northern side of Broadway near Alta Bates Summit Medical Center may have locally higher slopes. The southeastern portion of the Plan Area is just inland from the Oakland Estuary.

Local Geology

Artificial fills placed over Bay Mud is extensive as a result of the practice of infilling of the natural Bay margins west of I-880 near downtown Oakland, as well as the shoreline of both San Francisco Bay and Lake Merritt (CGS, 2003). A geologic map compiled by Witter and others of the USGS (2006) shows that much of the areas bordering Lake Merritt and the Oakland Estuary are comprised of artificial fill material overlying natural deposits of Bay Mud. Beneath surface fills, the northern half of the Plan Area is primarily underlain by stream bed deposits. Fifty meters or more of interlayered beds of gravelly sand generally grade up to silty clays in these deposits of both Holocene² and Pleistocene³ age (Graymer, 2000; Witter et al., 2006). The southern half of the Plan Area is mostly built on a marine terrace of silty mudstone, except for the southeastern-most corner of the Plan Area which is underlain by historic artificial fill over estuarine mud (Graymer 2000; Witter et al., 2006).

Soils

The Plan Area includes largely developed properties, and as a result the ground surface is generally devoid of natural soils. The U.S. Department of Agriculture NRCS has characterized soils beneath the Plan Area as “Urban Land” soils (NRCS, 2012). The NRCS designates soils as urban land when soils have been so altered or obstructed by urbanization—such as buildings, pavement, and cut and fill operations—that identification of the native soils is not feasible. While the soils are urban land, the NRCS indicates that generally these soils have between zero and 32 percent clay content (NRCS, 2012). The physical properties of the site’s underlying geology are important factors in assessing the site’s susceptibility to geologic and seismic hazards, discussed below.

Geologic Hazards

The artificial fills and natural geology underlying the Plan Area present potential hazards related to soil erosion, settlement, and expansive soil materials. These hazards are discussed below and provide the initial context for further evaluation in the impact analysis. Because the Plan Area is relatively gently sloping and is developed, slope-related ground failure (i.e., landslides) is not expected to pose a hazard (WRT, 2009).

² Holocene time is from the present to 11,000 years ago.

³ Pleistocene time was from 11,000 to 1.6 million years ago.

Expansive Soils

Expansive soils possess a “shrink-swell” behavior. Shrink-swell is the cyclic change in volume (expansion and contraction) that occurs in fine-grained clay sediments from the process of wetting and drying. Structural damage may occur over a long period of time, usually as a result of inadequate soil and foundation engineering or the placement of structures directly on expansive soils. The alluvial fan deposits underlying the portion of the Plan Area northwest of Broadway consists of gravely and clayey sand or clayey gravel and sandy clay, which could exhibit shrink-swell behavior (Graymer, 2000). The actual presence and extent of expansive soils could only be determined as part of site specific geotechnical evaluations for adoption and development under the Specific Plan.

Soil Erosion

Erosion is the wearing away of soil and rock by processes, such as mechanical or chemical weathering, mass wasting, and the action of waves, wind and underground water. Excessive soil erosion can eventually lead to damage of building foundations and roadways. Areas that are susceptible to erosion are those that would be exposed during the construction phase of projects and under the Specific Plan. Typically, the soil erosion potential is reduced once the soil is graded and covered with concrete, structures, asphalt, or slope protection.

Settlement

Settlement can occur from immediate settlement, consolidation, or shrinkage of expansive soil. Immediate settlement occurs when a load from a structure or placement of new fill material is applied, causing distortion in the underlying materials. This settlement occurs quickly and is typically complete after placement of the final load. Consolidation settlement occurs in saturated clay from the volume change caused by squeezing out water from the pore spaces. Consolidation occurs over a period of time and is followed by secondary compression, which is a continued change in void ratio under the continued application of the load. Rapid settlement can occur if soil is liquefied during an earthquake, an effect which is addressed later in the discussion of Seismic Hazards.

Soils tend to settle at different rates and by varying amounts depending on the load weight or changes in soil properties over an area, which is referred to as differential settlement. The southern and eastern portions of the Plan Area are underlain by “Urban land” soils, which vary in thickness and may experience consolidation settlement and secondary compression. The clay content of the alluvium underlying the northwestern portion of the Plan Area may cause this area to be susceptible to settlement as well (Graymer, 2000; NRCS 2012). In many places, historic bay sloughs, old foundations, and former marsh areas may have been buried by fill material, suggesting some area may be subject to variable conditions and are likely to experience some degree of differential settlement.

Regional Faulting and Seismic Hazards

This section characterizes the region's existing faults, describes historic earthquakes, estimates the likelihood of future earthquakes, and describes probable ground-shaking effects. The primary sources of information for this section are publications prepared by United States Geological Survey (USGS), the California Geological Survey (CGS), and hazard mapping tools provided by the Association of Bay Area Governments (ABAG).

Earthquake Terminology and Concepts

Earthquake Mechanisms and Fault Activity

Faults are planar features within the earth's crust that have formed to release stresses caused by the dynamic movements of the earth's major tectonic plates. An earthquake on a fault is produced when these stresses overcome the inherent strength of the earth's crust, and the rock ruptures. The rupture causes seismic waves to propagate through the earth's crust, producing the ground-shaking effect known as an earthquake. The rupture also causes variable amounts of slip along the fault, which may or may not be visible at the earth's surface.

Geologists commonly use the age of offset rocks as evidence of fault activity—the younger the displaced rocks, the more recently earthquakes have occurred. To evaluate the likelihood that a fault will produce an earthquake, geologists examine the magnitude and frequency of recorded earthquakes and evidence of past displacement along a fault. An *active* fault is defined by the State of California as a fault that has had surface displacement within Holocene time (last 11,000 years). For the purpose of delineating fault rupture zones, the CGS historically sought to zone faults defined as *potentially active*, which are faults that have shown evidence of surface displacement during the Quaternary (last 1.6 million years). However, usage of that term under the Alquist-Priolo Earthquake Fault Zoning Act was discontinued because it became apparent that there are so many Quaternary-age faults in the state that it would be meaningless to zone all of them (Bryant and Hart, 2007). In late 1975, the State Geologist made a policy decision to zone only those faults that have a relatively high potential for ground rupture. It was decided that a fault should only be considered for zoning if it is “sufficiently active”⁴ and “well-defined.”⁵ *Blind* faults do not show surface evidence of past earthquakes, even if they occurred in the recent past; and faults that are confined to pre-Quaternary rocks (more than 1.6 million years old) are considered inactive and incapable of generating an earthquake.

⁴ A fault is deemed sufficiently active if there is evidence of Holocene surface displacement along one or more of its segments or branches. Holocene surface displacement may be directly observable or inferred; it need not be present everywhere along a fault to qualify that fault for zoning.

⁵ A fault is considered well-defined if its trace is clearly detectable by a trained geologist as a physical feature at or just below the ground surface. The fault may be identified by direct observation or by indirect methods (e.g., geomorphic or geophysical evidence). The critical consideration is that the fault, or some part of it, can be located in the field with sufficient precision and confidence to indicate that the required site-specific investigations would meet with some success.

Earthquake Magnitude

When an earthquake occurs along a fault, a characteristic way to measure its size is to measure the energy released during the event. When an earthquake occurs, a network of seismographs records the amplitude and frequency of the seismic waves it generates. The Richter Magnitude (M) for an earthquake represents the highest amplitude measured by the seismograph at a distance of 100 kilometers from the epicenter. Richter magnitudes vary logarithmically with each whole number step representing a ten-fold increase in the amplitude of the recorded seismic waves and 32 times the amount of energy released. While Richter Magnitude was historically the primary measure of earthquake magnitude, seismologists now use Moment Magnitude as the preferred way to measure earthquakes. The Moment Magnitude scale (Mw) is related to the physical characteristics of a fault, including the rigidity of the rock, the size of fault rupture, and the style of movement or displacement across the fault. Although the formulae of the scales are different, they both contain a similar continuum of magnitude values, except that Mw can reliably measure larger earthquakes and can do so from greater distances.

Peak Ground Acceleration

A common measure of ground motion at any particular site during an earthquake is the peak ground acceleration (PGA). The PGA for a given component of motion is the largest value of horizontal acceleration obtained from a seismograph. PGA is expressed as the percentage of the acceleration due to gravity (g), which is approximately 980 centimeters per second squared. In terms of automobile accelerations, one “g” of acceleration is equivalent to the motion of a car traveling 328 feet from rest in 4.5 seconds. For comparison purposes, the maximum PGA value recorded during the Loma Prieta earthquake was in the vicinity of the epicenter, near Santa Cruz, was 0.64g (ABAG, 2003b). Unlike measures of magnitude, which provide a single measure of earthquake energy, PGA varies from place to place, and is dependent on the distance from the epicenter and the character of the underlying geology (e.g., hard bedrock, soft sediments or artificial fills).

The Modified Mercalli Intensity Scale

The Modified Mercalli Intensity Scale (**Table 4.5-1**) assigns an intensity value based on the observed effects of ground-shaking produced by an earthquake. Unlike measures of earthquake magnitude and PGA, the Modified Mercalli (MM) intensity scale is qualitative in nature, which means that it is based on actual observed effects rather than measured values. Similar to PGA, MM intensity values for an earthquake at any one place can vary depending on its magnitude, the distance from its epicenter, the focus its energy, and the type of geologic material. The MM values for intensity range from I (earthquake not felt) to XII (damage nearly total), and intensities ranging from IV to X could cause moderate to significant structural damage. Because the MM is a measure of ground-shaking effects, intensity values can be related to a range of PGA values, also shown in Table 4.5-1.

**TABLE 4.5-1
MODIFIED MERCALLI INTENSITY SCALE**

Intensity Value	Intensity Description	Average Peak Ground Acceleration^a
I	Not felt except by a very few persons under especially favorable circumstances.	< 0.0017 g
II	Felt only by a few persons at rest, especially on upper floors on buildings. Delicately suspended objects may swing.	0.0017-0.014 g
III	Felt noticeably indoors, especially on upper floors of buildings, but many people do not recognize it as an earthquake. Standing motor cars may rock slightly, vibration similar to a passing truck. Duration estimated.	0.0017-0.014 g
IV	During the day felt indoors by many, outdoors by few. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.	0.014–0.039g
V	Felt by nearly everyone, many awakened. Some dishes and windows broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles may be noticed. Pendulum clocks may stop.	0.035 – 0.092 g
VI	Felt by all, many frightened and run outdoors. Some heavy furniture moved; and fallen plaster or damaged chimneys. Damage slight.	0.092 – 0.18 g
VII	Everybody runs outdoors. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving motor cars.	0.18 – 0.34 g
VIII	Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving motor cars disturbed.	0.34 – 0.65 g
IX	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.	0.65 – 1.24 g
X	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from riverbanks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.	> 1.24 g
XI	Few, if any, (masonry) structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.	> 1.24 g
XII	Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on ground surface. Lines of sight and level are distorted. Objects are thrown upward into the air.	> 1.24 g

^a Value is expressed as a fraction of the acceleration due to gravity (g). Gravity (g) is 9.8 meters per second squared. 1.0 g of acceleration is a rate of increase in speed equivalent to a car traveling 328 feet from rest in 4.5 seconds.

SOURCE: ABAG, 2003a

Seismic Context

The Plan Area lies within the San Francisco Bay Area, a region of California characterized by active (Holocene) and potentially active (Quaternary) faults, and is considered an area of high seismic activity. The USGS along with the CGS and the Southern California Earthquake Center formed the 2007 Working Group on California Earthquake Probabilities to summarize the probability of one or more earthquakes of magnitude 6.7 or higher occurring in the state of California over the next 30 years. Accounting for the wide range of possible earthquake sources, it is estimated that the Bay Area has a 63 percent chance of experiencing such an earthquake (Working Group on California Earthquake Probabilities, 2008). According to the working group, the individual faults posing the greatest threat to the Bay Area are the Hayward, the San Andreas, and the Calaveras faults (USGS, 2012a). Other principal faults capable of producing large earthquakes in the Bay Area include the Concord–Green Valley, Marsh Creek–Greenville, San Gregorio and Rodgers Creek faults. **Table 4.5-2** lists the above mentioned faults, their distance and directions from the Plan Area, and their maximum credible earthquake magnitude. The Hayward, the San Andreas, and the Calaveras faults, which are the closest to the Plan Area, are briefly described below.

**TABLE 4.5-2
ACTIVE FAULTS IN THE REGION**

Fault	Closest Distance and Direction	Recency of Movement ^a	Future Earthquake Probability ^b	Historical Seismicity	Maximum Moment Magnitude Earthquake (Mw) ^c
Hayward (Northern Section)	2.5 miles northeast	Historic	31% (combined with Rodgers Creek Fault)	M 6.8 in 1868 Many <M 4.5	7.1
Calaveras (Northern Section)	14.5 miles east	Historic	7%	M 5.6–M 6.4 in 1861 M 6.2, 1911 in 1984	6.8
San Andreas (Peninsula Section)	14 miles southwest	Historic	21%	M 7.1 in 1989 M 8.25 in 1906 M 7.0 in 1838 Many <M 6	7.9
San Gregorio	21 miles southwest	Holocene	6%	n/a	7.3
Concord–Green Valley (Avon Section)	16 miles northeast	Historic	3%	Historic active creep	6.7
Marsh Creek–Greenville	26 miles East	Historic	3%	M 5.6 in 1980	6.9
Rodgers Creek	26 miles north	Holocene	31% (combined with Hayward Fault)	M 6.7 in 1898 M 5.6 and 5.7 in 1969	7.0

- ^a Recency of faulting from Jennings and Bryant (2010). Historic: displacement during historic time (within last 200 years), including areas of known fault creep; Holocene: evidence of displacement during the last 11,000 years; Quaternary: evidence of displacement during the last 1.6 million years; Pre-Quaternary: no recognized displacement during the last 1.6 million years (but not necessarily inactive).
- ^b Probability of one or more earthquakes of magnitude 6.7 or greater in the next 30 years from the Working Group on California Earthquake Probabilities (2008). The Working Group estimates the probability of a “background” earthquake not from one of the seven major faults studied to be 9%.
- ^c The Maximum Moment Magnitude Earthquake is derived from the joint CDMG/USGS Probabilistic Seismic Hazard Assessment for the State of California (Peterson et al., 1996).

SOURCES: Bryant and Hart, 2007; Jennings and Bryant, 2010; Working Group on California Earthquake Probabilities (2008); Peterson et al., 1996.

Hayward Fault

The Hayward Fault Zone, located as close as 2.5 miles northeast from the Plan Area, extends for 60 miles from San Pablo Bay in Richmond south to the San Jose area. The Hayward fault has historically generated one sizable earthquake, in 1868, when a Richter magnitude 7 earthquake on its southern segment ruptured the ground for a distance of about 20 miles (USGS, 2008). Lateral ground surface displacement during this event was an average of 6 feet (USGS, 2008).

A characteristic feature of the Hayward fault is its well-expressed and relatively consistent fault creep. Although large earthquakes on the Hayward fault have been rare since 1868, slow fault creep has continued to occur and has caused measurable offset. Fault creep on the Southern segment of the Hayward fault is estimated at between 3 and 9 millimeters per year (mm/yr) (Bryant and Cluett, 2000). However, a large earthquake could occur on the Hayward fault with an estimated moment magnitude (Mw) of about Mw 7.1 (Table 4.5-2). The USGS Working Group on California Earthquake Probabilities (2008) identifies the Hayward–Rodgers Creek Fault Systems as having a 31 percent chance of generating one or more earthquakes of magnitude 6.7 or greater in the next 30 years.

San Andreas Fault

The San Andreas Fault Zone, located as close as 14 miles southwest from the Plan Area, is a major structural feature that forms at the boundary between the North American and Pacific tectonic plates. It is a strike-slip⁶ fault, extending from the Salton Sea in Southern California near the border with Mexico to north of Point Arena, where the fault trace continues out into the Pacific Ocean. The main trace of the San Andreas Fault through the Bay Area trends northwest from the Santa Cruz Mountains to the western side of the San Francisco Peninsula.

In the San Francisco Bay Area, the San Andreas Fault Zone was the source of the two major earthquakes in recent history that affected the San Francisco Bay region. The 1906 San Francisco earthquake was estimated at M 7.9 and resulted in approximately 290 miles of surface fault rupture, the longest of any known continental strike slip fault. Horizontal displacement along the fault averaged 8 to 12 feet along the southern half of the rupture (USGS, 2012b). The 1989 Loma Prieta earthquake, with a magnitude of Mw 6.9, was centered in the Santa Cruz Mountains and resulted in widespread damage throughout the Bay Area. The USGS Working Group on California Earthquake Probabilities (2008) identifies the San Andreas Fault as having a 21 percent chance of generating one or more earthquakes of magnitude 6.7 or greater in the next 30 years.

Calaveras Fault

The Calaveras fault, located as close as 14.5 miles east from the Plan Area, is a major right-lateral strike-slip fault that has been active during the last 11,000 years. The Calaveras fault is located in the eastern San Francisco Bay region and generally trends from north to south along the eastern side of the Oakland Hills into the western Diablo Range, eventually joining the San Andreas Fault Zone south of Hollister. The northern extent of the fault zone is somewhat speculative and could be linked with the Concord fault.

⁶ Refers to relative motion on either side of a fault which is primarily horizontal (as opposed to vertical).

There is a distinct change in slip rate and fault behavior north and south of the vicinity of Calaveras Reservoir. North of Calaveras Reservoir, the fault is characterized by a relatively low slip rate of 5-6 mm/yr and sparse seismicity (Bryant and Cluett, 1999). South of Calaveras Reservoir, the fault zone is characterized by a higher rate of surface fault creep that has been evidenced in historic times. The Calaveras fault has been the source of several moderate magnitude earthquakes, and the probability of a large earthquake (greater than M 6.7) is much lower than on the San Andreas or Hayward faults. The USGS Working Group on California Earthquake Probabilities (2008) identifies the Calaveras fault as having a 7 percent chance of generating one or more earthquakes of magnitude 6.7 or greater in the next 30 years.

Seismic Hazards

Seismic hazards are generally classified in two categories: primary seismic hazards (surface fault rupture and ground shaking) and secondary seismic hazards (liquefaction and other types of seismically induced ground failure, along with seismically induced landslides). The following discussion identifies the seismic hazards for the Plan Area and provides the initial context for further evaluation in the impact analysis.

Surface Fault Rupture

Seismically-induced ground rupture is defined as the physical displacement of surface deposits in response to an earthquake's seismic waves. The magnitude, sense, and nature of fault rupture can vary for different faults or even along different strands of the same fault. Ground rupture is considered more likely along active faults, which are referenced in Table 4.5-2. Although future earthquakes could occur anywhere along the length of an active fault, only regional strike-slip earthquakes of magnitude 6.0 or greater are likely to be associated with surface fault rupture and offset (CGS, 1996). It is also important to note that earthquake activity and fault rupture due to unmapped subsurface fault traces is a possibility that is not predictable.

Ground rupture is considered more likely along active faults, which are referenced above in Table 4.5-2. The highest potential for surface faulting is along existing fault traces that have had Holocene fault displacement. The closest active fault to the Plan Area is the northern section of the Hayward Fault, approximately 2.5 miles to the northeast. The risk of fault rupture is considered low because the Plan Area is not crossed by an Alquist-Priolo Fault Rupture Hazard Zone, as designated by the Alquist-Priolo Earthquake Fault Zoning Act, and no active or potentially active faults are known to pass through the Plan Area (CGS, 1982).

Seismic Ground Shaking

As discussed above, a major earthquake is likely to affect the Plan Area within the next 30 years, and would produce strong ground-shaking effects throughout the region. Earthquakes on active or potentially active faults, depending on magnitude and distance from the Plan Area, could produce a range of ground-shaking intensities. Historically, earthquakes have caused strong ground-shaking and damage in the San Francisco Bay Area, the most recent being the M 6.9 Loma Prieta earthquake in October 1989. The epicenter was approximately 46 miles south of the Plan Area, but this earthquake is estimated to have caused moderate (VI) to very strong (VIII) shaking

intensities in the Oakland area (ABAG, 2003b). The largest earthquake in Bay Area history was the San Francisco Earthquake of 1906, with an estimated moment magnitude of 7.9. This produced strong (VII) to violent (IX) shaking intensities in the Plan Area (ABAG, 2003c).

The primary tool that seismologists use to describe ground-shaking hazard is a probabilistic seismic hazard assessment (PSHA). The PSHA for the State of California takes into consideration the range of possible earthquake sources (including such worse-case scenarios as described above) and estimates their characteristic magnitudes to generate a probability map for ground shaking. The PSHA maps depict values of peak ground acceleration (PGA) that have a 10 percent probability of being exceeded in 50 years (1 in 475 chance of occurring each year). Use of this probability level allows engineers to design buildings for ground motions that have a 90 percent chance of *not* occurring in the next 50 years, making buildings safer than if they were simply designed for the most probable events. The PSHA has indicated that PGA values from 0.671 to 0.677 have a 10 percent chance of being exceeded in 50 years in the Plan Area, depending on the type of underlying soil material (USGS and CGS, 2002; see **Table 4.5-3** below). The late Pleistocene to Holocene age alluvial deposits that underlie Glen Creek and the surrounding portions of the Plan Area (Qf) have the highest PGA value for the area. The PGA values for the artificial fill near the northwestern arm of Lake Merritt (afem) and the early to middle Pleistocene deposits northwest of Broadway (Qof) are only slightly lower. The marine terrace deposits that underlie the southwestern portion of the Plan Area south of 27th Street (Qmt) have the lowest PGA value in the Plan Area. As indicated in Table 4.5-1, these PGAs could result in considerable damage even in specially designed structures, causing partial collapse of some buildings and damaging underground utilities. The potential hazards related to ground-shaking are discussed further in the Impacts and Mitigation Measures below.

Liquefaction

Liquefaction is a transformation of soil from a solid to a liquefied state, during which saturated soil temporarily loses strength resulting from the buildup of excess pore water pressure, especially during earthquake-induced cyclic loading. Soil susceptible to liquefaction includes loose- to medium-density sand and gravel, low-plasticity silt, and some low-plasticity clay deposits. Four kinds of ground failure commonly result from liquefaction: lateral spread, flow failure, ground oscillation, and loss of bearing strength. *Lateral spreading* is the horizontal displacement of surficial blocks of sediments resulting from liquefaction in a subsurface layer that occurs on slopes ranging between 0.3 and three percent and commonly displaces the surface by several meters to tens of meters. *Flow failures* occur on slopes greater than three degrees and are primarily liquefied soil or blocks of intact material riding on a liquefied subsurface zone. *Ground oscillation* occurs on gentle slopes when liquefaction occurs at depth and no lateral displacement takes place. Soil units that are not liquefied may pull apart from each other and oscillate on the liquefied zone. The *loss of bearing pressure* can occur beneath a structure when the underlying soil loses strength and liquefies. When this occurs, the structure can settle, tip, or even become buoyant and “float” upwards. Liquefaction and associated failures could damage foundations, roads, underground cables and pipelines, and disrupt utility service.

**TABLE 4.5-3
PROBABILISTIC SEISMIC HAZARD ASSESSMENT PEAK GROUND
ACCELERATION VALUES FOR PLAN AREA GEOLOGIC UNITS**

Geologic Unit^a	Approximate Extent of Geologic Unit in Plan Area	PSHA Map PGA Value^b	Liquefaction Susceptibility Rating (at <10 feet to groundwater/ 10-30 feet to groundwater)^{c,d}	Estimated PGA Threshold Required to Trigger Liquefaction^c
afem (Artificial fill over estuarine mud)	South of Bay Street between Valdez Street and the eastern border of the Plan Area	0.676g	Very High/High	0.1g
Qf (Late Pleistocene to Holocene alluvium)	East side of Broadway between 26th and I-580	0.677g	Moderate/Low	> 0.3g
Qmt (Pleistocene marine terrace)	West of Valdez Street between 26th and Grand Avenue	0.671g	Low/Low	uncertain
Qof (Early to Middle Pleistocene alluvium)	West side of Broadway between 26th and I-580	0.675g	Low/Low	> 0.6g

^a After Witter et al., 2006

^b Using central longitude and latitude of each geologic unit in the Plan Area

^c After Witter et al., 2006

^d Depth to groundwater surface from CGS 2003

SOURCES: Witter et al., 2006; USGS and CGS, 2002; CGS 2003

Of particular relevance to the Plan Area is the fact that liquefaction can occur in unconsolidated or artificial fill sediments and other reclaimed areas along the margin of San Francisco Bay. The depth to groundwater influences the potential for liquefaction, in that sediments need to be saturated to have a potential for liquefaction. Groundwater in the Plan Area occurs at relatively shallow depths. At a leaking underground storage tank (LUST) cleanup site at 327 34th Street, at the northern end of the Plan Area, the depths to groundwater ranged from about 12.5 to 23 feet below the ground surface between 1993 and 2012 (LRM, 2012). At the lower elevation southern end of the Plan Area near Lake Merritt, the depth to groundwater is shallower. At a LUST site at 2350 Harrison Street, the depths to groundwater ranged from 3.13 to 10.92 feet below the ground surface between 2008 and 2011 (Conestoga-Rovers, 2012). Witter et al. (2006) and CGS (2003) have classified the geologic units in the Plan Area as ranging from low to very high liquefaction susceptibility given a ten foot depth to the groundwater surface. For three of the four mapped geologic units the PSHA PGA values are larger than the estimated liquefaction PGA thresholds (See Table 4.5-3). The CGS (2003), in accordance with the requirements of the Seismic Hazards Mapping Act, has placed the portions of the Plan Area underlain by artificial fills and Holocene alluvium as being within a liquefaction hazard zone. The implications of this designation are discussed under the regulatory setting and impact analysis below.

Earthquake-Induced Settlement

Settlement of the ground surface can be accelerated and accentuated by earthquakes. During an earthquake, settlement can occur as a result of the relatively rapid compaction and settling of subsurface materials (particularly loose, uncompacted, and variable sandy sediments above the water table) due to the rearrangement of soil particles during prolonged ground-shaking. Settlement can occur both uniformly and differentially (i.e., where adjoining areas settle at different amounts). Areas underlain by artificial fill would be susceptible to this type of settlement. Given the geologic setting of the Plan Area vicinity, this area could be subjected to earthquake-induced settlement, discussed further in the impact analysis to follow.

4.5.2 Regulatory Framework

State

The statewide minimum public safety standard for mitigation of earthquake hazards (as established through the California Building Code [CBC], Alquist-Priolo Earthquake Fault Zoning Act, and the Seismic Hazards Mapping Act) is that the minimum level of mitigation for a project should reduce the risk of ground failure during an earthquake to a level that does not cause the collapse of buildings for human occupancy, but in most cases, is not required to prevent or avoid the ground failure itself. It is not feasible to design all structures to completely avoid damage in worst-case earthquake scenarios. Accordingly, regulatory agencies have generally defined an “acceptable level” of risk as that which provides reasonable protection of the public safety, though it does not necessarily ensure continued structural integrity and functionality of a project [CCR Title 14, Section 3721(a)]. Nothing in these acts, however, precludes lead agencies from enacting more stringent requirements, requiring a higher level of performance, or applying these requirements to developments other than those that meet the acts’ definitions of “project.”

California Building Code

The CBC has been codified in the California Code of Regulations (CCR) as Title 24, Part 2. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under state law, all building standards must be centralized in Title 24 to be enforceable. The purpose of the CBC is to establish minimum standards to safeguard the public health, safety and general welfare through structural strength, means of egress facilities, and general stability by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all building and structures within its jurisdiction. The 2010 edition of the CBC is based on the 2009 International Building Code (IBC) published by the International Code Conference. The 2010 CBC contains California amendments based on the American Society of Civil Engineers (ASCE) Minimum Design Standards 7-05. ASCE 7-05 provides requirements for general structural design and includes means for determining earthquake loads as well as other loads (such as wind loads) for inclusion into building codes. The provisions of the CBC apply to the construction, alteration, movement, replacement, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

The earthquake design requirements take into account the occupancy category of the structure, site class, soil classifications, and various seismic coefficients which are used to determine a Seismic Design Category (SDC) for a project. The SDC is a classification system that combines the occupancy categories with the level of expected ground motions at the site and ranges from SDC A (very small seismic vulnerability) to SDC E/F (very high seismic vulnerability and near a major fault). Design specifications are then determined according to the SDC.

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. In accordance with this Act, the state geologist established regulatory zones, called earthquake fault zones, around the surface traces of active faults and has published maps showing these zones. Within these zones, buildings for human occupancy cannot be constructed across the surface trace of active faults. Each earthquake fault zone extends approximately 200 to 500 feet on either side of the mapped fault trace because many active faults are complex and consist of more than one branch that may experience ground surface rupture. However, this Act does not apply to the adoption and development under the Specific Plan because no active faults cross the Plan Area.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 (Public Resources Code, Chapter 7.8, Section 2690-2699.6) was developed to reduce the threat to public safety and to minimize the loss of life and property by identifying and mitigating ground failure caused by strong earthquakes, namely liquefaction and slope failure. While this Act pertains to seismic hazards, they are not the same as the fault surface rupture hazard regulated by the Alquist-Priolo Special Studies Zone Act of 1972. The Seismic Hazards Mapping Act requires the State Geologist to delineate seismic hazard zones, also known as “zones of required investigation”, where regional (that is, not site-specific) information suggests that the probability of a hazard requiring mitigation is great enough to warrant a site-specific investigation. The fact that a site lies outside a zone of required investigation does not necessarily mean that the site is free from seismic or other geologic hazards. Where a project—defined by the act as any structures for human occupancy or any subdivision of land that contemplates the eventual construction of structures for human occupancy—is within a zone of required investigation, lead agencies must apply minimum criteria for project approval. The most basic criteria for project approval are that the owner/developer adequately demonstrates seismic hazards at the site have been evaluated in a geotechnical report, that appropriate mitigation measures have been proposed, and that the lead agency has independently reviewed the adequacy of the hazard evaluation and proposed mitigation measures. Both the geotechnical report and the independent review must be performed by a certified engineering geologist or registered civil engineer. These criteria, along with seismic hazard evaluation and mitigation standards, are outlined in California Geological Survey Special Publication 117A, revised and re-adopted in September of 2008 by the State Mining and Geology Board (CGS, 2008).

City of Oakland Regulations

City of Oakland General Plan

The Safety Element of the City of Oakland General Plan enumerates the following policies and actions designed to reduce risks associated with earthquakes that may affect the City of Oakland:

- ***Geologic Hazards, Policy GE-1:*** Develop and continue to enforce and carry out regulations and programs to reduce seismic hazards and hazards from seismically triggered phenomena.

Action GE-1.2: Enact regulations requiring the preparation of site-specific geologic or geotechnical reports for development proposals in areas subject to earthquake-induced liquefaction, settlement or severe ground shaking, and conditioning project approval on the incorporation of necessary mitigation measures.

- ***Geologic Hazards, Policy GE-2:*** Continue to enforce ordinances and implement programs that seek specifically to reduce the landslide and erosion hazards.

Action GE-2.1: Continue to enforce provisions under the subdivision ordinance requiring that, under certain conditions, geotechnical reports be filed and soil hazards investigations be made to prevent grading from creating unstable slopes, and that any necessary corrective actions be taken.

Action GE-2.2: Continue to enforce the grading, erosion and sedimentation ordinance by requiring, under certain conditions, grading permits and plans to control erosion and sedimentation.

Action GE-2.6: Design fire-preventive vegetation-management techniques and practices for creeksides and high-slope areas that do not contribute to the landslide and erosion hazard.

- ***Geologic Hazards, Policy GE-3:*** Continue, enhance or develop regulations and programs designed to minimize seismically related structural hazards from new and existing buildings.

Action GE-3.1: Adopt and amend as needed updated versions of the California building code so that optimal earthquake-protection standards are used in construction and renovation projects.

Action GE-3.2: Continue to enforce the unreinforced masonry ordinance to require that potentially hazardous unreinforced masonry buildings be retrofitted or be otherwise made to reduce the risk of death and injury from their collapse during an earthquake.

Action GE-3.3: Continue to enforce the earthquake-damaged structures ordinance to ensure that buildings damaged by earthquakes are repaired to the extent practicable.

- ***Geologic Hazards, Policy GE-4:*** Work to reduce potential damage from earthquakes to “lifeline” utility and transportation systems.

Action GE-4.2: As knowledge about the mitigation of geologic hazards increases, encourage public and private utility providers to develop additional measures to

further strengthen utility systems against damage from earthquakes, and review and comment on proposed mitigation measures.

City of Oakland Municipal Code

The Safety Element of the City of Oakland's General Plan identifies policies and actions that apply to geologic hazards. The City implements these pertinent sections of the General Plan by enforcing the ordinances described. Among these are ordinances to minimize soil hazards, reduce soil erosion and protect stream quality, prevent grading from creating unstable slopes, abate unreinforced masonry building hazards, and mitigate fault rupture hazards.

Subdivision Ordinance (incorporated in Chapter 16.20.060 of the Oakland Municipal Code): Requires that the subdivider file a preliminary soil report with the City Engineer prior to the submission of a final subdivision map. The preliminary soil report must describe (1) how slopes will be kept stable against sliding and excessive erosion, and (2) if critically expansive soils are present or if other hazardous or problematic soil characteristics are present and what measures can be taken to avoid these hazards or problems. This preliminary soil report may be waived if the Building Inspector and City Engineer both agree that no preliminary analysis is necessary (Ordinance 11924, Section 4).

Subdivision Ordinance (Chapter 16.20.080): If the preliminary report indicates the presence of critically expansive soils, instability of slopes, or other soil problems which would lead to structural damage, a soil investigation of each lot in the subdivision shall be made by a civil engineer who is registered by the state of California. The soil investigation shall be made after grading, and a report shall be submitted recommending corrective action which is likely to prevent structural damage to each structure proposed to be constructed in the subdivision. Copies of the report shall be filed with the Building Inspector and the Street Engineering Department. The information contained in the report of the soils investigation may be included in the certificate respecting the grading work.

Grading Ordinance (Chapter 15.04.660): The Grading Ordinance requires a permit for grading activities on private or public property for projects that exceed certain criteria, such as amount of proposed excavation and degree of site slope. During project construction, the volume of the excavated fill material could exceed 50 cubic yards and could result in a 20 percent slope onsite, or the depth of excavation could exceed five feet at any location. Therefore, the project sponsor would be required to apply for the grading permit and prepare a grading plan, erosion and sedimentation control plan, and drainage plan.

Creek Protection, Stormwater Management, and Discharge Control Ordinance (Chapter 13.16): This ordinance prohibits activities that would result in the discharge of pollutants to Oakland's waterways or in damage to creeks, creek functions, or habitat. The ordinance requires the use of standard BMPs to prevent pollution or erosion to creeks and/or storm drains. Additionally, a creek protection permit is required for any construction work on creekside properties. The ordinance establishes comprehensive guidelines for the regulation of discharges to the city's storm drain system and the protection of surface water quality. The ordinance identifies BMPs and other protective measures for development projects. Under the ordinance, the City of Oakland Public Works Agency issues permits for storm drainage facilities that would be connected to existing city drainage facilities. In 1997, the ordinance was amended to include the requirement for a creek protection permit for any construction or related activity on creekside property. The ordinance includes enforcement provisions to provide more effective methods to deter and reduce the discharge

of pollutants to the storm drain system, local creeks, and San Francisco Bay. The provisions also list clear guidelines for creekside residents to protect the creek and habitat.

Unreinforced Masonry Ordinance (Chapter 15.28): Many of the unreinforced masonry buildings surveyed by the Oakland Cultural Heritage Survey in 1994 are located in the Plan Area (ESA, 2009). To abate the hazards posed by unreinforced masonry buildings, a Building Official assigns a priority level to buildings based many factors including the soil type on which the building is located. This priority level determines the amount of time the building owner has to file a building permit application and complete the retrofit work. If a building has been upgraded but no longer meets the structural standards under which it was retrofitted, or if the occupancy classification of the building has or will change, the building may require a new filing of an Engineer's Report and Building Permit Application. Provisions of the California State Historical Building Code (Part 8 of Title 24 in the California Code of Regulations) may apply to any buildings defined as historic by the Oakland cultural heritage survey. ***Geologic reports ordinance (Chapter 15.20):*** The geologic report ordinance in Chapter 15.20 of the Oakland Municipal Code does not apply to the Plan Area because the Plan Area is not within the boundaries of an Alquist-Priolo Fault Rupture Hazard Zone (CGS, 1982).

Building Services Division

In addition to compliance with building standards set forth by the 2009 IBC and 2010 CBC, a project applicant would be required to submit to the Oakland Building Services Division an engineering analysis accompanied by detailed engineering drawings for review and approval prior to excavation, grading, or construction activities on a project site. Specifically, an engineering analysis report and drawings of relevant grading or construction activities on a project site would be required to address constraints and incorporate recommendations identified in geotechnical investigations. These required submittals and City reviews ensure that the buildings are designed and constructed in conformance with the seismic and other requirements of all applicable building code regulations, pursuant to standard City of Oakland procedures.

City of Oakland Standard Conditions of Approval and Uniformly Applied Development Standards Imposed as Standard Conditions of Approval

The City of Oakland's Standard Conditions of Approval (SCA) relevant to reducing geologic and seismic impacts due to the adoption and development under the Specific Plan are listed below. If the Specific Plan is approved by the City, all applicable SCA would be adopted as conditions of approval and required of the adoption and development under the Specific Plan, as applicable, to help ensure less-than-significant impacts from geologic and seismic conditions. The SCA are incorporated and required as part of the Specific Plan, so they are not listed as mitigation measures.

- **SCA 34: Erosion and Sedimentation Control (when no grading permit is required)**

Ongoing throughout demolition, grading, and/or construction activities. The project applicant shall implement Best Management Practices (BMPs) to reduce erosion, sedimentation, and water quality impacts during construction to the maximum extent practicable. Plans demonstrating the Best Management Practices shall be submitted for review and approval by the Planning and Zoning Division and the Building Services Division. At a minimum, the project applicant shall provide filter materials deemed

acceptable to the City at nearby catch basins to prevent any debris and dirt from flowing into the City's storm drain system and creeks.

- **SCA 55: Erosion and Sedimentation Control Plan**

Prior to any grading activities. The project applicant shall obtain a grading permit if required by the Oakland Grading Regulations pursuant to Section 15.04.660 of the Oakland Municipal Code. The grading permit application shall include an erosion and sedimentation control plan for review and approval by the Building Services Division. The erosion and sedimentation control plan shall include all necessary measures to be taken to prevent excessive stormwater runoff or carrying by stormwater runoff of solid materials on to lands of adjacent property owners, public streets, or to creeks as a result of conditions created by grading operations. The plan shall include, but not be limited to, such measures as short-term erosion control planting, waterproof slope covering, check dams, interceptor ditches, benches, storm drains, dissipation structures, diversion dikes, retarding berms and barriers, devices to trap, store and filter out sediment, and stormwater retention basins. Off-site work by the project applicant may be necessary. The project applicant shall obtain permission or easements necessary for off-site work. There shall be a clear notation that the plan is subject to changes as changing conditions occur. Calculations of anticipated stormwater runoff and sediment volumes shall be included, if required by the Director of Development or designee. The plan shall specify that, after construction is complete, the project applicant shall ensure that the storm drain system shall be inspected and that the project applicant shall clear the system of any debris or sediment.

Ongoing throughout grading and construction activities. The project applicant shall implement the approved erosion and sedimentation plan. No grading shall occur during the wet weather season (October 15 through April 15) unless specifically authorized in writing by the Building Services Division.

- **SCA 58: Soils Report**

Required as part of the submittal of a Tentative Tract or Tentative Parcel Map. A preliminary soils report for each construction site within the project area shall be required as part of this project and submitted for review and approval by the Building Services Division. The soils reports shall be based, at least in part, on information obtained from on-site testing. Specifically the minimum contents of the report should include:

- a) Logs of borings and/or profiles of test pits and trenches:
 - 1. The minimum number of borings acceptable, when not used in combination with test pits or trenches, shall be two (2), when in the opinion of the Soils Engineer such borings shall be sufficient to establish a soils profile suitable for the design of all the footings, foundations, and retaining structures.
 - 2. The depth of each boring shall be sufficient to provide adequate design criteria for all proposed structures.
 - 3. All boring logs shall be included in the soils report.
- b) Test pits and trenches
 - 1. Test pits and trenches shall be of sufficient length and depth to establish a suitable soils profile for the design of all proposed structures.
 - 2. Soils profiles of all test pits and trenches shall be included in the soils report.

- c) A plat shall be included which shows the relationship of all the borings, test pits, and trenches to the exterior boundary of the site. The plat shall also show the location of all proposed site improvements. All proposed improvements shall be labeled.
 - d) Copies of all data generated by the field and/or laboratory testing to determine allowable soil bearing pressures, shear strength, active and passive pressures, maximum allowable slopes where applicable and any other information which may be required for the proper design of foundations, retaining walls, and other structures to be erected subsequent to or concurrent with work done under the grading permit.
 - e) A written Soils Report shall be submitted which shall include but is not limited to the following:
 - 1. Site description
 - 2. Local and site geology
 - 3. Review of previous field and laboratory investigations for the site
 - 4. Review of information on or in the vicinity of the site on file at the Information Counter, City of Oakland, Office of Planning and Building.
 - 5. Site stability shall be addressed with particular attention to existing conditions and proposed corrective actions at locations where land stability problems exist.
 - 6. Conclusions and recommendations for foundations and retaining structures, resistance to lateral loading, slopes, and specifications, for fills, and pavement design as required.
 - 7. Conclusions and recommendations for temporary and permanent erosion control and drainage. If not provided in a separate report they shall be appended to the required soils report.
 - 8. All other items which a Soils Engineer deems necessary.
 - 9. The signature and registration number of the Civil Engineer preparing the report.
 - f) The Director of Planning and Building may reject a report that she/he believes is not sufficient. The Director of Planning and Building may refuse to accept a soils report if the certification date of the responsible soils engineer on said document is more than three years old. In this instance, the Director may require that the old soils report be recertified, that an addendum to the soils report be submitted, or that a new soils report be provided.
- **SCA 60: Geotechnical Report**
Required as part of the submittal of a tentative Tract Map or tentative Parcel Map.
 - a) A site-specific, design level, Landslide or Liquefaction geotechnical investigation for each construction site within the project area shall be required as part of this project and submitted for review and approval by the Building Services Division. Specifically:
 - 1. Each investigation shall include an analysis of expected ground motions at the site from identified faults. The analyses shall be in accordance with applicable City ordinances and polices, and consistent with the most recent version of the California Building Code, which requires structural design that can accommodate ground accelerations expected from identified faults.

2. The investigations shall determine final design parameters for the walls, foundations, foundation slabs, surrounding related improvements, and infrastructure (utilities, roadways, parking lots, and sidewalks).
 3. The investigations shall be reviewed and approved by a registered geotechnical engineer. All recommendations by the project engineer, geotechnical engineer, shall be included in the final design, as approved by the City of Oakland.
 4. The geotechnical report shall include a map prepared by a land surveyor or civil engineer that shows all field work and location of the “No Build” zone. The map shall include a statement that the locations and limitations of the geologic features are accurate representations of said features as they exist on the ground, were placed on this map by the surveyor, the civil engineer or under their supervision, and are accurate to the best of their knowledge.
 5. Recommendations that are applicable to foundation design, earthwork, and site preparation that were prepared prior to or during the projects design phase, shall be incorporated in the project.
 6. Final seismic considerations for the site shall be submitted to and approved by the City of Oakland Building Services Division prior to commencement of the project.
 7. A peer review is required for the Geotechnical Report. Personnel reviewing the geologic report shall approve the report, reject it, or withhold approval pending the submission by the applicant or subdivider of further geologic and engineering studies to more adequately define active fault traces.
- b) Tentative Tract or Parcel Map approvals shall require, but not be limited to, approval of the Geotechnical Report.

4.5.3 Impacts and Mitigation Measures

Significance Criteria

Adoption and development under the Specific Plan would have a significant impact on the environment if it were to:

1. Expose people or structures to substantial risk of loss, injury, or death involving:
 - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map or Seismic Hazards Map issued by the State Geologist for the area or based on other substantial evidence of a known fault [**NOTE:** Refer to California Geological Survey 42 and 117 and Public Resources Code section 2690 et. seq.];
 - Strong seismic ground shaking;
 - Seismic-related ground failure, including liquefaction, lateral spreading, subsidence, collapse; or
 - Landslides;

2. Result in substantial soil erosion or loss of topsoil, creating substantial risks to life, property, or creeks/waterways;
3. Be located on expansive soil, as defined in Section 1802.3.2 of the California Building Code (2007, as it may be revised), creating substantial risks to life or property;
4. Be located above a well, pit, swamp, mound, tank vault, or unmarked sewer line, creating substantial risks to life or property;
5. Be located above landfills for which there is no approved closure and post-closure plan, or unknown fill soils, creating substantial risks to life or property ; or
6. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater

Approach to Analysis

Adoption and development under the Specific Plan would not result in direct physical impacts within the Plan Area. However, adoption and development under the Specific Plan could eventually result in various types of construction activities within the Plan Area that would require ground disturbance and use of hazardous materials. These types of construction activities could result in impacts to or from geology, soils, and geohazards. Potential impacts to geology, soils, and geohazards are analyzed within the context of existing plans and policies, permitting requirements, local ordinances, and the City of Oakland's Standard Conditions of Approval. Impacts that would be substantially reduced or eliminated by compliance with these policies or requirements are found to be less-than-significant. Additional discussion of potential erosion impacts is presented in Section 4.8, *Hydrology and Water Quality* of this EIR. Detailed analysis of potential impacts due to the use of hazardous materials is presented in Section 4.7, *Hazardous Materials*, of this EIR. Potential impacts to stormwater infrastructure are discussed in Section 4.14, *Utilities and Service Systems*, of this EIR.

Based on the Plan Area and its geographical location, adoption and development under the Specific Plan would not result in impacts related to the following criteria. No impact discussion is provided for these topics for the following reasons:

- ***Fault Rupture.*** The faults most susceptible to earthquake rupture are active faults, which are faults that have experienced surface displacement within the last 11,000 years. There are no active faults that cross the Plan Area, and the nearest active fault is more than two miles away. Therefore, the potential for fault rupture to affect the development under the Specific Plan are very low.
- ***Landslides.*** The Plan Area does not contain slopes that are susceptible to landslides or slope failure. The gentle sloping topography of the area puts the potential for landslides or slope failure to affect any of the proposed development or adaptive reuse in the Plan Area as very low and is therefore not discussed further. Discussion on earthquake-induced ground failure is provided in Impact GEO-1.
- ***Substantial soil erosion or loss of topsoil.*** Section 4.7, *Hydrology and Water Quality*, discusses soil erosion and its effect on water quality. This criterion focuses more on the

potential for excessive or accelerated erosion to undermine building foundations. Measures to reduce soil erosion during construction for water quality purposes would effectively prevent excessive rilling or rutting of soil on construction sites (see Section 4.7). The Plan Area is in a developed urban area that is paved or landscaped, and served by a storm drain system. Therefore there would be no impact from excessive erosion on foundations or utilities.

- **Wastewater Disposal.** The Plan Area is located within an urban area where all development would be able to tie into existing wastewater infrastructure. Therefore, none of the development would require the use of septic or other alternative disposal wastewater systems, and therefore no impact is associated with this hazard.

Impacts

Impact GEO-1: Adoption and development under the Specific Plan could expose people or structures to seismic hazards such as ground shaking and seismic-related ground failure such as liquefaction, differential settlement, collapse, or lateral spreading (Criterion 1). (Less than Significant)

As discussed in Chapter 3, *Project Description*, a key purpose of the Specific Plan is to enhance the condition of the Plan Area. The City could accomplish the project objectives through various means including new construction or adaptive reuse of buildings and utilities. If development under the Specific Plan is not properly designed or constructed, it has the potential to increase the exposure of people to injury or harm during a large regional earthquake. As discussed in the Setting, the Plan Area could be subject to very strong ground shaking, capable of causing considerable damage to well-built structures, causing partial collapse of older buildings (e.g., soft-story buildings, and those built of unreinforced masonry) and damaging underground utilities. In addition, portions of the Plan Area near Lake Merritt and Glen Echo Creek are located over soils susceptible to liquefaction, which substantially increases the potential damage incurred by structures and utility lines in the event of an earthquake. These hazards must be properly evaluated and mitigated for as specific projects are implemented within the Plan Area.

As described in the Regulatory Framework, development under the Specific Plan would be required to comply with the Seismic Hazards Mapping Act (in liquefaction hazard zones) and with the California Building Code. These laws require development projects to demonstrate that (1) soil conditions are known and that foundations have been designed according to the proper seismic design category, and (2) that the risk of liquefaction and other ground failures has been evaluated and that appropriate mitigation measures, if necessary, have been incorporated into project design. Development under the Specific Plan located wholly or partly within a Seismic Hazard Zone for liquefaction, such as the Plan Area, would be required to comply with CGS guidelines for evaluating and mitigating seismic hazards (Special Publication 117A) (CGS, 2008).

To ensure compliance with these laws, as well as the seismic requirements of the City of Oakland Building Code, the City requires owners/developers to prepare a soils report and geotechnical report for proposed developments that include generally accepted and appropriate engineering techniques for determining the susceptibility of a project site to various geologic and seismic hazards. These requirements are implemented through uniformly-applied Standard Conditions of

Approval (SCA), consistent with General Plan Policies. The geotechnical report (SCA 60, *Geotechnical Report*) would include an analysis of ground shaking effects, liquefaction potential, and provide recommendations to reduce these hazards. Owners/developers of development under the Specific Plan would be required to submit an engineering analysis accompanied by detailed engineering drawings to the City of Oakland Building Services Division prior to excavation, grading, or construction activities on a project site. Geotechnical and seismic design criteria would conform to engineering recommendations consistent with the seismic requirements set forth in the California Code of Regulations, Title 24, California Building Standards Code in effect at the time of permit application.

Further, development under the Specific Plan would be required to comply with 'the requirements of the CBC, Seismic Hazards Mapping Act, and Oakland's standard conditions of approval would ensure that new developments under the Specific Plan would not expose people or structures to an unacceptable level of risk during a large regional earthquake.⁷

It is important to ensure that development under the Specific Plan involving addition of housing or office spaces to *existing* structures occur in structures that are seismically sound. The Plan Area is an older part of Oakland that contains many areas that were built-up prior to the development of modern building codes. Buildings constructed of unreinforced masonry have been widely recognized for experiencing life safety hazardous damage including partial or total collapse during moderate to strong earthquakes. Further, buildings subject to the Oakland Building Code prior to November 26, 1948 (the effective date of the building code requiring earthquake resistant design of buildings) may present an unacceptable level of risk to the residents during an earthquake. Implementation of SCA 58, *Soils Report*, and SCA 60, *Geotechnical Report*, and application of the city's building and grading codes occur as part of submittal of development plans; or projects involving excavation, grading, or construction. Any modification of a structure would require a building permit, and if the structure is out of seismic code, then it would require upgrades before a permit is issued. Under the Section 3406.1 of the CBC, however, any project that would place a building in a different occupancy category or use-type would be required to comply with the current CBC code applicable to the new use or occupancy category. This ensures that buildings that may be seismically unsound would be required to retrofit prior to approval of use changes or changes in occupancy levels. Earthquakes can and will occur in the region and the Plan Area may be affected. However, the application of current seismic design criteria required under the CBC and the SCAs would reduce the potential impacts associated with ground shaking during a major seismic event to less than significant.

Mitigation: None Required.

⁷ An "acceptable level" of risk means that which provides reasonable protection of the public safety, though it does not necessarily ensure continued structural integrity and functionality of the project [CCR Title 14, Section 3721(a)].

Impact GEO-2: Adoption and development under the Specific Plan could be subjected to geologic hazards, including expansive soils, subsidence, seismically-induced settlement and differential settlement (Criterion 3). (Less than Significant)

As discussed in the setting, soils containing a high percentage of clays are generally most susceptible to expansion. Expansive soils can damage foundations of above-ground structures, paved roads and streets, and concrete slabs. The Bay Mud that presumably underlies much of the Plan Area, as well as areas underlain by artificial fill, could potentially be subject to shrink-swell behavior. Further settlement and differential settlement could affect portions of the Plan Area. Larger buildings may put loads on underlying geologic layers of mud and silt that could compress. Places mapped as artificial fills may be underlain by historic bay sloughs, old foundations, and former marsh areas. These areas may experience some degree of differential settlement, and particular care would be needed to ensure soils and foundations are properly engineered.

As discussed in Impact GEO-1, the City of Oakland imposes SCAs requiring proposed developments to conduct a soil reports (SCA 58) and geotechnical studies (SCA 60). These SCAs would ensure that construction methods and building designs are in place to overcome problematic soils (such methods typically involve soil removal and replacement, or special foundation design). SCAs would ensure that structures are protected from expansive soil and settlement concerns. The application of current geotechnical design criteria required under the CBC and the SCAs would reduce the potential impacts associated with expansive soils, subsidence, seismically-induced settlement and differential settlement to less than significant.

Mitigation: None Required.

Cumulative Impacts

Impact GEO-3: Adoption and development under the Specific Plan, when combined with other past, present, existing, approved, pending and reasonably foreseeable development in the vicinity, would not result in significant cumulative impacts with respect to geology, soils or seismicity. (Less than Significant)

Geographic Context

Although the entire Bay Area is situated within a seismically-active region with a wide range of geologic and soil conditions, these conditions can vary widely within a short distance, making the cumulative context for potential impacts resulting from exposing people and structures to related risks one that is more localized or even site-specific. Potential cumulative geology and seismic impacts do not extend far beyond a project's boundaries, since such geological impacts are typically confined to discrete spatial locations and do not combine to create an extensive cumulative impact. The exception to this generalization would occur where a large geologic feature (e.g., fault zone, massive landslide) might affect an extensive area, or where the development effects from the adoption and development under the Specific Plan could affect the geology of an off-site location. These circumstances are not likely to occur in the Plan Area as

there are no large landslide features or fault zones. The development under the Specific Plan could combine with structural damage from other past, present, and reasonably foreseeable future projects. These include but are not limited to projects listed in the Major Projects List in Appendix B to this Draft EIR.

Impacts

The cumulative analysis considers the adoption and development under the Specific Plan combined with other past, present, existing, pending and reasonably foreseeable projects. Many existing buildings (i.e., past projects) in the surrounding area have been built in accordance with building code requirements for geotechnical and seismic safety in effect at the time of building construction. Present, pending and future projects within the Plan Area are subject to these enhanced requirements and result in reduced geologic and seismic hazards. As present and future projects replace aging infrastructure and older structures with new, more rigorously regulated projects, the potential for cumulative seismic risks is incrementally reduced over time.

The SCAs discussed above, including appropriate grading requirements, and compliance with the UBC as locally amended would reduce the potential for cumulative geologic and seismic effects from development within Plan Area and surrounding area. Therefore, adoption and development under the Specific Plan together with the impact of past, present, existing, pending and reasonably foreseeable future development would not result in any significant cumulative geologic and seismic impacts. Moreover, given that the adoption and development under the Specific Plan would likely remove older structures and replace them with new structures, or rehabilitate older structures that must comply with current and future building code requirements for geologic and seismic safety, the development under the Specific Plan would not make any considerable contribution to any potential cumulative impact, because it would improve geologic and seismic safety in the Plan Area. The impact would be less than significant.

Mitigation: None Required.

4.5.4 References

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4.6 Greenhouse Gases and Climate Change

This section presents an overview of region-specific information related to greenhouse gases (GHG), including a description of current emissions generated within the City. The impact analysis discusses the expected emissions associated with adoption and development under the Specific Plan. Potential impacts are discussed and evaluated, and appropriate mitigation measures or Standard Conditions of Approval (SCA) are identified, as necessary. An analysis of the contribution of the adoption and development under the Specific Plan to global climate change and GHG emissions is also included at the end of this section as is an assessment of consistency with relevant plans to reduce GHG emissions.

4.6.1 Physical Setting for GHG Emissions and Climate Change

There is a general scientific consensus that global climate change is occurring, caused in whole or in part, by increased emissions of GHGs that keep the Earth's surface warm by trapping heat in the Earth's atmosphere (USEPA, 2000), in much the same way as glass in a greenhouse. While many studies show evidence of warming over the last century and predict future global warming, the precise causes of such warming and its potential effects are far less certain.¹ While the greenhouse effect is responsible for maintaining a habitable climate on Earth, human activity has caused increased concentrations of these gases in the atmosphere, contributing to an increase in global temperatures and alterations of climactic conditions.

The USEPA has recently concluded that scientists have a good understanding of the following relationship and data supporting the following:

- “Human activities are changing the composition of Earth’s atmosphere. Increasing levels of greenhouse gases like carbon dioxide (CO₂) in the atmosphere since pre-industrial times are well-documented.”
- The atmospheric buildup of CO₂ and other greenhouse gases is largely the result of human activities such as the burning of fossil fuels.
- A warming trend of approximately 0.7 to 1.5°F occurred during the 20th century. Warming occurred in both the northern and southern hemispheres, and over the oceans.
- “The key greenhouse gases emitted by human activities remain in the atmosphere for periods ranging from decades to centuries.” It is therefore virtually certain that atmospheric concentrations of greenhouse gases will continue to rise over the next few decades. Increasing greenhouse gas concentrations tend to warm the planet (USEPA, 2000).

¹ “Global climate change” is a broad term used to describe any worldwide, long-term change in the earth’s climate. “Global warming” is more specific and refers to a general increase in temperatures across the earth, although it can cause other climatic changes, such as a shift in the frequency and intensity of weather events and even cooler temperatures in certain areas, even though the world, on average, is warmer.

At the same time, there is much uncertainty concerning the magnitude and rate of the warming. Specifically, the USEPA notes that “important scientific questions remain about how much warming will occur; how fast it will occur; and how the warming will affect the rest of the climate system, including precipitation patterns and storms. Answering these questions will require advances in scientific knowledge in a number of areas:

- Improving understanding of natural climatic variations, changes in the sun’s energy, land-use changes, the warming or cooling effects of pollutant aerosols, and the impacts of changing humidity and cloud cover.
- Determining the relative contribution to climate change of human activities and natural causes.
- Projecting future greenhouse emissions and how the climate system will respond within a narrow range.
- Improving understanding of the potential for rapid or abrupt climate change.” (USEPA, 2000)

Greenhouse Gases (GHGs)

Carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O) are the principal GHGs, and when concentrations of these gases exceed natural concentrations in the atmosphere, the greenhouse effect may be enhanced. CO₂, CH₄ and N₂O occur naturally, but are also generated through human activity. Emissions of CO₂ are largely by-products of fossil fuel combustion, whereas CH₄ results from off-gassing associated with agricultural practices and landfills. Other human generated GHGs, which have much higher heat-absorption potential than CO₂, include fluorinated gases such as hydrofluorocarbons (HFCs), perfluorocarbons (PFC), and sulfur hexafluoride (SF₆) which are byproducts of certain industrial processes.

Potential Effects of Human Activity on GHG Emissions

Fossil fuel combustion, especially for the generation of electricity and powering of motor vehicles, has led to substantial increases in CO₂ emissions (and thus substantial increases in atmospheric concentrations). In 1994, atmospheric CO₂ concentrations were found to have increased by nearly 30 percent above pre-industrial (c.1860) concentrations.

The effect each GHG has on climate change is measured as a combination of the volume of its emissions, and its global warming potential (GWP),² and is expressed as a function of how much warming would be caused by the same mass of CO₂. Thus, GHG emissions are typically measured in terms of pounds or tons of CO₂e.³

² The potential of a gas or aerosol to trap heat in the atmosphere.

³ CO₂ equivalents (“CO₂e”) are calculated as the product of the mass emitted of a given GHG and its specific global warming potential (GWP). While CH₄ and N₂O have much higher GWPs than CO₂, CO₂ is emitted in such vastly higher quantities that it accounts for the majority of GHG emissions in CO₂e, both from residential developments and human activity in general.

Global Emissions

Worldwide emissions of GHGs in 2004 were 30 billion tons of CO₂e per year (UNFCCC, 2007) (including both ongoing emissions from industrial and agricultural sources, but excluding emissions from land-use changes).

U.S. Emissions

In 2004, the United States emitted about 8 billion tons of CO₂e or about 25 tons/year/person. Of the four major sectors nationwide — residential, commercial, industrial and transportation — transportation accounts for the highest fraction of GHG emissions (approximately 35 to 40 percent); these emissions are entirely generated from direct fossil fuel combustion (USEPA, 2000).

State of California Emissions

In 2004, California emitted approximately 550 million tons of CO₂e, or about six percent of the U.S. emissions. This large number is due primarily to the sheer size of California compared to other states. By contrast, California has one of the fourth lowest per capita GHG emission rates in the country, due to the success of its energy-efficiency and renewable energy programs and commitments that have lowered the State's GHG emissions rate of growth by more than half of what it would have been otherwise (California Energy Commission [CEC], 2007). Another factor that has reduced California's fuel use and GHG emissions is its mild climate compared to that of many other states.

The California Environmental Protection Agency (EPA) Climate Action Team stated in its March 2006 report that the composition of gross climate change pollutant emissions in California in 2002 (expressed in terms of CO₂ equivalence) were as follows:

- Carbon dioxide (CO₂) accounted for 83.3 percent;
- Methane (CH₄) accounted for 6.4 percent;
- Nitrous oxide (N₂O) accounted for 6.8 percent; and
- Fluorinated gases (HFCs, PFC, and SF₆) accounted for 3.5 percent (CalEPA, 2006).

The CEC found that transportation is the source of approximately 41 percent of the State's GHG emissions, followed by electricity generation (both in-state and out-of-state) at 23 percent, and industrial sources at 20 percent. Agriculture and forestry is the source of approximately 8.3 percent, as is the source categorized as "other," which includes residential and commercial activities (CEC, 2007).

Bay Area Emissions

In the Bay Area, fossil fuel consumption in the transportation sector (on-road motor vehicles, off-highway mobile sources, and aircraft) is the single largest source of the Bay Area's GHG emissions, accounting for just over half of the Bay Area's 85 million tons of GHG emissions in 2002. Industrial and commercial sources were the second largest contributors of GHG emissions with about 25 percent of total emissions. Domestic sources (e.g., home water heaters, furnaces, etc.) account for about 11 percent of the Bay Area's GHG emissions, followed by power plants at

seven percent. Oil refining currently accounts for approximately six percent of the total Bay Area GHG emissions (BAAQMD, 2008).

Oakland Emissions

The City of Oakland has developed a GHG emissions inventory estimating citywide GHG emissions for the year 2005 (City of Oakland Energy and Climate Action Plan Appendix, 2011). This citywide GHG emissions inventory includes “local government focus area” emissions associated with energy used and waste produced within the Oakland city limits, as well as other emission sources associated with activities occurring in Oakland, such as industrial point sources, energy used to convey water to Oakland, pass-through highway travel, and energy used to manufacture products purchased and used in Oakland. **Table 4.6-1** describes Oakland’s local government focus area emissions.

**TABLE 4.6-1
OAKLAND FOCUS AREA CITYWIDE GHG EMISSIONS SUMMARY – 2005 (tons/year)**

GHG Emissions Source	Metric Tons of Carbon Dioxide Equivalent (CO₂e)
Transportation on Local (Non-Highway) Roads	759,884
Commercial/Industrial Electricity	320,151
Commercial/Industrial Natural Gas	288,514
Residential Electricity	150,077
Residential Natural Gas	350,162
Landfilled Solid Waste	126,361

SOURCE: City of Oakland, 2009.

Construction and New Development Emissions

The construction and operation of developments, such as the development under the Specific Plan, cause GHG emissions. Operational phase GHG emissions result from energy use associated with heating, lighting and powering buildings (typically through natural gas and electricity consumption in Oakland), pumping and processing water, as well as fuel used for transportation and decomposition of waste associated with building occupants.

New development can also create GHG emissions in its construction and demolition phases including the use of fuels in construction equipment, creation and decomposition of building materials, vegetation clearing, natural gas usage, electrical usage (since electricity generation by conventional means is a major contributor of GHG emissions, discussed below), and transportation.

However, it is important to acknowledge that new development does not necessarily create entirely new GHG emissions, since most of the persons who will visit or occupy new development will come from other locations where they were already causing such GHG emissions. Further, as discussed above, it has not been demonstrated that a project’s net increase in GHG emissions, if any, when coupled with other activities in the region, would be cumulatively considerable.

Potential Effects of Human Activity on Global Climate Change

Globally, climate change has the potential to impact numerous environmental resources through anticipated, though uncertain, impacts related to future air temperatures and precipitation patterns. Scientific modeling predicts that continued GHG at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century. A warming of about 0.2°C (0.36°F) per decade is projected, and there are identifiable signs that global warming is taking place, including substantial loss of ice in the Arctic (International Panel on Climate Change [IPCC], 2000).

Acknowledging uncertainties regarding the rate at which anthropogenic GHG emissions would continue to increase (based upon various factors under human control, such as future population growth and the locations of that growth; the amount, type, and locations of economic development; the amount, type, and locations of technological advancement; adoption of alternative energy sources; legislative and public initiatives to curb emissions; and public awareness and acceptance of methods for reducing emissions), and the impact of such emissions on climate change, the IPCC devised a set of six “emission scenarios” which utilize various assumptions about the rates of economic development, population growth, and technological advancement over the course of the next century (IPCC, 2000). These emission scenarios are paired with various climate sensitivity models to attempt to account for the range of uncertainties which affect climate change projections. The wide range of temperature, precipitation, and similar projections yielded by these scenarios and models reveal the magnitude of uncertainty presently limiting climate scientists’ ability to project long-range climate change (as previously discussed).

The projected effects of global warming on weather and climate are likely to vary regionally, but are expected to include the following direct effects, according to the IPCC (IPCC, 2000):

- Snow cover is projected to contract, with permafrost areas sustaining thawing;
- Sea ice is projected to shrink in both the Arctic and Antarctic;
- Hot extremes, heat waves, and heavy precipitation events are likely to increase in frequency;
- Future tropical cyclones (typhoons and hurricanes) will likely become more intense;
- Non-tropical storm tracks are projected to move poleward, with consequent changes in wind, precipitation, and temperature patterns. Increases in the amount of precipitation are very likely in high-latitudes, while decreases are likely in most subtropical regions; and
- Warming is expected to be greatest over land and at most high northern latitudes, and least over the Southern Ocean and parts of the North Atlantic Ocean.

Potential secondary effects from global warming include global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity.

Potential Effects of Climate Change on State of California

According to the CARB, some of the potential impacts in California of global warming may include loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years (CARB, 2006). Several recent studies have attempted to explore the possible negative consequences that climate change, left unchecked, could have in California. These reports acknowledge that climate scientists' understanding of the complex global climate system, and the interplay of the various internal and external factors that affect climate change, remains too limited to yield scientifically valid conclusions on such a localized scale. Substantial work has been done at the international and national level to evaluate climatic impacts, but far less information is available on regional and local impacts. In addition, projecting regional impacts of climate change and variability relies on large-scale scenarios of changing climate parameters, using information that is typically at too general a scale to make accurate regional assessments (Kiparsky, 2003).

Below is a summary of some of the potential effects reported in an array of studies that could be experienced in California as a result of global warming and climate change:

- **Air Quality.** Higher temperatures, conducive to air pollution formation, could worsen air quality in California. Climate change may increase the concentration of ground-level ozone, but the magnitude of the effect, and therefore its indirect effects, are uncertain. For other pollutants, the effects of climate change and/or weather are less well studied, and even less well understood (U.S. EPA, 2000). If higher temperatures are accompanied by drier conditions, the potential for large wildfires could increase, which, in turn, would further worsen air quality. However, if higher temperatures are accompanied by wetter, rather than drier conditions, the rains would tend to temporarily clear the air of particulate pollution and reduce the incidence of large wildfires, thus ameliorating the pollution associated with wildfires. Additionally, severe heat accompanied by drier conditions and poor air quality could increase the number of heat-related deaths, illnesses, and asthma attacks throughout the State (California Climate Change Center [CCCC], 2006).
- **Water Supply.** Uncertainty remains with respect to the overall impact of global climate change on future water supplies in California. For example, models that predict drier conditions (i.e., parallel climate model [PCM]) suggest decreased reservoir inflows and storage and decreased river flows, relative to current conditions. By comparison, models that predict wetter conditions (i.e., HadCM2) project increased reservoir inflows and storage, and increased river flows (Brekke, et al., 2004). A July 2006 technical report prepared by the California Department of Water Resources (DWR) addresses the State Water Project (SWP), the Central Valley Project, and the Sacramento-San Joaquin Delta. Although the report projects that “[c]limate change will likely have a significant effect on California’s future water resources . . . [and] future water demand,” it also reports that “much uncertainty about future water demand [remains], especially [for] those aspects of future demand that will be directly affected by climate change and warming. While climate change is expected to continue through at least the end of this century, the magnitude and, in some cases, the nature of future changes is uncertain. This uncertainty serves to complicate the analysis of future water demand, especially where the relationship between climate change and its potential effect on water demand is not well understood (DWR, 2006).” DWR adds that “[i]t is unlikely that this level of uncertainty will diminish significantly in the foreseeable future (DWR, 2006).” Still, changes in water supply are

expected to occur, and many regional studies have shown that large changes in the reliability of water yields from reservoirs could result from only small changes in inflows (Kiparsky, 2003; Cayan et al., 2006). Water purveyors, such as the East Bay Municipal Utilities District (EBMUD), are required by state law to prepare Urban Water Management Plans (UWMPs) (discussed below, under Regulatory Context for Greenhouse Gas Emissions and Climate Change) that consider climatic variations and corresponding impacts on long-term water supplies (California Water Code, Section 10631[c]). DWR has published a 2005 SWP Delivery Reliability Report, which presents information from computer simulations of the SWP operations based on historical data over a 73-year period (1922–1994). The DWR notes that the results of those model studies “represent the best available assessment of the delivery capability of the SWP.” In addition, the DWR is continuing to update its studies and analysis of water supplies. EBMUD would incorporate this information from DWR in its update of its current UWMP 2005 (required every five years per the California Water Code), and information from the UWMP can be incorporated into Water Supply Assessments (WSAs) and Water Verifications prepared for certain development projects in accordance with California Water Code Section 10910, et seq. and California Government Code Section 66473.7, et seq. (See Section 4.14, *Utilities and Service Systems*, in this EIR for a discussion of the WSA.)

- **Hydrology.** As discussed above, climate change could potentially affect the following: the amount of snowfall, rainfall and snow pack; the intensity and frequency of storms; flood hydrographs (flash floods, rain or snow events, coincidental high tide and high runoff events); sea level rise and coastal flooding; coastal erosion; and the potential for salt water intrusion. Sea level rise can be a product of global warming through two main processes—expansion of sea water as the oceans warm and melting of ice over land. A rise in sea levels could result in coastal flooding and erosion and could also jeopardize California’s water supply. In particular, saltwater intrusion would threaten the quality and reliability of the state’s major fresh water supply that is pumped from the southern portion of the Sacramento/San Joaquin River Delta. Increased storm intensity and frequency could affect the ability of flood-control facilities, including levees, to handle storm events.
- **Agriculture.** California has a \$30 billion agricultural industry that produces half the country’s fruits and vegetables. The CCCC notes that higher CO₂ levels can stimulate plant production and increase plant water-use efficiency. However, if temperatures rise and drier conditions prevail, water demand could increase, crop-yield could be threatened by a less reliable water supply, and greater ozone pollution could render plants more susceptible to pest and disease outbreaks. In addition, temperature increases could change the time of year that certain crops, such as wine grapes, bloom or ripen, and thus affect their quality (CCCC, 2006).
- **Ecosystems and Wildlife.** As noted in the City’s adopted Energy and Climate Action Plan, climate change is projected to impose significant ecological, health, economic and quality of life risks on Oakland, many of which are similar to those faced by other communities in the region and throughout the state. Projected local impacts of climate change include rising Bay and Delta waters: increased vulnerability to flood events; increased fire danger; greater frequency and intensity of heat events; added stress on infrastructure; significantly decreased snowpack in the Sierra Mountains (the source of most of Oakland’s potable water supply); higher prices for food and fuels; and other ecological and quality of life impacts. Current dependence on fossil fuels not only creates GHG emissions, but imposes other risks associated with energy security, environmental impacts (e.g., recent Gulf oil spill), and vulnerability to energy price volatility. These risks are magnified for

economically disadvantaged communities. Some impacts, such as minor sea level rise, are already starting to be observed.

The State Climate Action Team has predicted that sea levels may rise between 12 and 36 inches by the end of this century (California Climate Action Team, 2010). A set of climate scenarios prepared for the California Energy Commission project that mean sea level along the California coast could rise by as much as 4.5 feet by 2100 (CEC, 2009). According to maps produced by the Bay Conservation and Development Commission (BCDC) and Oakland-based Pacific Institute, many low-elevation areas of Oakland would be vulnerable to flood events under these scenarios (BCDC, 2011).

4.6.2 Regulatory Context for GHG Emissions and Climate Change

Global climate change is addressed through the efforts of various federal, State, regional, and local government agencies as well as national and international scientific and governmental conventions and programs. These agencies work jointly, as well as individually, to understand and regulate the effects of greenhouse gas emissions and resulting climate change through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies, conventions and programs focused on global climate change are discussed below.

International and Federal

Kyoto Protocol. The United States participates in the United Nations Framework Convention on Climate Change (UNFCCC) (signed on March 21, 1994). The Kyoto Protocol is a treaty made under the UNFCCC and was the first international agreement to regulate GHG emissions. It has been estimated that if the commitments outlined in the Kyoto Protocol are met, global GHG emissions could be reduced by an estimated five percent from 1990 levels during the first commitment period of 2008–2012. It should be noted that although the United States is a signatory to the Kyoto Protocol, Congress has not ratified the Protocol and the United States is not bound by the Protocol’s commitments.

Copenhagen Summit. The 2009 United Nations Climate Change Conference, i.e., Copenhagen Summit, was held in Denmark in December 2009. The conference included the 15th Conference of the Parties (COP 15) to the United Nations Framework Convention on Climate Change and the 5th Meeting of the Parties (COP/MOP 5) to the Kyoto Protocol. A framework for climate change mitigation beyond 2012 was to be agreed there. The Copenhagen Accord was drafted by the US, China, India, Brazil and South Africa on December 18, and judged a “meaningful agreement” by the United States government. It was “taken note of”, but not “adopted”, in a debate of all the participating countries the next day, and it was not passed unanimously. The document recognized that climate change is one of the greatest challenges of the present day and that actions should be taken to keep any temperature increases to below 2°C. The document is not legally binding and does not contain any legally binding commitments for reducing CO₂ emissions.

Climate Change Technology Program. The United States has opted for a voluntary and incentive-based approach toward emissions reductions in lieu of the Kyoto Protocol’s mandatory

framework. The Climate Change Technology Program (CCTP) is a multi-agency research and development coordination effort (which is led by the Secretaries of Energy and Commerce) that is charged with carrying out the President's National Climate Change Technology Initiative (CCTP, 2006).

U.S. Environmental Protection Agency (US EPA). The U.S. Supreme Court held that the United States Environmental Protection Agency (U.S. EPA) must consider regulation of motor vehicle GHG emissions. In *Massachusetts v. Environmental Protection Agency et al.*, 12 states and cities, including California, together with several environmental organizations, sued to require the U.S. EPA to regulate GHGs as pollutants under the Clean Air Act (127 S. Ct. 1438 (2007)). The Supreme Court ruled that GHGs fit within the Clean Air Act's definition of a pollutant and the U.S. EPA had the authority to regulate GHGs.

On December 7, 2009, the U.S. EPA Administrator signed two distinct findings regarding GHGs under Section 202(a) of the federal Clean Air Act:

- **Endangerment Finding:** The current and projected concentrations of the six key well-mixed GHGs—CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆—in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare.

On September 22, 2009, the U.S. EPA released its final Greenhouse Gas Reporting Rule (Reporting Rule). The Reporting Rule is a response to the fiscal year (FY) 2008 Consolidated Appropriations Act (H.R. 2764; Public Law 110-161), that required the U.S. EPA to develop "...mandatory reporting of GHGs above appropriate thresholds in all sectors of the economy...." The Reporting Rule will apply to most entities that emit 25,000 metric tons of CO₂e or more per year. Starting in 2010, facility owners are required to submit an annual GHG emissions report with detailed calculations of facility GHG emissions. The Reporting Rule also mandates recordkeeping and administrative requirements in order for the U.S. EPA to verify annual GHG emissions reports.

State of California

AB 1493 and Amended "Pavley" Regulations. On July 1, 2002, the California Assembly passed Bill 1493 (AB 1493) (signed into law on July 22, 2002), requiring the CARB to "adopt regulations that achieve the maximum feasible and cost-effective reduction of GHG emissions from motor vehicles." The regulations were to be adopted by January 1, 2005, and apply to 2009 and later model-year vehicles. In September 2004, CARB responded by adopting "CO₂e fleet average emission" standards. The standards will be phased in from 2009 to 2016, reducing emissions by 22 percent in the "near term" (2009–2012) and 30 percent in the "mid term" (2013–2016), as compared to 2002 fleets.

Executive Order (E.O.) S-3-05. On June 1, 2005, Governor Arnold Schwarzenegger signed E.O. S-3-05, establishing statewide GHG emission reduction targets. This E.O. provides that by

2010, emissions shall be reduced to 2000 levels; by 2020, emissions shall be reduced to 1990 levels; and by 2050, emissions shall be reduced to 80 percent below 1990 levels. The Secretary of the California EPA is charged with coordinating oversight of efforts to meet these targets and formed the Climate Action Team (CAT) to carry out the E.O. Several of the programs developed by the CAT to meet the emission targets are relevant to residential construction and are outlined in a March 2006 report (California EPA, 2006). These include prohibition of idling of certain classes of construction vehicles, provision of recycling facilities within residential buildings and communities, compliance with the CEC's building and appliance energy efficiency standards, compliance with California's Green Buildings and Solar initiatives, and implementation of water-saving technologies and features.

AB 32. On August 31, 2006, the California Assembly passed Bill 32 (AB 32) (signed into law on September 27, 2006), the California Global Warming Solutions Act of 2006. AB 32 commits California to reduce GHG emissions to 1990 levels by 2020 and establishes a multi-year regulatory process under the jurisdiction of the CARB to establish regulations to achieve these goals. The regulations shall require monitoring and annual reporting of GHG emissions from selected sectors or categories of emitters of GHGs. By January 1, 2008, CARB was required to adopt a statewide GHG emissions limit equivalent to the statewide GHG emissions levels in 1990, which must be achieved by 2020. CARB has adopted numerous rules and regulations including the low carbon fuel standard, the renewable portfolio standard, and renewable electricity standard, among others which became operative prior to January 1, 2012, to achieve the maximum technologically feasible and cost-effective GHG emission reductions.

On April 20, 2007, CARB published *Proposed Early Actions to Mitigate Climate Change in California* (California EPA, 2007a). There are no early action measures specific to residential development included in the list of 36 measures identified for CARB to pursue during calendar years 2007, 2008, and 2009. Also, this publication indicated that the issue of GHG emissions in CEQA and General Plans was being deferred for later action, so the publication did not discuss any early action measures generally related to CEQA or to land use decisions. As noted in that report, "AB 32 requires that all GHG reduction measures adopted and implemented by the Air Resources Board be technologically feasible and cost effective (California EPA, 2007a)." The law permits the use of market-based compliance mechanisms to achieve those reductions and also requires that GHG measures have neither negative impacts on conventional pollutant controls nor any disproportionate socioeconomic effects (among other criteria).

On December 11, 2008, CARB adopted its *Climate Change Scoping Plan* (Scoping Plan), which functions as a roadmap of CARB's plans to achieve GHG reductions in California required by AB 32 through subsequently enacted regulations (CARB, 2008). The Scoping Plan contains the main strategies California will implement to reduce CO₂e emissions by 174 million metric tons (MMT), or approximately 30 percent, from the state's projected 2020 emissions level of 596 MMT of CO₂e under a business-as-usual scenario. The Scoping Plan also breaks down the amount of GHG emissions reductions CARB recommends for each emissions sector of the state's GHG inventory. While CARB has identified a GHG reduction target of 15 percent for local governments themselves, it has not yet determined what amount of GHG emissions reductions it recommends from local

government land use decisions. However, the Scoping Plan does state that successful implementation of the plan relies on local governments' land use planning and urban growth decisions because local governments have primary authority to plan, zone, approve, and permit land development to accommodate population growth and the changing needs of their jurisdictions. CARB further acknowledges that decisions on how land is used will have large effects on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emission sectors. The land use measures approved by CARB and required pursuant to Senate Bill 375 have been developed and are in the process of environmental review in 2013. The Scoping Plan also includes recommended measures that were developed to reduce GHG emissions from key sources and activities while improving public health, promoting a cleaner environment, preserving our natural resources, and ensuring that the impacts of the reductions are equitable and do not disproportionately impact low-income and minority communities. These measures, shown below in **Table 4.6-2** by sector, also put the state on a path to meet the long-term 2050 goal of reducing California's GHG emissions to 80 percent below 1990 levels.

California Senate Bill 1368 (SB 1368). On August 31, 2006, the California Senate passed SB 1368 (signed into law on September 29, 2006), which required the Public Utilities Commission (PUC) to develop and adopt a "greenhouse gases emission performance standard" by February 1, 2007, for the private electric utilities under its regulation. The PUC adopted an interim standard on January 25, 2007, but formally requested a delay until September 30, 2007, for the local publicly-owned electric utilities under its regulation. These standards apply to all long-term financial commitments entered into by electric utilities. The CEC adopted a consistent standard in August, 2007. (Natural Resources Defense Council [NRDC], 2007)

California Senate Bill 97 (SB 97). Senate Bill (SB) 97, signed in August 2007, acknowledges that climate change is a prominent environmental issue requiring analysis under CEQA. This bill directed the Governor's Office of Planning and Research (OPR) to prepare, develop, and transmit to the California Natural Resources Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, no later than July 1, 2009. The California Natural Resources Agency was required to certify or adopt those guidelines by January 1, 2010. On December 30, 2009, the Natural Resources Agency adopted the state CEQA Guidelines amendments, as required by SB 97. These state CEQA Guidelines amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in draft CEQA documents. The amendments became effective March 18, 2010.

California Senate Bill 375 (SB 375). In addition to policy directly guided by AB 32, the legislature in 2008 passed SB 375, which provides for regional coordination in land use and transportation planning and funding to help meet the AB 32 GHG reduction goals. SB 375 aligns regional transportation planning efforts, regional GHG emissions reduction targets, and land use and housing allocations. SB 375 requires Regional Transportation Plans (RTPs) developed by the state's 18 metropolitan planning organizations (MPOs) to incorporate a "sustainable communities strategy" (SCS) that will achieve GHG emission reduction targets set by the CARB. SB 375 also includes provisions for streamlined CEQA review for some infill projects, such as transit-oriented development. SB 375 would be implemented over the next several years.

TABLE 4.6-2
LIST OF RECOMMENDED ACTIONS BY SECTOR IN THE CARB SCOPING PLAN

Measure No.	Measure Description	GHG Reductions (Annual MMT CO ₂ e)
Transportation		
T-1	Pavley I and II – Light Duty Vehicle Greenhouse Gas Standards	31.7
T-2	Low Carbon Fuel Standard (Discrete Early Action)	15
T-3 ^a	Regional Transportation-Related Greenhouse Gas Targets	5
T-4	Vehicle Efficiency Measures	4.5
T-5	Ship Electrification at Ports (Discrete Early Action)	0.2
T-6	Goods Movement Efficiency Measures. • Ship Electrification at Ports • System-Wide Efficiency Improvements	3.5
T-7	Heavy-Duty Vehicle Greenhouse Gas Emission Reduction Measure – Aerodynamic Efficiency (Discrete Early Action)	0.93
T-8	Medium- and Heavy-Duty Vehicle Hybridization	0.5
T-9	High Speed Rail	1
Electricity and Natural Gas		
E-1	Energy Efficiency (32,000 GWh of Reduced Demand) • Increased Utility Energy Efficiency Programs • More Stringent Building & Appliance Standards Additional Efficiency and Conservation Programs	15.2
E-2	Increase Combined Heat and Power Use by 30,000 GWh (Net reductions include avoided transmission line loss)	6.7
E-3	Renewables Portfolio Standard (33% by 2020)	21.3
E-4	Million Solar Roofs (including California Solar Initiative, New Solar Homes Partnership and solar programs of publicly owned utilities) • Target of 3000 MW Total Installation by 2020	2.1
CR-1	Energy Efficiency (800 Million Therms Reduced Consumptions) • Utility Energy Efficiency Programs • Building and Appliance Standards • Additional Efficiency and Conservation Programs	4.3
CR-2	Solar Water Heating (AB 1470 goal)	0.1
Green Buildings		
GB-1	Green Buildings	26
Water		
W-1	Water Use Efficiency	1.4†
W-2	Water Recycling	0.3†
W-3	Water System Energy Efficiency	2.0†
W-4	Reuse Urban Runoff	0.2†
W-5	Increase Renewable Energy Production	0.9†
W-6	Public Goods Charge (Water)	TBD†
Industry		
I-1	Energy Efficiency and Co-Benefits Audits for Large Industrial Sources	TBD
I-2	Oil and Gas Extraction GHG Emission Reduction	0.2
I-3	GHG Leak Reduction from Oil and Gas Transmission	0.9
I-4	Refinery Flare Recovery Process Improvements	0.3
I-5	Removal of Methane Exemption from Existing Refinery Regulations	0.01

^a This is not the SB 375 regional target. CARB will establish regional targets for each MPO region following the input of the regional targets advisory committee and a consultation process with MPO's and other stakeholders per SB 375

† GHG emission reduction estimates are not included in calculating the total reductions needed to meet the 2020 target

The Metropolitan Transportation Commission (MTC) is responsible for developing the SCS and the RTPs for the San Francisco Bay Area. MTC's 2013 RTP will be its first plan subject to SB 375 and is currently undergoing environmental review under CEQA.

California Urban Water Management Act. The California Urban Water Management Planning Act requires various water purveyors throughout the State of California (such as EBMUD) to prepare UWMPs, which assess the purveyor's water supplies and demands over a 20-year horizon (California Water Code, Section 10631 *et seq.*). As required by that statute, UWMPs are updated by the purveyors every five years. As discussed above, this is relevant to global climate change which may affect future water supplies in California, as conditions may become drier or wetter, affecting reservoir inflows and storage and increased river flows (Brekke, 2004).

Bay Area Air Quality Management District (BAAQMD). The BAAQMD is responsible for improving air quality within the San Francisco Bay Area Basin. The BAAQMD's prior CEQA Guidelines, which were last updated in 1999, contained no thresholds of significance for GHG emissions. In May of 2011 the BAAQMD adopted new Thresholds of Significance (2011 Thresholds). Subsequently, the Alameda Superior Court required the BAAQMD to conduct additional environmental review in connection with its adoption of the thresholds. The 2011 Thresholds of Significance of the BAAQMD identified a project-specific threshold of 1,100 metric tons per year, and an efficiency-based threshold of 4.6 metric tons per year per service population (residents and employees) as resulting in a cumulatively considerable contribution of GHG emission and a cumulatively significant impact to global climate change. The BAAQMD CEQA Guidelines also include a plan-level service threshold of 6.6 metric tons of CO₂e per service population annually. However, the plan-level approach described here differs for greenhouse gas (GHG) impact assessments. BAAQMD recommends that when assessing GHG impacts for plans other than regional plans (transportation and air quality plans) and general plans, such as specific plans and area plans, the appropriate thresholds and methodology is the same as project-level GHG impact assessments and should rely on the threshold of 4.6 metric tons per year per service population.

City of Oakland

Oakland Energy and Climate Action Plan

An Oakland Energy and Climate Action Plan (ECAP) has been developed to identify, evaluate and recommend prioritized actions to reduce energy consumption and GHG emissions in Oakland. The ECAP identifies energy and climate goals, clarifies policy direction, and identifies priority actions for reducing energy use and GHG emissions. On July 7, 2009, the Oakland City Council directed staff to develop the draft Oakland ECAP using a GHG reduction target equivalent to 36 percent below 2005 GHG emissions by 2020 (City of Oakland, Resolution No. 82129 C.M.S., 2009). The City adopted the ECAP on December 4, 2012.

The ECAP outlines a ten year plan including more than 150 actions that will enable Oakland to achieve a 36% reduction in GHG emissions with respect to each of these GHG sources. Oakland can accomplish this goal by 2020 through:

- 20% reduction in vehicle miles traveled annually as residents, workers and visitors meet daily needs by walking, bicycling, and using transit;
- 24 million gallons of oil saved annually due to less driving and more fuel efficient vehicles on local roads
- 32% decrease in electricity consumption through renewable generation, conservation and energy efficiency
- 14% decrease in natural gas consumption through building retrofits, solar hot water projects and conservation
- 62 million kWh and 2.7 million therms annually of new renewable energy used to meet local needs
- 375,000 tons of waste diverted away from local landfills through waste reduction, reuse, recycling, and composting

The ECAP also recommends a Three Year Priority Implementation Plan; a prioritized subset of actions recommended for implementation in the next three years. These priority actions will capitalize on near term opportunities and lay the groundwork for long term progress. Some of the recommended priority actions can be implemented with existing and anticipated resources. Others will require the identification of new, in some cases significant, resources to move forward.

The following Priority Actions of the ECAP apply to the Plan Area/and or proposed Specific Plan:

- PA1: Identify and Adopt Priority Development Area (PDA). The Plan area is designated by the City and in the Sustainable Communities Strategy pursuant to SB375 as an identified PDA.
- PA7: Adopt a Green Building Ordinance for Private Development. This was adopted in 2011 as discussed later in this section.
- PA31: Improve Transportation and land Use Planning Integration in Every Land Use Effort. The proposed Specific Plan area is located in a transit corridor with both active AC Transit Service and BART service within the Plan area.
- PA37: Plan for Electric Vehicle Infrastructure.
- PA46: Consider Energy Benchmarking for Commercial Buildings.
- PA50: Facilitate Community Solar Programs.

City of Oakland General Plan

Land Use and Transportation Element (LUTE). The LUTE (which includes the Pedestrian Master Plan and Bicycle Master Plan) of the Oakland General Plan contains the following policies that address issues related to GHG emissions and climate change:

- **Policy T.2.1:** Transit-oriented development should be encouraged at existing or proposed transit nodes, defined by the convergence of two or more modes of public transit such as BART, bus, shuttle service, light rail or electric trolley, ferry, and inter-city or commuter rail.

- **Policy T.2.2:** Transit-oriented developments should be pedestrian-oriented, encourage night and day time use, provide the neighborhood with needed goods and services, contain a mix of land uses, and be designed to be compatible with the character of surrounding neighborhoods.
- **Policy T3.5:** The City should include bikeways and pedestrian ways in the planning of new, reconstructed, or realigned streets, wherever possible.
- **Policy T3.6:** The City should encourage and promote use of public transit in Oakland by expediting the movement of and access to transit vehicles on designated “transit streets” as shown on the Transportation Plan.
- **Policy T4.2:** Through cooperation with other agencies, the City should create incentives to encourage travelers to use alternative transportation options.
- **Policy N3.2:** In order to facilitate the construction of needed housing units, infill development that is consistent with the General Plan should take place throughout the City of Oakland.
- **Policy T4.5:** The City should prepare, adopt, and implement a Bicycle and Pedestrian Master Plan as a part of the Transportation Element of [the] General Plan.

Open Space, Conservation and Recreation Element (OSCAR). The OSCAR Element includes policies that address GHG reduction and global climate change. Listed below are the following types of OSCAR policies: policies that encourage the provision of open space, which increases vegetation area (trees, grass, landscaping, etc.) to effect cooler climate, reduce excessive solar gain, and absorb CO₂; policies that encourage stormwater management, which relates to the maintenance of floodplains and infrastructure to accommodate potential increased storms and flooding; and policies that encourage energy efficiency and use of alternative energy sources, which directly address reducing GHG emissions.

- **Policy OS-1.1:** Conserve existing City and Regional Parks characterized by steep slopes, large groundwater recharge areas, native plant and animal communities, extreme fire hazards, or similar conditions.
- **Policy OS-2.1:** Manage Oakland’s urban parks to protect and enhance their open space character while accommodating a wide range of outdoor recreational activities.
- **Policy CO-5.3:** Employ a broad range of strategies, compatible with the Alameda Countywide Clean Water Program.
- **Policy CO-12.1:** Promote land use patterns and densities which help improve regional air quality conditions by: (a) minimizing dependence on single passenger autos; (b) promoting projects which minimize quick auto starts and stops, such as live-work development, mixed use development, and office development with ground floor retail space; (c) separating land uses which are sensitive to pollution from the sources of air pollution; and (d) supporting telecommuting, flexible work hours, and behavioral changes which reduce the percentage of people in Oakland who must drive to work on a daily basis.
- **Policy CO-12.3:** Expand existing transportation systems management and transportation demand management strategies which reduce congestion, vehicle idling, and travel in single passenger autos.

- **Policy CO-12.4:** Require that development projects be designed in a manner which reduces potential adverse air quality impacts. This may include: (a) the use of vegetation and landscaping to absorb carbon monoxide and to buffer sensitive receptors; (b) the use of low-polluting energy sources and energy conservation measures; and (c) designs which encourage transit use and facilitate bicycle and pedestrian travel.
- **Policy CO-12.5:** Require new industry to use best available control technology to remove pollutants, including filtering, washing, or electrostatic treatment of emissions.
- **Policy CO-13.2:** Support public information campaigns, energy audits, the use of energy-saving appliances and vehicles, and other efforts which help Oakland residents, businesses, and City operations become more energy efficient.
- **Policy CO-13.3:** Encourage the use of energy-efficient construction and building materials. Encourage site plans for new development which maximize energy efficiency.
- **Policy CO-13.4:** Accommodate the development and use of alternative energy resources, including solar energy and technologies which convert waste or industrial byproducts to energy, provided that such activities are compatible with surrounding land uses and regional air and water quality requirements.

Historic Preservation Element (HPE). A key HPE policy relevant to climate change encourages the reuse of existing building (and building materials) resources, which could reduce landfill material (a source of methane, a GHG), avoid the incineration of materials (which produces CO₂ as a by-product), avoid the need to transport materials to disposal sites (which produces GHG emissions), and eliminate the need for materials to be replaced by new product (which often requires the use of fossil fuels to obtain raw and manufacture new material) (USEPA, 2006a).

Safety Element. Safety Element policies that address wildfire hazards related to climate change in that increased temperatures could increase fire risk in areas that become drier due to climate change (USEPA, 2012). Also, wildfire results in the loss of vegetation; carbon is stored in vegetation, and when the vegetation burns, the carbon returns to the atmosphere (NASA, 2004). The occurrence of wildfire also emits particulate matters into the atmosphere. Safety Element policies also address storm-induced flooding hazards related to the potential to accommodate potential increase in storms and flooding as a result of climate change. Pertinent Safety Element policies including the following:

- **Policy FI-3:** Prioritize the reduction of the wildfire hazard, with an emphasis on prevention.
- **Policy FL-1:** Enforce and update local ordinances and comply with regional orders that would reduce the risk of storm-induced flooding.
- **Policy FL-2:** Continue or strengthen city programs that seek to minimize the storm-induced flooding hazard.

Other City of Oakland Programs and Policies

The City of Oakland has supported and adopted a number of programs and policies designed to reduce GHG emissions and continue Oakland's progress toward becoming a model sustainable

city. Other programs and policies of relevance to the adoption and development under the Specific Plan include:

- **Sustainable Oakland Program.** Oakland's sustainability efforts are coordinated through the Sustainable Oakland program, a product of the Oakland Sustainability Community Development Initiative (SDI) created in 1998 (Ordinance 74678 C.M.S.).
- **Green Building.** The City of Oakland adopted mandatory green building standards for private development projects on October 19, 2010 (13040 C.M.S.). The following project types are included in the green building ordinance:
 - Residential New Construction
 - Residential Additions and Alterations
 - Non-Residential New Construction
 - Non-Residential Additions and Alterations
 - Removal of a Historic Resource and New Construction
 - Historic Residential Additions and Alterations
 - Historic Non-Residential Additions and Alterations
 - Mixed Use Construction
 - Construction Requiring a Landscape Plan

All buildings or projects must comply with all requirements of the 2008 California Building Energy Efficiency Standards as well as meet a variety of checklist requirements.

- **Downtown Housing.** The 10K Downtown Housing Initiative has a goal of attracting 10,000 new residents to downtown Oakland by encouraging the development of 6,000 market-rate housing units. This effort is consistent with Smart Growth principles.
- **Waste Reduction and Recycling.** The City of Oakland has implemented a residential recycling program increasing collection of yard trimmings and food waste. This program has increased total yard trimming collections by 46 percent compared to 2004, and recycling tonnage by 37 percent. The City also adopted Construction and Demolition Recycling, for which the City passed a resolution in July 2000 (Ordinance 12253. OMC Chapter 15.34), requiring certain nonresidential or apartment house projects to recycle 100 percent of all Asphalt & Concrete (A/C) materials and 65 percent of all other materials.
- **Polystyrene Foam Ban Ordinance.** In June 2006 the Oakland City Council passed the Green Food Service Ware Ordinance (Ordinance 14727, effective as of January 1, 2007), which prohibits the use of polystyrene foam disposable food service ware and requires, when cost neutral, the use of biodegradable or compostable disposable food service ware by food vendors and City facilities.
- **Zero Waste Resolution.** In March 2006, the Oakland City Council adopted a Zero Waste Goal by 2020 Resolution (Resolution 79774 C.M.S.), and commissioned the creation of a Zero Waste Strategic Plan to achieve the goal.
- **Stormwater Management.** On February 19, 2003, the Regional Water Quality Control Board, San Francisco Bay Region, issued a municipal stormwater permit under the National Pollutant Discharge Elimination System (NPDES) permit program to the Alameda Countywide Clean Water Program (ACCWP). The purpose of the permit is to reduce the discharge of pollutants in stormwater to the maximum extent practicable and to effectively

prohibit non-stormwater discharges into municipal storm drain systems and watercourses. The City of Oakland, as a member of the ACCWP, is a co-permittee under the ACCWP's permit and is, therefore, subject to the permit requirements.

- **Provision C.3 of the NPDES permit** is the section of the permit containing stormwater pollution management requirements for new development and redevelopment projects. Among other things, Provision C.3 requires that certain new development and redevelopment projects incorporate post-construction stormwater pollution management measures, including stormwater treatment measures, stormwater site design measures, and source control measures, to reduce stormwater pollution after the construction of the project. These requirements are in addition to standard stormwater-related best management practices (BMPs) required during construction.
- **Community Gardens and Farmer's Markets.** Community Garden locations include Arroyo Viejo, Bella Vista, Bushrod, Golden Gate, Lakeside Horticultural Center, Marston Campbell, Temescal, and Verdesa Carter. Weekly Farmer's Markets locations include the Jack London Square, Old Oakland, Grand Lake, Mandela, and Temescal districts. Both efforts promote and facilitate the principal of growing and purchasing locally, which effects reductions in truck and vehicle use and GHG emissions.

City of Oakland Standard Conditions of Approval and Uniformly Applied Development Standards Imposed as Standard Conditions of Approval

The City's Standard Conditions of Approval (SCA) that directly pertain to greenhouse gases and that apply to the adoption and development under the Specific Plan are listed below. If the Specific Plan is adopted by the City, all applicable SCAs will be adopted as conditions of approval and required, as applicable, of the development under the Specific Plan to help ensure no significant impacts occur regarding construction period dust (or emissions). The SCA are incorporated and required as part of the Specific Plan, so they are not listed as mitigation measures.

- **SCA F: Greenhouse Gas (GHG) Reduction Plan**

Prior to issuance of a construction-related permit and ongoing as specified. The project applicant shall retain a qualified air quality consultant to develop a Greenhouse Gas (GHG) Reduction Plan for City review and approval. The applicant shall implement the approved GHG Reduction Plan.

The goal of the GHG Reduction Plan shall be to increase energy efficiency and reduce GHG emissions to below at least one of the City of Oakland's CEQA Thresholds of Significance (1,100 metric tons of CO₂e per year or 4.6 metric tons of CO₂e per year per service population) AND to reduce GHG emissions by 36 percent below the project's "adjusted" baseline GHG emissions (as explained below) to help achieve the City's goal of reducing GHG emissions. The GHG Reduction Plan shall include, at a minimum, (a) a detailed GHG emissions inventory for the project under a "business-as-usual" scenario with no consideration of project design features, or other energy efficiencies, (b) an "adjusted" baseline GHG emissions inventory for the project, taking into consideration energy efficiencies included as part of the project (including the City's Standard Conditions of Approval, proposed mitigation measures, project design features, and other City requirements), (c) a comprehensive set of quantified additional GHG reduction measures available to further reduce GHG emissions beyond the adjusted GHG emissions, and (d) requirements for ongoing monitoring and reporting to demonstrate that the additional

GHG reduction measures are being implemented. If the project is to be constructed in phases, the GHG Reduction Plan shall provide GHG emission scenarios by phase.

Specifically, the applicant/sponsor shall adhere to the following:

- a) *GHG Reduction Measures Program.* Prepare and submit to the City Planning Director or his/her designee for review and approval a GHG Reduction Plan that specifies and quantifies GHG reduction measures that the project will implement by phase.

Potential GHG reduction measures to be considered include, but are not be limited to, measures recommended in BAAQMD's latest CEQA Air Quality Guidelines, the California Air Resources Board Scoping Plan (December 2008, as may be revised), the California Air Pollution Control Officers Association (CAPCOA) Quantifying Greenhouse Gas Mitigation Measures Document (August 2010, as may be revised), the California Attorney General's website, and Reference Guides on Leadership in Energy and Environmental Design (LEED) published by the U.S. Green Building Council.

The proposed GHG reduction measures must be reviewed and approved by the City Planning Director or his/her designee. The types of allowable GHG reduction measures include the following (listed in order of City preference): (1) physical design features; (2) operational features; and (3) the payment of fees to fund GHG-reducing programs (i.e., the purchase of "offset carbon credits," pursuant to item "b" below).

The allowable locations of the GHG reduction measures include the following (listed in order of City preference): (1) the project site; (2) off-site within the City of Oakland; (3) off-site within the San Francisco Bay Area Air Basin; (4) off-site within the State of California; then (5) elsewhere in the United States.

- b) *Offset Carbon Credits Guidelines.* For GHG reduction measures involving the purchase of offset carbon credits, evidence of the payment/purchase shall be submitted to the City Planning Director or his/her designee for review and approval prior to completion of the project (or prior to completion of the project phase, if the project includes more one phase).

As with preferred locations for the implementation of all GHG reductions measures, the preference for offset carbon credit purchases include those that can be achieved as follows (listed in order of City preference): (1) within the City of Oakland; (2) within the San Francisco Bay Area Air Basin; (3) within the State of California; then (4) elsewhere in the United States. The cost of offset carbon credit purchases shall be based on current market value at the time purchased and shall be based on the Project's operational emissions estimated in the GHG Reduction Plan or subsequent approved emissions inventory, which may result in emissions that are higher or lower than those estimated in the GHG Reduction Plan.

- c) *Plan Implementation and Documentation.* For physical GHG reduction measures to be incorporated into the design of the project, the measures shall be included on the drawings submitted for construction-related permits. For operational GHG reduction measures to be incorporated into the project, the measures shall be implemented on an indefinite and ongoing basis beginning at the time of project completion (or at the completion of the project phase for phased projects).

For physical GHG reduction measures to be incorporated into off-site projects, the measures shall be included on drawings and submitted to the City Planning Director or his/her designee for review and approval and then installed prior to completion of the subject project (or prior to completion of the project phase for phased projects). For operational GHG reduction measures to be incorporated into off-site projects, the measures shall be implemented on an indefinite and ongoing basis beginning at the time of completion of the subject project (or at the completion of the project phase for phased projects).

- d) *Compliance, Monitoring and Reporting.* Upon City review and approval of the GHG Reduction Plan program by phase, the applicant/sponsor shall satisfy the following requirements for ongoing monitoring and reporting to demonstrate that the additional GHG reduction measures are being implemented. The GHG Reduction Plan requires regular periodic evaluation over the life of the Project (generally estimated to be at least 40 years) to determine how the Plan is achieving required GHG emissions reductions over time, as well as the efficacy of the specific additional GHG reduction measures identified in the Plan.

Implementation of the GHG reduction measures and related requirements shall be ensured through the project applicant/sponsor's compliance with Conditions of Approval adopted for the project. Generally, starting two years after the City issues the first Certificate of Occupancy for the project, the project applicant/sponsor shall prepare each year of the useful life of the project an Annual GHG Emissions Reduction Report (Annual Report), subject to the City Planning Director or his/her designee for review and approval. The Annual Report shall be submitted to an independent reviewer of the City Planning Director's or his/her designee's choosing, to be paid for by the project applicant/sponsor (see Funding, below), within two months of the anniversary of the Certificate of Occupancy.

The Annual Report shall summarize the project's implementation of GHG reduction measures over the preceding year, intended upcoming changes, compliance with the conditions of the Plan, and include a brief summary of the previous year's Annual Report results (starting the second year). The Annual Report shall include a comparison of annual project emissions to the baseline emissions reported in the GHG Plan.

The GHG Reduction Plan shall be considered fully attained when project emissions are less than either applicable numeric BAAQMD CEQA Thresholds AND GHG emissions are 36 percent below the project's "adjusted" baseline GHG emissions, as confirmed by the City Planning Director or his/her designee through an established monitoring program. Monitoring and reporting activities will continue at the City's discretion, as discussed below.

- e) *Funding.* Within two months after the Certificate of Occupancy, the project applicant/sponsor shall fund an escrow-type account or endowment fund to be used exclusively for preparation of Annual Reports and review and evaluation by the City Planning Director or his/her designee, or its selected peer reviewers. The escrow-type account shall be initially funded by the project applicant/sponsor in an amount determined by the City Planning Director or his/her designee and shall be replenished by the project applicant/sponsor so that the amount does not fall below an amount determined by the City Planning Director or his/her designee. The mechanism of this account shall be mutually agreed upon by the project applicant/sponsor and the City Planning Director or his/her designee, including the ability of the City to access the

funds if the project applicant/sponsor is not complying with the GHG Reduction Plan requirements, and/or to reimburse the City for its monitoring and enforcement costs.

- f) *Corrective Procedure.* If the third Annual Report, or any report thereafter, indicates that, in spite of the implementation of the GHG Reduction Plan, the project is not achieving the GHG reduction goal, the project applicant/sponsor shall prepare a report for City review and approval, which proposes additional or revised GHG measures to better achieve the GHG emissions reduction goals, including without limitation, a discussion on the feasibility and effectiveness of the menu of other additional measures (Corrective GHG Action Plan). The project applicant/sponsor shall then implement the approved Corrective GHG Action Plan.

If, one year after the Corrective GHG Action Plan is implemented, the required GHG emissions reduction target is still not being achieved, or if the project applicant/owner fails to submit a report at the times described above, or if the reports do not meet City requirements outlined above, the City Planning Director or his/her designee may, in addition to its other remedies, (a) assess the project applicant/sponsor a financial penalty based upon actual percentage reduction in GHG emissions as compared to the percent reduction in GHG emissions established in the GHG Reduction Plan; or (b) refer the matter to the City Planning Commission for scheduling of a compliance hearing to determine whether the project's approvals should be revoked, altered or additional conditions of approval imposed.

The penalty as described in (a) above shall be determined by the City Planning Director or his/her designee and be commensurate with the percentage GHG emissions reduction not achieved (compared to the applicable numeric significance thresholds) or required percentage reduction from the "adjusted" baseline.

In determining whether a financial penalty or other remedy is appropriate, the City shall not impose a penalty if the project applicant/sponsor has made a good faith effort to comply with the GHG Reduction Plan.

The City would only have the ability to impose a monetary penalty after a reasonable cure period and in accordance with the enforcement process outlined in Planning Code Chapter 17.152. If a financial penalty is imposed, such penalty sums shall be used by the City solely toward the implementation of the GHG Reduction Plan.

- g) *Timeline Discretion and Summary.* The City Planning Director or his/her designee shall have the discretion to reasonably modify the timing of reporting, with reasonable notice and opportunity to comment by the applicant, to coincide with other related monitoring and reporting required for the project.
- Fund Escrow-type Account for City Review: Certificate of Occupancy plus 2 months
 - Submit Baseline Inventory of "Actual Adjusted Emissions": Certificate of Occupancy plus 1 year
 - Submit Annual Report #1: Certificate of Occupancy plus 2 years
 - Submit Corrective GHG Action Plan (if needed): Certificate of Occupancy plus 4 years (based on findings of Annual Report #3)
 - Post Attainment Annual Reports: Minimum every 3 years and at the City Planning Director's or his/her designee's reasonable discretion

In addition, other SCA that pertain to greenhouse gases and that apply to the adoption and development under the Specific Plan are listed in other sections of this EIR and described below.

4.6.3 Impacts and Mitigation Measures

Significance Thresholds for GHG and Climate Change

Adoption and development under the Specific Plan would have a significant impact on the environment if it were to:

Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, specifically:

- a) For a project involving a land use development, produce total emissions of more than 1,100 metric tons of CO₂e annually **AND** more than 4.6⁴ metric tons of CO₂e per service population annually. The service population includes both the residents and the employees of the project. The project's impact would be considered significant if the emissions exceed **BOTH** the 1,100 metric tons threshold and the 4.6 metric tons threshold. Accordingly, the impact would be considered less than significant if the project's emissions are below **EITHER** of these thresholds.
- b) Fundamentally conflict with an applicable plan, policy, or regulation adopted for the purposes of reducing greenhouse gas emissions.

Approach to CEQA Analysis of GHG Emissions and Climate Change Impacts in this EIR

The analysis of potential GHG impacts uses the project-level methodology identified by the BAAQMD, the regional agency primarily responsible for developing air quality plans for the Bay Area, including the City of Oakland. This methodology is outlined in the BAAQMD document *California Environmental Quality Act Air Quality Guidelines* (BAAQMD, 2012). This hybrid of a project-level and plan-level analysis considers individual construction and operational emissions from development projects envisioned under the Plan and, consistent with BAAQMD's Air Quality Guidelines, represents adequate environmental analysis under CEQA for individual development projects envisioned under the Specific Plan.

This EIR does discuss, for consideration by decision makers, estimated GHG emissions from adoption and development under the Specific Plan. Because details of subsequent development projects are not known, project design features that would avoid or minimize those emissions are not estimated.

CEQA requires the analysis of potential adverse effects of a project on the environment. Potential effects of the environment on a project are legally not required to be analyzed or mitigated under

⁴ The 2011 BAAQMD Guidelines state that the plan-level service threshold of 6.6 metric tons of CO₂e per service population annually should only be applied to general plans. For other types of plans, such as redevelopment plans and specific Plans, the Guidelines state that the project-level service threshold of 4.6 metric tons of CO₂e of service population annually should be used.

CEQA. However, this EIR nevertheless analyzes potential effects of “the environment on the project” in order to provide information to the public and decision-makers. Where a potential significant effect of the environment on the project is identified, the document, as appropriate, identifies City Standard Conditions of Approval and/or project-specific non-CEQA recommendations to address these issues.

Quantitative and Qualitative Approach

This EIR uses both a quantitative and a qualitative approach. The quantitative approach is used to answer the first threshold: would adoption and development under the Specific Plan generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. The quantitative threshold discussed above is used to determine if this threshold is met.

The qualitative approach addresses the second threshold: would adoption and development under the Specific Plan conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. Theoretically, if a project implements reduction strategies identified in AB 32, the Governor’s E.O. Section-3-05, or other strategies to help toward reducing GHGs to the level proposed by the Governor and targeted by the City of Oakland, it could reasonably follow that the project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. Alternatively, a project could reduce a potential cumulative contribution to GHG emissions through energy efficiency features, density and locale (e.g., compact development near transit and activity nodes of work or shopping) and by contributing to available mitigation programs, such as reforestation, tree planting, or carbon trading.

GHG emissions resulting from the adoption and development under the Specific Plan were estimated using the CalEEMod emissions estimator Model version 2011.1.1, the latest version available at the time of the NOP. Vehicle trips assumed a BAAQMD-specific average vehicle trip distance of 12.7 miles which is embedded in CalEEMod which also makes adjustments for implementation of Pavley vehicle standards and Low Carbon Fuel Standards.

Adoption and development under the Specific Plan would generate GHG emissions from an increase in both stationary sources and mobile sources. Although specific characteristics of future projects under the Specific Plan are not known at this time, area and indirect sources associated with adoption and development under the Specific Plan would primarily result from electrical usage, water and wastewater transport and solid waste generation. GHG emissions from electrical usage are generated when energy consumed on the site is generated by fuel combustion. GHG emissions from water and wastewater transport are also indirect emissions resulting from the energy required to transport water from its source, and the energy required to treat wastewater and transport it to its treated discharge point. Solid waste emissions are generated when the increased waste generated by the project are taken to a landfill to decompose. GHG emissions from electrical usage, water and wastewater conveyance, and solid waste were estimated using CalEEMod.

Net Change in Emissions and Local/Global Context

The methodology applied in this EIR assumes that all emission sources associated with adoption and development under the Specific Plan would be new sources that would combine with existing conditions. For this assessment, it is not possible to predict whether emission sources associated with the adoption and development under the Specific Plan would move from outside the air basin (and thus generate “new” emissions within the air basin), or whether they are sources that already exist and are merely relocated within the air basin. Because the effects of GHGs are global, if the project merely shifts the location of the GHG-emitting activities (locations of residences and businesses and where people drive), there would not be a net new increase of emissions. It also cannot be determined until buildout of the Broadway Valdez Development Program whether occupants of the future projects would have shorter commute distances, require fewer vehicle trips, walk, bike, or use public transit more often, instead of driving, or use overall less energy by virtue of the development’s characteristics or proximity to workers’ housing. If these types of changes occur, overall vehicle miles traveled could be reduced and it could be argued that the adoption and development under the Specific Plan would result in a potential net reduction in GHG emissions, locally and globally.

The GHG analysis presented herein takes into account growth and increased vehicle travel within the regional context, which is the regional air basin and cumulative development, as described in Section 4.07.2, *Cumulative Context*, in the beginning of Chapter 4 in this Draft EIR. Therefore, there is no separate cumulative analysis section with regard to GHG emissions and consistency with related plans.

GHG Effects on Flooding and Sea-level Rise

Since a portion of the Plan Area is located in an area that may be subject to coastal or other flooding resulting from climate change, (the nearest coastal shoreline is along the Oakland Estuary) the potential effects of climate change (e.g., effects of flooding on the Plan Area due to sea level rise) on the Specific Plan are discussed in Section 4.8, *Hydrology and Water Quality*, of this EIR.

Impacts

Impact GHG-1: Adoption and development under the Specific Plan would produce greenhouse gas emissions that exceed 1,100 metric tons of CO_{2e} per year, that would exceed 4.6 metric tons of CO_{2e} per service population annually (Criterion 1). (Conservatively Significant and Unavoidable)

Construction and operation of adoption and development under the Specific Plan would generate GHG emissions, with the majority of energy consumption (and associated generation of GHG emissions) occurring during operation. Typically more than 80 percent of the total energy consumption takes place during the use of buildings and less than 20 percent are consumed during construction (United Nations Environmental Programme [UNEP], 2007). Overall, the following activities associated with adoption and development under the Specific Plan (as well as any similar land use development) could contribute to the generation of GHG emissions:

- **Motor Vehicle Use.** Transportation associated with adoption and development under the Specific Plan would result in GHG emissions from the combustion of fossil fuels in daily automobile and truck trips.
- **Gas, Electric and Water Use.** Natural gas use results in the emissions of two GHGs: methane (the major component of natural gas) and carbon dioxide from the combustion of natural gas. Methane is released prior to initiation of combustion of the natural gas (as before a flame on a stove is sparked), and from the small amount of methane that is uncombusted in a natural gas flame. Electricity use can result in GHG production if the electricity is generated by combusting fossil fuel. California's water conveyance system is energy intensive (CEC, 2005).
- **Removal of Vegetation.** The net removal of vegetation for construction results in a loss of the carbon sequestration in plants. However, planting of additional vegetation would result in additional carbon sequestration and lower the carbon footprint of a project. (See City's Standard Conditions of Approval regarding *Landscape Requirements and Tree Replacement*, below).
- **Construction Activities.** Construction equipment typically uses fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as carbon dioxide, methane and nitrous oxide. Furthermore, methane is emitted during the fueling of heavy equipment.

While adoption and development under the Specific Plan would generate GHG emissions from the activities described above, the City of Oakland's ongoing implementation of its Sustainability Community Development Initiative (which includes an array of programs and measures, discussed above, under Section 4.6.2, *Regulatory Context for GHG Emissions and Climate Change*) would collectively reduce the levels of GHG emissions and contributions to global climate change attributable to activities throughout Oakland.

GHG Emission Inventory for Development Under the Specific Plan

Emissions included in the BAAQMD Guidelines, and therefore included in the adjusted GHG emissions inventory for the development under Specific Plan, if applicable, are described below (and quantified in **Table 4.6-3**):

- **Area Source Emissions.** These are direct emissions from sources that include natural gas combustion for heating, cooking, fireplaces, or boilers, as well as emissions from landscape maintenance equipment.
- **Transportation Emissions.** These are direct emissions from mobile sources including automobiles, trucks, motorcycles, and buses.
- **Operational Electricity Consumption.** These are indirect emissions emitted off-site via non-renewable, non-nuclear electricity generators as a result of increased electrical demand.
- **Solid Waste Disposal Emissions.** These are indirect emissions associated with waste generation. A large percentage of project waste would be diverted from landfills by waste reduction, recycling, and composting. Oakland currently diverts a large portion of its waste and has goals to even further reduce the amount of waste sent to a landfill. The remainder of the waste not diverted would be disposed of at a landfill. Landfills emit anthropogenic methane from the anaerobic breakdown of material.

TABLE 4.6-3
GHG EMISSIONS INVENTORY FROM DEVELOPMENT UNDER THE SPECIFIC PLAN –
“BUSINESS AS USUAL” AND ADJUSTED^a

Emission Source	Total “Business as Usual” Annual CO₂e Emissions (metric tons per year)	Total Regulatory Adjusted Annual CO₂e Emissions (metric tons per year)	Total City Program Adjusted Annual CO₂e Emissions (metric tons per year)^e
Motor vehicle trips	39,333	27,146	24,431
Natural gas ^b	2,608	2,608	2,384
Grid Electricity ^b	9,156	4,171	4,039
Wastewater & Treatment & Conveyance	937	576	477
Solid Waste	2,858	2,858	2,858
Area Source (landscape maintenance)	363	363	363
Total Operational Project GHG Emissions without Construction Emissions	55,256	37,722	34,552
Construction Emissions per Year (annualized over 40 years)	394	394	394
Total Operational Project GHG Emissions with Construction Emissions	55,650	38,116	34,946
<i>Project- and Plan-level Threshold of Significance</i>	<i>1,100</i>	<i>1,100</i>	<i>1,100</i>
<i>Exceeds Threshold?</i>	Yes	Yes	Yes
Total Project GHG Emissions by Service Population (3,230 population increase and 4,505 employee increase = 7,735) including Construction Emissions^c	7.2	4.9	4.5
<i>Project-level Threshold of Significance^d</i>	<i>4.6</i>	<i>4.6</i>	<i>4.6</i>
<i>Exceeds Project-level Threshold?</i>	Yes	Yes	No
<i>Plan-level Threshold of Significance^d</i>	<i>6.6</i>	<i>6.6</i>	<i>6.6</i>
<i>Exceeds Plan-level Threshold?</i>	Yes	No	No

^a “Business as Usual” emissions primarily represent emission levels without implementation of post-AB32 regulatory efforts to control GHGs, such as the Pavley fuel efficiency standards and the low carbon fuel standard. These vehicle emissions-related standards are reflected in the adjusted emissions, which also consider energy efficiency measures (affecting natural gas and electricity) from the AB 32 Scoping Plan. This analysis is conservative in that additional potential reductions from implementing applicable City SCAs, policies and local programs that may substantially reduce the adjusted emissions (e.g. GHG Reduction Plan, Transportation Demand Management Plan, Green Building compliance, etc) are not incorporated, as reductions would vary widely depending on the specific characteristics (which can not currently be known) of the development under the Specific Plan.

^b Adjusted emissions reductions reflect AB 32 Scoping Plan Measures for energy efficiency that result in improved PG&E emission factors.

^c Total operational and construction GHG emissions, divided by estimated population of 7,735 (3,230 residents and 4,505 employees) associated with adoption and development under the Specific Plan.

^d The BAAQMD Guidelines state that the plan-level service threshold of 6.6 metric tons of CO₂e per service population annually should only be applied to general plans. For other types of plans, such as redevelopment plans and specific Plans, the Guidelines state that the project-level service threshold of 4.6 metric tons of CO₂e of service population annually should be used.

^e City Program Adjusted Annual Co₂e emissions were estimated by assuming a 10 percent reduction in motor vehicle trips through implementation of SCA 25 and implementation of the City’s Green Building Ordinance. While implementation of SCA 25 and the City’s Green building Ordinance would be required of future development according to the specific applicability criteria, and GHG emissions would be reduced through project-by-project implementation of these measures; and while the reductions reflected in this table represent reasonable estimates, it cannot be guaranteed that the specific reductions can be achieved. For this reason, the “Total City Program Adjusted” scenario is included here for informational purposes alone and the annual GHG emissions estimated under the “Total Regulatory Adjusted” scenario form the basis of this EIR analysis.

- **Operational Fugitive (Direct) Emissions.** These direct emissions are most commonly associated with inadvertent emissions into the atmosphere due to leakage or inherent imperfections in a gas transport or collection system. Direct fugitive GHG emissions that may reasonably be expected to be generated by commercial buildings would consist of GHG refrigerants emitted from leaks or other imperfections in refrigeration or air cooling equipment.
- **Operational Water Emissions (embedded energy).** These indirect emissions are associated with the electricity used to convey water, due to increased water demand from adoption and development under the Specific Plan.
- **Operational Wastewater (non-biogenic).** These are indirect emissions from wastewater treatment associated with the electricity use in wastewater treatment (and not the biogenic CO₂ process emissions).

Emission sources that are not included in the BAAQMD Guidelines or relevant to the adoption and development under the Specific Plan are not included in the adjusted GHG emissions inventory. These sources include emissions generated from permitted stationary source equipment, vegetation sequestration change, fugitive refrigeration emissions, life cycle emissions, agricultural emissions; and off road equipment emissions.

City Standard Conditions of Approval, Regulatory Requirements, General Plan Policies and Local Programs, and Design Features that Reduce GHG Emissions of Adoption and Development under the Specific Plan

There are many ways for adoption and development under the Specific Plan to reduce its GHG emissions through its design, construction and operations. Local conditions of approval, policies, programs and regulatory requirements that apply to a project also combine to reduce project GHG emissions. Each of these components would be considered part of each future project under the Specific Plan, as applicable. Table 4.6-3, above, also present the adjusted emissions estimated for the analysis of the adoption and development under the Specific Plan that incorporates potential reductions that may occur from implementing local conditions of approval, policies, programs and regulatory requirements (e.g., GHG Emissions Reduction Plan, Transportation Demand Management [TDM] Plan, Green Building Compliance, etc.). The adjusted emissions also reflect regulatory efforts to control GHGs, such as the statewide Pavley fuel efficiency standard, the low carbon fuel standard, and energy efficiency measures for electricity and natural gas specified in the AB 32 Scoping Plan. These reductions also support a conservative analysis since the AB 32 reductions are based on a benchmark year of 2020, and the analysis in this EIR has a benchmark year 2035, and further reductions would likely accrue in the additional 15 years beyond 2020. Each of the considerations factored in the adjusted emissions inventory in Table 4.6-3 is discussed below.

The SCA relevant to reducing GHG emissions and climate change impacts due to the adoption and development under the Specific Plan are described below and listed either above or in other sections of this EIR.

- **SCA F: GHG Reduction Plan**

SCA F applies to projects of a certain minimum size that produce total GHG emissions that exceed one both of the BAAQMD CEQA Thresholds (1,100 metric tons of CO₂e annually

or 4.6 metric tons of CO₂e per service population annually), and therefore result in a significant impact requiring mitigation. SCA F requires a project applicant to prepare a GHG Reduction Plan to increase energy efficiency and reduce GHG emissions to the greatest extent feasible below the BAAQMD CEQA Thresholds. The GHG Reduction Plan will include a comprehensive set of quantified GHG emissions reduction measures in addition to energy efficiencies included as part of the project (including the City's SCAs, proposed mitigation measures, project design features, and other City requirements). The complete text of SCA F is presented in the *Regulatory Context*, above.

- **SCA H: Green Building for Residential Structures and Non-residential Structures**

SCA H applies to certain projects that would construct single or multi-family dwellings or modifications of existing uses. SCA H requires that the applicant comply with the requirements of the California Green Building Standards (CALGreen) mandatory measures and the applicable requirements of the Green Building Ordinance. SCA H is initially presented in Section 4.14, *Utilities and Service Systems*. The Green Building Ordinance establishes checklist requirements for developers based on LEED or Build it Green. LEED certification requires a 10 percent reduction in the Title 24 energy standards which are reflected in Table 4.6-3.

- **SCA I: Green Building for Building and Landscape Projects**

SCA I applies to certain projects that would construct relatively small non-residential land uses or modification of existing uses. SCA I requires that the applicant comply with the requirements of the California Green Building Standards (CALGreen) mandatory measures and the applicable requirements of the Green Building Ordinance. SCA I is initially presented in Section 4.14, *Utilities and Service Systems*. The City Program adjusted emissions in Table 4.6-3 reflect GHG savings from application of CALgreen mandatory measures.

- **SCA 25: Parking and Transportation Demand Management**

SCA 25 requires a project applicant to submit for review and approval by the City of Oakland Planning and Zoning Division a Transportation Demand Management (TDM) Plan containing strategies to reduce on-site parking demand and single occupancy vehicle (SOV) travel. Generally the TDM Plan could reduce SOV trips for projects located near transit by about 10 to 20 percent, depending on the specific land use. Certain future projects under the Specific Plan would be required to prepare a TDM Plan and incorporate the resulting reduced emissions (from reduced vehicle trips) into the project's GHG emissions calculations. SCA 25 is initially presented in Section 4.13, *Transportation and Circulation*. The City Program adjusted emissions in Table 4.6-3 reflect GHG savings from a 10 percent trip reduction in vehicle trips achieved by SCA25 as a conservatively attainable goal.

- **SCA 36: Waste Reduction and Recycling**

SCA 36 requires a project applicant to submit a Construction & Demolition Waste Reduction and Recycling Plan (WRRP) and an Operational Diversion Plan (ODP) for review and approval by the Oakland Public Works Agency. Chapter 15.34 of the Oakland Municipal Code outlines requirements for reducing waste and optimizing construction and demolition (C&D) recycling. Affected projects include all new construction and all demolition. This SCA essentially addresses reduction in construction-related emissions, which the City combines with a project's operational emissions to assess against the significance thresholds for operational emissions, even though construction emissions are not a component of BAAQMD's Guidelines. Therefore, this SCA would contribute to

reducing total emissions of adoption and development under the Specific Plan. SCA 36 is initially presented in Section 4.14, *Utilities and Service Systems*. No appreciable reductions were considered for this SCA as construction waste is largely inert and not considered as a GHG emission source by CalEEMod.

- **Several SCAs Regarding Landscape Requirements and Tree Replacement**

Several SCAs address landscape requirements for frontages of commercial buildings and replacement of trees removed as part of a project. Projects are required to install one tree for every 25 feet of street frontage in cases where sidewalks have adequate width. Additionally, SCAs generally require the replacement of native trees removed as part of a project. Together, these SCAs maintain and increase landscaping and trees, create a cooler climate, reduce excessive solar gain, and absorb CO₂e emissions for a contribution to emission reductions, but have no impact on the emissions inventory of adoption and development under the Specific Plan. SCA 12, SCA 13, SCA 15, SCA 17, and SCA 18 are initially presented in Section 4.1, *Aesthetics, Shadow and Wind*, of this Draft EIR; and SCA 46 is initially presented in Section 4.3, *Biological Resources*. Insufficient data is available to estimate a potential GHG reduction from implementation of this SCA.

- **Several SCAs Regarding Stormwater Management**

Consistent with regional stormwater management programs and requirements that projects must comply with, the City has several SCAs that aim to reduce post construction stormwater runoff that could affect the ability to accommodate potentially increased storms and flooding within existing floodplains and infrastructure systems. These SCAs are relevant as climate change can result in increased flooding due to warmer climate (e.g., earlier and greater melting of snowpack) and inadequate infrastructure. SCA 55 is initially presented in Section 4.5, *Geology, Soils, and Geohazards*; SCA 75 is initially presented in Section 4.8, *Hydrology and Water Quality*; and SCA 83 is initially presented in Section 4.3, *Biological Resources*.

General Plan Policies and City Programs

Each of the following policies and programs were previously discussed in general in *Regulatory Context for GHG Emissions and Climate Change*, in this Section.

- **Oakland General Plan LUTE.** The LUTE is aimed at promoting use of public transit, bicycles and pedestrian travel. Any reduction of transportation-related GHG emissions would be captured in the trip reduction associated with the TDM Plan.
- **Oakland General Plan Open Space, Conservation and Recreation (OSCAR) Element.** The OSCAR contains policies that (a) encourage the provision of open space, which increases vegetation area (trees, grass, landscaping, etc.) to effect cooler climate, reduce excessive solar gain, and absorb CO₂; (b) encourage stormwater management, which relates to the maintenance of floodplains and infrastructure to accommodate potential increased storms and flooding; and (c) encourage energy efficiency and use of alternative energy sources. Policies that address vegetation area have no impact on the emissions inventory as vegetative sequestration is not a component of BAAQMD's Guidelines. Other policies regarding energy efficiency encourage and support energy efficiency but are not requirements under any implementation mechanism via the General Plan. They have resulted, however, in the implementation of the City of Oakland sustainability program discussed below.
- **City of Oakland Sustainability Programs.** The City has proactively adopted a number of sustainability programs in an effort to reduce the City's impact on climate change.

Oakland's sustainability efforts are managed by the Oakland Sustainability Community Development Initiative and there are two main categories that relate to reducing GHG emissions from a development project: renewable energy and green building.

Renewable Energy. With regard to renewable energy, the City's Sustainability Program has set a priority of promoting renewable energy with a particular emphasis on solar generation. The Program's aggressive renewable energy goals include the following: 50 percent of city facilities entire electricity use from renewable sources by 2017; and 100 percent of the city's entire electricity use from renewable sources by 2030. The City has some control over renewable energy percentages for buildings it operates by contracting its energy needs directly with the local utility. However, private building operators generally receive a standard energy mix from PG&E, and would not be required to contract for a higher percentage of renewables under this program as it only targets city facilities. PG&E has requested a 33 percent renewable energy mix goal for 2020 from the CPUC (compared to a 12 percent mix in 2007).

Green Building. With regard to green building strategies, the City of Oakland has implemented green building principles in City buildings through the following programs: Civic Green Building Ordinance (Ordinance No. 12658 C.M.S., 2005), requiring, for certain large civic projects, techniques that minimize the environmental and health impacts of the built environment through energy, water and material efficiencies and improved indoor air quality, while also reducing the waste associated with construction, maintenance and remodeling over the life of the building; Green Building Guidelines (Resolution No. 79871, 2006) which provides guidelines to Alameda County residents and developers regarding construction and remodeling; and Green Building Education Incentives for private developers. The City of Oakland adopted mandatory green building standards for private development projects on October 19, 2010. The City Program adjusted emissions in Table 4.6-3 reflect GHG savings from implementation of green building requirements.

Other Potential Planning Considerations Relevant to Adoption and Development under the Specific Plan

The following considerations are relevant to SB375 and the Sustainable Communities Strategy for the San Francisco Bay Area and may apply to projects within the Specific Plan Area which is designated as a Priority Development Area.

- ***Walkability of the Specific Plan Area.*** According the Pedestrian Master Plan, the City of Oakland has amongst the highest walking rates for all cities in the nine-county San Francisco Bay Region. It is noted that these high pedestrian trips are likely because the neighborhoods are densely populated and well served by transit, including BART, AC Transit, Amtrak, and the Alameda Ferry. As such, adoption and development under the Specific Plan would reduce transportation-related GHG emissions compared to emissions from the same level of development elsewhere in the outer Bay Area.
- ***Transit-Oriented Development.*** Certain future projects under the Specific Plan could be Transit Oriented Development, developing high-density housing in the central area of Oakland near transit stations, including BART stations, AC Transit centers, and other transportation nodes. development in these areas would reduce transportation-related GHG emissions compared to emissions from the same level of development elsewhere in the outer Bay Area. Because transit service is generally less available in most portions of the outlying areas than in the central area of Oakland, development in outlying areas would

likely result in increased peak-hour vehicle trips of relatively long distances, and often in single-occupant vehicles, compared to development within the Plan Area.

- **Urban Infill near Multiple Transit Modes.** Certain future projects under the Specific Plan could develop high-density housing within four blocks of AC Transit within an area developed with pedestrian facilities. Therefore, these developments, as discussed for Transit Oriented Development, above, would facilitate walking and non-vehicular travel to a greater extent than would be the case for similar development in outlying areas of the region without extensive transit availability. In addition, the high-density development would include a greater number of potential residents that could potentially utilize or engage in alternative modes of travel than in a lower density development on the project site.
- **Building Rehabilitation.** Certain future projects under Specific Plan could incorporate and support sustainable development goals including the renovation and reuse of the existing on-site building. As such, these developments would reduce transportation-related GHG emissions by avoiding the demolition and disposal of existing resources or energy to obtain and prepare raw resources for replacement structure.

Construction-generated GHG Emissions

The construction-generated GHG emissions of adoption and development under the Specific Plan were estimated based on potential land use development within the Plan Area and default construction equipment and area estimates of the CalEEMod model. Because the timing of each project is not known, as a conservative estimate all development was assumed to occur over two phases, consistent with the assumptions of the transportation analysis which envisions a specific portion of net new land use by year 2020 and the remainder by year 2035. An estimated total of approximately **15,779 metric tons (MT) of CO₂e** would be emitted over the assumed construction period of 9 years through 2035.

Construction emissions are annualized because the proposed operational GHG emissions thresholds are analyzed in terms of metric tons “per year.” Assuming a 40-year development life of the Specific Plan until development is demolished or remodeled for energy efficiency (which is the common standard currently used in practice), total construction emissions represent approximately **394 MT CO₂e annually, over 40 years**.

As previously discussed, the BAAQMD Guidelines do not include a specific threshold or methodology for assessing construction-related GHG emissions for CEQA analysis. The City’s methodology adds the 40-year annualized construction-related GHG emissions to a project’s total operational-related emissions, to assess construction-related GHG emissions against the City of Oakland’s thresholds and a project’s ability to meet AB 32 GHG reduction goals, as discussed below.

The analysis of construction emissions only considers improvements in construction equipment exhaust emissions through manufacturer requirements and turnover. In addition to considering the CO₂e emission from construction activities, adoption and development under the Specific Plan would incorporate dust control measures recommended by BAAQMD (SCA A, *Construction-Related Air Pollution Controls*), which includes measures related to construction exhaust

emissions. Further, the SCAs that apply to adoption and development under the Specific Plan align with BAAQMD regulations that relate to portable equipment (e.g., concrete batch plants, and gasoline- or diesel-powered engines used for power generation, pumps, compressors, pile drivers, and cranes), architectural coatings, and paving materials. Equipment used during project construction would be subject to the requirements of BAAQMD Regulation 2 (Permits), Rule 1 (General Requirements) with respect to portable equipment unless exempt under Rule 2-1-105 (Exemption, Registered Statewide Portable Equipment); BAAQMD Regulation 8 (Organic Compounds), Rule 3 (Architectural Coatings); and BAAQMD Regulation 8 (Organic Compounds), Rule 15 (Emulsified and Liquid Asphalts).

These measures would be implemented and construction activities of each project would be subject to their implementation. Construction of each future project under the Specific Plan would not disrupt or hinder implementation of these reduction measures. In summary, the annualized GHG emissions from construction for the adoption and development under the Specific Plan would not conflict with the goals of AB 32.

Long-Term Operational GHG Emissions

As introduced above, long-term operational GHG emissions associated with adoption and development under the Specific Plan include indirect emissions from mobile sources (motor vehicle trips), emissions from natural gas combustion used in non-residential buildings, emissions from electricity use in non-residential buildings (grid electricity), emissions from water conveyance and waste water treatment and conveyance, and emissions from area sources. Emissions from each of these sources, in addition to the construction-related emissions discussed above, are reported in Table 4.6-3.

“Business as Usual” emissions shown in Table 4.6-3 do not consider any GHG reduction measures or compliance with local or statewide policies, plans and programs and regulations aimed at reducing GHG emissions. These “business as usual” emissions are provided to demonstrate how emissions from the adoption and development under the Specific Plan could be reduced even with the implementation of the most basic measures and adherence to regulatory requirements.

As previously discussed under *City Standard Conditions of Approval, Regulatory Requirements, General Plan Policies and Local Programs, and Design Features that Reduce GHG Emissions of Adoption and Development under the Specific Plan*, the adjusted operational GHG emissions do not fully factor in project design features or some applicable City SCAs since design detail of future projects under the Specific Plan is not available. The adjusted emissions do include regulatory requirements such as implementation of Pavley GHG standards and the Low Carbon Fuel Standard (LCFS) for motor vehicles and other reduction measures from the AB 32 Scoping Plan.

As noted above, while implementation of SCA 25 and the City’s Green building Ordinance would be required of future development according to the specific applicability criteria, and GHG emissions would be reduced through project-by-project implementation of these measures; and while the reductions reflected in Table 4.6-3 for the “Total City Program Adjusted” scenario represent reasonable estimates; it cannot be guaranteed that the specific reductions can be

achieved. For this reason, the “Total City Program Adjusted” scenario is included for informational purposes alone and the annual GHG emissions estimated under the “Total Regulatory Adjusted” scenario are used to determine significance in this EIR analysis.

As shown in Table 4.6-3, the Total Regulatory Adjusted Annual GHG emissions generated by adoption and development under the Specific Plan, including emissions from construction associated with that development, is approximately **38,116 MT CO₂e per year** (approximately 32 percent less than “business as usual” emissions). Total emissions and service population (residents and employees) generated by adoption and development under the Specific Plan, in the Total Regulatory Adjusted Annual scenario, would result in approximately **4.9 MT CO₂e per service population annually** (approximately 32 percent less than “business as usual” emissions). Based on the project-level significance thresholds, adoption and development under the Specific Plan would have a significant impact because it would produce total emissions that exceed 1,100 MT of CO₂e as well as 4.6 MT of CO₂e per service population annually.

Based on the plan-level significance thresholds, adoption and development under the Specific Plan would produce total emissions that would exceed 1,100 MT of CO₂e, but that would not exceed the 6.6 MT of CO₂e per service population annually. Therefore, the impact under the plan-level significance thresholds would be less than significant since adoption and development under the Specific Plan would not exceed *both* numeric thresholds (total emissions and service population annually). However, as noted above, the plan-level service threshold of 6.6 metric tons of CO₂e per service population annually should only be applied to regional plans and general plans and thus does not apply to the Specific Plan. Adherence to the City’s SCAs and other policies cited above would reduce the GHG emissions of each new development under the Specific Plan. In particular, as previously discussed, SCA F, GHG Reduction Plan, applies to certain projects and has the goal of increasing energy efficiency and reducing GHG emissions to the greatest extent feasible below **both** applicable numeric City of Oakland CEQA Thresholds (i.e., total emissions and per service population) to help achieve the City’s goal of reducing GHG emissions. The GHG Reduction Plan shall be considered fully attained when project emissions are less than the applicable numeric City CEQA Thresholds. To the extent that adoption and development under the Specific Plan would be subject to SCA F, according to the applicability criteria discussed below, the GHG emissions reported in Table 4.6-3 would be reduced through project-by-project implementation of project-specific reduction measures.

Specifically, SCA F would apply to future projects under the Specific Plan under any of three scenarios.

- **Scenario A:** Projects which (a) involve a land use development (i.e., a project that does not require a BAAQMD permit to operate), (b) exceed the GHG emissions screening criteria contained in the BAAQMD CEQA Guidelines, AND (c) after a GHG analysis is prepared would exceed **both** applicable numeric City of Oakland CEQA Thresholds.
- **Scenario B:** Projects which (a) involve a land use development, (b) exceed the GHG emissions screening criteria contained in the BAAQMD CEQA Guidelines, (c) after a

GHG analysis is prepared would exceed one of the applicable numeric City of Oakland CEQA Thresholds, AND (d) are considered to be “Very Large Projects.”⁵

- **Scenario C:** Projects which (a) involve a stationary source of GHG (i.e., a project that requires a permit from BAAQMD to operate) AND (b) after a GHG analysis is prepared would produce total GHG emissions of more than 10,000 metric tons of CO₂e annually.

As individual projects tiering off the Specific Plan occur, their specific design features and GHG reduction measures, including TDM programs, as well as specifics about project types, land use specific travel demand and the availability of transit access will be defined and factored into the GHG Reduction Plan prepared pursuant to SCA F. Not until these tiered projects are proposed and evaluated can the efficacy of the project’s design characteristics, applicable SCAs and other City policies, particularly SCA F, in reducing GHG emissions to below relevant thresholds be determined. The SCAs and City policies discussed above represent a comprehensive approach to reducing energy usage, fostering more sustainable land use development patterns, and reducing GHG emissions. No other mitigation, in addition to implementation of the City’s SCAs, policies, and programs mentioned above, is considered feasible that to reduce GHG below the efficiency threshold of 4.6 Metric tons per year per service population. Therefore, the impact at the project level is conservatively considered significant and unavoidable because it cannot be guaranteed that reductions can be achieved.

Mitigation: None Feasible other than those identified in SCA F.

Significance after Mitigation: Conservatively Significant and Unavoidable.

Impact GHG-2: Adoption and development under the Specific Plan would not conflict with an applicable plan, policy or regulation of an appropriate regulatory agency adopted for the purpose of reducing greenhouse gas emissions (Criterion 2). (Less than Significant)

Adoption and development under the Specific Plan would not conflict with any applicable plan, policy or regulation adopted with the intent to reduce GHG emissions. Adoption and development under the Specific Plan would exceed project-level GHG emissions thresholds for the determining the consistency of land use development projects with the goals and projections of

⁵ A “Very Large Project” is defined as any of the following:

- (A) Residential development of more than 500 dwelling units;
- (B) Shopping center or business establishment employing more than 1,000 persons or encompassing more than 500,000 square feet of floor space;
- (C) Commercial office building employing more than 1,000 persons or encompassing more than 250,000 square feet of floor space;
- (D) Hotel/motel development of more than 500 rooms;
- (E) Industrial, manufacturing, processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or encompassing more than 650,000 square feet of floor area; or
- (F) Any combination of smaller versions of the above that when combined result in equivalent annual GHG emissions as the above.

AB 32.⁶ However, the Specific Plan would guide specific future projects to align with existing current plans, policies and regulations adopted to reduce GHG emissions. Specifically, adoption and development under the Specific Plan would not conflict with the ECAP, current City Sustainability Programs, or General Plan policies or regulations regarding GHG reductions and other local, regional and statewide plans, policies and regulations (previously discussed in Section 4.6.2, *Regulatory Context for GHG Emissions and Climate Change*) that are related to the reduction of GHG emissions and relevant to the Specific Plan.

Further, adoption and development under the Specific Plan would be subject to all the regulatory requirements including the City's approach to reducing GHG emissions (and significant GHG emissions impacts, if applicable) by requiring the preparation and implementation of project-specific GHG Reduction Plans (SCA F), which would reduce GHG emissions of the adoption and development under the Specific Plan to the greatest extent feasible. SCAs also include conditions to address adherence to best management construction practices and equipment use (SCA A and SCA 41) and minimize post construction stormwater runoff that could affect the ability to accommodate potentially increased storms and flooding within existing floodplains and infrastructure systems (SCA 55, SCA 75, and SCA 83), to reduce demand for single occupancy vehicle travel (SCA 25), to increase landscaping to absorb CO₂e emissions (SCA 12, SCA 13, SCA 15, SCA 17, SCA 18, and SCA 46), and facilitate waste reduction and recycling (SCA 36).

Overall, adoption and development under the Specific Plan would not conflict with any applicable plans, policies or regulations adopted with the intent to reduce GHG emissions. The impact would be less than significant.

Mitigation: None Required.

4.6.4 References

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⁶ The BAAQMD Guidelines state that the plan-level service threshold of 6.6 metric tons of CO₂e per service population annually should only be applied to general plans. For other types of plans, such as redevelopment plans and specific Plans, the Guidelines state that the project-level service threshold of 4.6 metric tons of CO₂e of service population annually should be used.

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4.7 Hazards and Hazardous Materials

This section discusses the hazards and hazardous materials issues related to the existence of hazardous materials associated with the Plan Area. This section describes the environmental and regulatory setting that is applicable to health and safety regarding hazards and hazardous materials associated with the Plan Area. Potential impacts are discussed and evaluated, and appropriate mitigation measures or Standard Conditions of Approval (SCA) are identified, as necessary.

4.7.1 Environmental Setting

Definition of Hazardous Materials

A hazardous material is defined as any material that, because of quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment (State of California, Health and Safety Code, Chapter 6.95, Section 25501(o)). The term “hazardous materials” refers to both hazardous substances and hazardous wastes. Under federal and state laws, any material, including wastes, may be considered hazardous if it is specifically listed by statute as such or if it is toxic (causes adverse human health effects), ignitable (has the ability to burn), corrosive (causes severe burns or damage to materials), or reactive (causes explosions or generates toxic gases).

In some cases, past industrial or commercial activities on a site have resulted in spills or leaks of hazardous materials to the ground, resulting in soil and/or groundwater contamination. Hazardous materials may also be present in building materials and released during building demolition activities. If improperly handled, hazardous materials and wastes can cause public health hazards when released to the soil, groundwater, or air. The four basic exposure pathways through which an individual can be exposed to a hazardous material include: inhalation, ingestion, bodily contact, and injection. Exposure can come as a result of an accidental release of hazardous materials during transportation, storage, or handling. Disturbance of contaminated subsurface soil during construction can also cause exposures to workers, the public or the environment through stockpiling, handling, or transportation of soils.

A hazardous waste, for the purpose of this EIR, is any hazardous material that is abandoned, discarded, or recycled, as defined in the State Health and Safety Code (Chapter 6.95, Section 25125). The transportation, use, and disposal of hazardous materials, as well as the potential releases of hazardous materials to the environment, are closely regulated through many state and federal laws.

Soil and Groundwater Contamination

In California, regulatory databases listing hazardous materials sites provided by numerous federal, state, and local agencies are consolidated in the “Cortese List” pursuant to Government Code Section 65962.5. The Cortese List is located on the California Environmental Protection Agency’s (Cal EPA) website and is a compilation of the following lists:

- List of Hazardous Waste and Substances sites from Department of Toxic Substances Control (DTSC) EnviroStor database;
- List of Leaking Underground Storage Tank Sites by County and Fiscal Year from the State Water Resources Control Board (SWRCB) GeoTracker database;
- List of solid waste disposal sites identified by SWRCB with waste constituents above hazardous waste levels outside the waste management unit;
- List of “active” Cease and Desist Order (CDO) and Cleanup and Abatement Order (CAO) from the SWRCB; and
- List of hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code, identified by DTSC and listed on their EnviroStor database(Cal EPA, 2013).

Pursuant to Section 15300.2 of the CEQA Guidelines, a categorical exemption shall not be used for a project located on a site included on the Cortese List.

The SWRCB GeoTracker database includes leaking underground storage tanks (LUSTs), permitted underground storage tanks (USTs), and Spills, Leaks, Investigations, and Cleanup Database (SLIC) sites. The DTSC EnviroStor database includes federal and state response sites, voluntary, school, and military cleanups and corrective actions, and permitted sites. The five databases cited above identify sites with suspected and confirmed releases of hazardous materials to the subsurface soil and/or groundwater. The reporting and statuses of these sites change as identification, monitoring and clean-up of hazardous sites progress. Typically, sites are closed once it has been demonstrated that existing site uses combined with the levels of identified contamination present no significant risk to human health or the environment. These databases are updated periodically and would need to be revisited prior to construction for adoption and development under the Specific Plan.

Within the Plan Area, there are seven LUST sites and three listed Cleanup Program sites currently identified within the Plan Area, listed in **Table 4.7-1** below, and depicted in **Figure 4.7-1** (SWRCB, 2012; DTSC, 2012). In addition, there are eleven LUST sites and four listed Cleanup Program sites within the Plan Area vicinity. Although the sites beyond the Plan Area boundary may have the potential to affect the Plan Area if the contaminants associated with those sites migrate to within the Plan Area, these sites are not known to be currently affecting the Plan Area. There is also one known permitted UST site within the Plan Area and four known permitted UST sites located upgradient or adjacent to the Plan Area. However, the permitted UST sites are not known to have contamination issues.

Fuel Contamination from Leaking Underground and Aboveground Storage Tanks

A UST system is a storage tank and any underground piping connected to the tank that has at least 10 percent of its combined volume underground. Until the mid-1980s, most USTs were made of single-walled bare steel, which were found to corrode over time resulting in leakage. Faulty installation or maintenance procedures also lead to UST leakage, in addition to potential

**TABLE 4.7-1
REGULATORY SITES LISTED IN THE PLAN AREA VICINITY**

Site Name/ Address	Regulatory List	Site Summary
Regulatory Sites Listed within the Plan Area		
Broadway Volkswagon 2740 Broadway	LUST Cleanup Site	Potential for groundwater and soil contamination. Potential contaminants of concern include gasoline and trichloroethylene.
Chevron #9-2506 2630 Broadway	LUST Cleanup Site	Potential for groundwater contamination. Potential contaminants of concern include gasoline and lead.
Connell Oldsmobile 3093 Broadway	LUST Cleanup Site	Potential for groundwater contamination. Potential contaminants of concern includes gasoline.
Chrysler Dealership 2417 Broadway	LUST Cleanup Site	Potential for groundwater contamination. Potential contaminants of concern include waste, motor, hydraulic and lubricating oils.
Glen Echo Creek Culvert 29th Street and Broadway	Cleanup Program Site	Potential for groundwater contamination. Potential contaminants of concern include arsenic, chromium, diesel, gasoline, waste, motor, hydraulic and lubricating oils.
Lake Merritt Towers Valdez and Grand Avenue	Cleanup Program Site	Potential affected media is under investigation. Potential contaminants of concern includes solvents.
Negherbon/Broadway Grand Redevelopment 2301-2345 Broadway	Cleanup Program Site	Potential for groundwater and soil contamination. Potential contaminants of concern include trichloroethane, arsenic, diesel, gasoline, lead, other chlorinated hydrocarbons, other solvent or non-petroleum hydrocarbon, trichloroethane, trichloroethylene, waste oil / motor / hydraulic / lubricating, dichloroethane, dichloroethene.
Robert & Ruth Burrows Trust 260 30th Street	LUST Cleanup Site	Potential media of contamination is unknown. Potential contaminants of concern include waste, motor, hydraulic and lubricating oils.
Roy Anderson Paints 3080 Broadway	LUST Cleanup Site	Potential for groundwater contamination. Potential contaminants of concern include waste, motor, hydraulic and lubricating oils.
Val Strough Chevrolet 327 34th Street	LUST Cleanup Site	Potential for groundwater contamination. Potential contaminants of concern includes gasoline.
Regulatory Sites Listed within the Plan Vicinity		
Chevron #9-0019 210 Grand Avenue	LUST Cleanup Site	Potential for groundwater contamination. Potential contaminants of concern includes gasoline.
Chevron #9-1026 3701 Broadway	LUST Cleanup Site	Potential for groundwater and soil contamination. Potential contaminants of concern include benzene, gasoline, waste, motor, hydraulic and lubricating oils.
CHEVRON #9-3600 2200 Telegraph Avenue	LUST Cleanup Site	Potential for groundwater contamination. Potential contaminants of concern includes gasoline.
Chevron #21-1283 3810 Broadway	LUST Cleanup Site	Potential for groundwater and soil contamination. Potential contaminants of concern includes gasoline and waste oil / motor / hydraulic / lubricating.
CHP – Oakland 3601 Telegraph Avenue	LUST Cleanup Site	Potential for groundwater contamination. Potential contaminants of concern includes gasoline.
Dave's Station 2250 Telegraph Avenue	LUST Cleanup Site	Potential for groundwater contamination. Potential contaminants of concern includes gasoline.
Dodson LTD 240 MacArthur Blvd.	LUST Cleanup Site	Potential for groundwater contamination. Potential contaminants of concern includes gasoline.

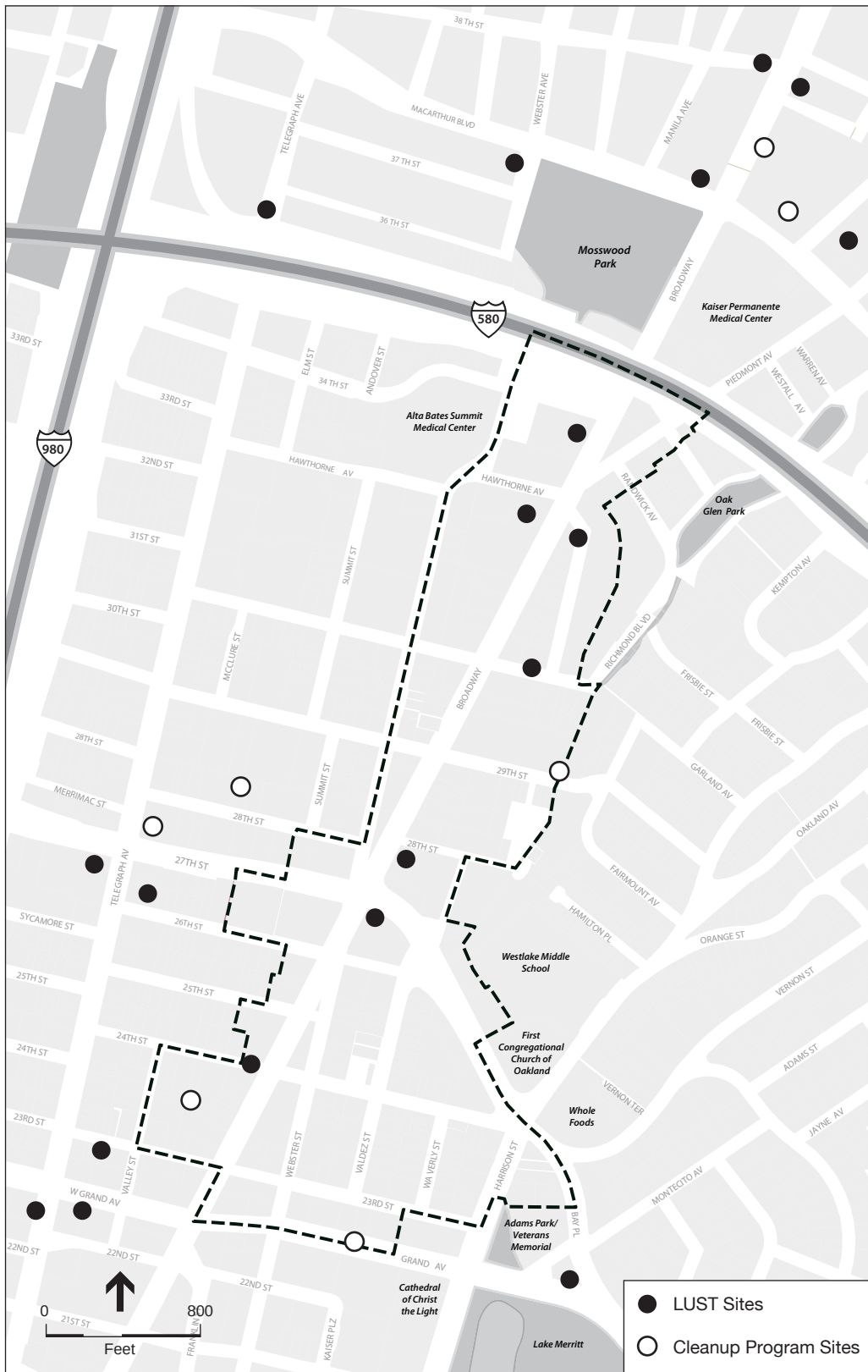
TABLE 4.7-1 (Continued)
REGULATORY SITES LISTED IN THE PLAN AREA VICINITY

Site Name/ Address	Regulatory List	Site Summary
Regulatory Sites Listed within the Plan Vicinity (cont.)		
Exxon #7-0235 2225 Telegraph Ave	LUST Cleanup Site	Potential for groundwater contamination. Potential contaminates of concern include benzene, diesel, and gasoline.
Glovatorium 3820 Manila Avenue	LUST Cleanup Site	Potential for groundwater contamination. Potential contaminates of concern includes stoddard solvent / mineral spirits / distillates
Kaiser Hospital 38th Street and Broadway	Cleanup Program Site	Potential affected media and contaminants are under investigation.
Kaiser Medical Center 280 MacArthur Blvd. West	Cleanup Program Site	Potential affected media and contaminants are under investigation.
Private Residence 28th and Summit Streets	Cleanup Program Site	Potential for soil contamination. Contaminant of concern is lead.
Robert Beallo MD INC 2710 Telegraph Avenue	Cleanup Program Site	Potential media of contamination is unknown and needs further evaluation.
Sears Auto Center #1058 2600 Telegraph Avenue	LUST Cleanup Site	Potential for groundwater contamination. Potential contaminates of concern include waste, motor, hydraulic and lubricating oils.
Sears Retail Store 2633 Telegraph Avenue	LUST Cleanup Site	Potential for groundwater contamination. Potential contaminates of concern includes gasoline.
UNOCAL #3538 411 MacArthur Blvd.	LUST Cleanup Site	Potential for groundwater contamination. Potential contaminates of concern includes gasoline.

releases associated with spills. Recently revised UST regulations have significantly reduced the incidents of UST leakage from new UST systems and the consequential soil and groundwater contamination. However, there are some older UST systems that remain in service and many sites contaminated by leaking USTs that are still under investigation and clean-up. USTs installed prior to the mid-1980's that have leaked as well as improperly installed USTs have resulted in fuel spills can present contamination issues in the Plan Area. In addition, it is not uncommon for older USTs to have been abandoned in place with no documentation of location or abandonment technique. As shown on Table 4.7-1 above, there are eleven known UST sites located within the Plan Area that have contamination issues (SWRCB, 2012). These sites are in various stages of investigation by the regulatory agencies. In the event that future projects were to occur at these sites, the construction activities could encounter contamination depending on the progress in cleanup activities at the time of construction. The three known UST sites located outside of the Plan Area have the potential to affect the Plan Area but would be increasingly less likely to do so with increasing distance from the Plan Area.

Contamination from Spills and Leaks

Spills and leaks of chemicals can contaminate soil and groundwater when proper precautions are not in place. Various businesses and industries transport, use, and dispose of chemicals and may improperly or accidentally release them into the environment. Chemicals can include but are not limited to heavy metals, solvents, and flammable materials. Non-permitted discharges of these



SOURCE: California Department of Toxic Substances Control, 2013

Broadway Valdez District Specific Plan . 208522
Figure 4.7-1
 Soil and Groundwater Contamination Sites

chemicals are documented by the San Francisco Bay RWQCB in the Spills SLIC list. Within the Plan Area, there is one known SLIC site identified and is undergoing clean up and monitoring with the oversight of the DTSC. In the event that future projects were to occur at this site, the construction activities may encounter contamination depending on the progress of cleanup activities at the time of construction.

Other Classifications for Contaminated Sites

Other sites with contaminated soil and/or groundwater within the Plan Area include those included in the Formerly Used Defense Sites (FUDS) database; Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) database; sites under DTSC oversight; as well as sites listed for voluntary cleanup. The SWRCB GeoTracker database listed four Cleanup Program sites within the Plan Area and three located upgradient of the Plan Area (SWRCB, 2012). These sites are in various stages of investigation by the regulatory agencies. In the event that future projects were to occur at these sites, the construction activities may encounter contamination depending on the progress of cleanup activities at the time of construction.

Hazardous Building Materials Associated with Demolition

Adoption and development under the Specific Plan could include demolition of some portions of the existing structures in the Plan Area. The Plan Area is currently highly developed and includes many older buildings that may have been constructed with hazardous building materials. These materials include lead-based paint, asbestos, and polychlorinated biphenyls (PCBs) and if disturbed could present a potential hazard to workers or the public.

Prior to the U.S. Environmental Protection Agency (USEPA) ban in 1978, lead-based paint was commonly used on interior and exterior surfaces of buildings. Through such disturbances as sanding and scraping activities, renovation work, or gradual wear and tear, old peeling paint, or paint dust particulates have been found to contaminate surface soils or cause lead dust to migrate and affect indoor air quality. Exposure to residual lead can cause severe adverse health effects especially in children.

Asbestos is a naturally-occurring fibrous material that was extensively used as a fireproofing and insulating agent in building construction materials before such uses were banned by the USEPA in the 1970s. Asbestos was commonly used for insulation of heating ducts as well as ceiling and floor tiles to name a few typical types of materials. Similar to lead-based paint, contained within the building materials asbestos fibers present no significant health risk, but once these tiny fibers are disturbed they become airborne and create potential exposure pathways. The fibers are very small and cannot be seen with the naked eye. Once they are inhaled they can become lodged into the lung potentially causing lung disease or other pulmonary complications.

PCBs are organic oils that were formerly used primarily as insulators in many types of electrical equipment including transformers and capacitors. After PCBs were determined to be a carcinogen in the mid to late 1970s, the USEPA banned PCB use in most new equipment and began a program to phase out certain existing PCB-containing equipment. Fluorescent lighting ballasts manufactured

after January 1, 1978, do not contain PCBs and are required to have a label clearly stating that PCBs are not present in the unit. Additional information about these materials is provided in the Regulatory Framework Section below.

Radon

Radon is a naturally-occurring odorless, tasteless, and invisible gas produced from the decay of uranium in soil and water (USEPA, 2013). Structures placed on native soils with elevated levels of radon can be impacted by the intrusion of radon gas into breathing spaces of the overlying structures, which can cause lung cancer. Alameda County is listed as a Zone 2 county with a predicted average indoor radon screening level between 2 and 4 picocuries per liter. This is considered a moderate level by the USEPA. The USEPA recommends remedial action for areas with levels above 4 picocuries per liter. Based on the USEPA information, the Plan Area is not considered to have radon above the recommended health risk level.

Schools and Daycare Facilities

There are no schools located within the Plan Area. There are three grade schools located outside but within ¼-mile of the Plan Area: Westlake Middle School, St. Paul's Episcopal School, and Oakland Emiliano Zapata Street Academy. Westlake Middle School is located at 2629 Harrison Street, adjacent to, and southeast of, the Plan Area. The St. Paul's Episcopal School is located at 262 Grand Avenue, approximately 0.20 miles southeast of the Plan Area. Oakland Emiliano Zapata Street Academy is located at 417 29th Street, approximately 0.10 miles west of the Plan Area.

There is one registered Pre-School facility and one university located outside but within ¼-mile of the Plan Area. The Snow White Pre-School is located at 241 West MacArthur Boulevard, approximately 0.20 miles northeast of the Plan Area. Samuel Merritt University is located at 3100 Telegraph Avenue, approximately 0.20 miles west of the Plan Area.

Airports

Aviation safety hazards can result if projects are sited in the vicinity of airports. The nearest public airport to the Plan Area is Oakland International Airport, located approximately seven miles south of the Plan Area. There are no private airstrips in the vicinity.

Wildland Fires

The California Department of Forestry and Fire Protection (CAL FIRE) is required by law to map areas of significant fire hazard based on fuels, terrain, weather, and other relevant factors (PRC 4201-4204 and Govt. Code 51175-89). Factors that increase an area's susceptibility to fire hazards include slope, vegetation type and condition, and atmospheric conditions. The CAL FIRE Alameda County Fire Hazard Severity Zone Map does not identify any very high or high fire hazard zones in the Plan Area (CAL FIRE, 2007).

4.7.2 Regulatory Framework

Adoption and development under the Specific Plan is subject to government health and safety regulations applicable to the transportation, use, and disposal of hazardous materials. This section provides an overview of the health and safety regulatory framework that is applicable to the Plan Area.

Federal

Hazardous Materials Management

The primary federal agencies with responsibility for hazardous materials management include the USEPA, U.S. Department of Labor Occupational Safety and Health Administration (OSHA), and the U.S. Department of Transportation (DOT). Federal laws, regulations, and responsible agencies are summarized in **Table 4.7-2** and are discussed in detail in this section.

State and local agencies often have either parallel or more stringent regulations than federal agencies. In most cases, state law mirrors or overlaps federal law and enforcement of these laws is the responsibility of the state or of a local agency to which enforcement powers are delegated. For these reasons, the requirements of the law and its enforcement are discussed under either the state or local agency section.

State

In January 1996, the California Environmental Protection Agency (Cal EPA) adopted regulations implementing a Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program). The program has six elements: hazardous waste generators and hazardous waste on-site treatment; underground storage tanks; aboveground storage tanks; hazardous materials release response plans and inventories; risk management and prevention programs; and Unified Fire Code hazardous materials management plans and inventories. The plan is implemented at the local level. The Certified Unified Program Agency (CUPA) is the local agency that is responsible for the implementation of the Unified Program. In Oakland, the Alameda County Department of Environmental Health (ACDEH) and the Oakland Fire Department are the designated CUPA for all businesses.

Hazardous Materials Management

The California Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act) requires that any business that handles hazardous materials prepare a business plan, which must include the following:

- Details, including floor plans, of the facility and business conducted at the site;
- An inventory of hazardous materials that are handled or stored on site;
- An emergency response plan; and
- A safety and emergency response training program for new employees with annual refresher courses

**TABLE 4.7-2
FEDERAL LAWS AND REGULATIONS RELATED TO HAZARDOUS MATERIALS MANAGEMENT**

Classification	Law or Responsible Federal Agency	Description
Hazardous Materials Incidents	National Priorities List (NPL)	Compilation of over 1,200 sites for priority cleanup under the Federal Superfund Program.
	Proposed National Priorities List (PNPL)	Sites considered for NPL listing.
	Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS)	Contains data on potentially hazardous waste sites that have been reported to the USEPA by California. CERCLIS contains sites which are either proposed to or on the NPL and sites which are in the screening and assessment phase for possible inclusion on the NPL.
	CERCLIS No Further Remedial Action Planned (CERC-NFRAP)	CERC-NFRAP are archived sites which indicate an assessment of the site has been completed and that the EPA has determined no further steps will be taken to list the site on NPL.
	California Hazardous Materials Incident Report System (CHMIRS)	Spills and other incidents gathered from the California Office of Emergency Services.
	Formerly Used Defense Sites Properties (FUDS)	Includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.
	Proposition 65 Records (Notify 65)	This database, maintained by the State Water Resources Control Board (SWRCB), contains facility notifications about any release that could impact drinking water and thereby expose the public to a potential health risk.
Hazardous Materials Management	Community Right-to-Know Act of 1986 (also known as Title III of the Superfund Amendments and Reauthorization Act (SARA))	Imposes requirements to ensure that hazardous materials are properly handled, used, stored, and disposed of and to prevent or mitigate injury to human health or the environment in the event that such materials are accidentally released.
Hazardous Waste Handling	Resource Conservation and Recovery Act of 1976 (RCRA)	Under RCRA, the EPA regulates the generation, transportation, treatment, storage, and disposal of hazardous waste from "cradle to grave."
	Hazardous and Solid Waste Act	Amended RCRA in 1984, affirming and extending the "cradle to grave" system of regulating hazardous wastes. The amendments specifically prohibit the use of certain techniques for the disposal of some hazardous wastes.
	Hazardous Wastes & Substances Sites List (Cortese)	Historical compilation of sites listed in the LUST, SWF/LF and Cal SITES databases. No longer maintained as an active database.
Hazardous Materials Transportation	U.S. Department of Transportation (DOT)	Has the regulatory responsibility for the safe transportation of hazardous materials. The DOT regulations govern all means of transportation except packages shipped by mail (49 CFR).
	U.S. Postal Service (USPS)	USPS regulations govern the transportation of hazardous materials shipped by mail.
Occupational Safety	Occupational Safety and Health Act of 1970	Fed/OSHA sets standards for safe workplaces and work practices, including the reporting of accidents and occupational injuries (29 CFR).
Structural and Building Components (Lead-based paint, PCBs, and asbestos)	Toxic Substances Control Act (TSCA)	Regulates the use and management of PCBs in electrical equipment, and sets forth detailed safeguards to be followed during the disposal of such items.
	U.S. EPA	The EPA monitors and regulates hazardous materials used structural and building components and affects on human health.

Hazardous Waste Handling

The Cal EPA DTSC regulates the generation, transportation, treatment, storage, and disposal of hazardous waste. State and federal laws require detailed planning to ensure that hazardous materials are properly handled, used, stored, and disposed of, and, in the event that such materials are accidentally released, to prevent or to mitigate injury to health or the environment. Laws and regulations require hazardous materials users to store these materials appropriately and to train employees to manage them safely.

Under the federal Resource Conservation and Recovery Act of 1976 (RCRA) described in Table 4.7-1, above, individual states may implement their own hazardous waste programs in lieu of RCRA, as long as the state program is at least as stringent as federal RCRA requirements. In California, the DTSC regulates the generation, transportation, treatment, storage, and disposal of hazardous waste. The hazardous waste regulations establish criteria for identifying, packaging, and labeling hazardous wastes; prescribe management of hazardous waste; establish permit requirements for hazardous waste treatment, storage, disposal, and transportation; and identify hazardous wastes that cannot be disposed of in landfills.

Hazardous Materials Transportation

The State of California has adopted DOT regulations for the intrastate movement of hazardous materials. State regulations are contained in Title 26 of the California Code of Regulations (CCR). In addition, the State of California regulates the transportation of hazardous waste originating in the state and passing through the state (26 CCR). Both regulatory programs apply in California. The two state agencies that have primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies are the California Highway Patrol (CHP) and the California Department of Transportation (Caltrans).

Occupational Safety

The California Occupational Safety and Health Administration (Cal/OSHA) assumes primary responsibility for developing and enforcing workplace safety regulations in California. Because California has a federally approved OSHA program, it is required to adopt regulations that are at least as stringent as those found in Title 29 of the CFR. Cal/OSHA standards are generally more stringent than federal regulations.

Cal/OSHA regulations (8 CCR) concerning the use of hazardous materials in the workplace require employee safety training, safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA enforces hazard communication program regulations, which contain training and information requirements, including procedures for identifying and labeling hazardous substances, and communicating hazard information relating to hazardous substances and their handling. The hazard communication program also requires that Materials Safety Data Sheets (MSDS) be available to employees, and that employee information and training programs be documented. These regulations also require preparation of emergency action plans (escape and evacuation procedures, rescue and medical duties, alarm systems, and training in emergency evacuation).

State laws, like federal laws, include special provisions for hazard communication to employees in research laboratories, including training in chemical work practices. Specific, more detailed training and monitoring is required for the use of carcinogens, ethylene oxide, lead, asbestos, and certain other chemicals listed in 29 CFR. Emergency equipment and supplies, such as fire extinguishers, safety showers, and eye washes, must also be provided and maintained in accessible places.

Cal/OSHA (8 CCR), like Fed/OSHA (29 CFR), includes extensive, detailed requirements for worker protection applicable to any activity that could disturb asbestos-containing materials, including maintenance, renovation, and demolition. These regulations are also designed to ensure that persons working near the maintenance, renovation, or demolition activity are not exposed to asbestos.

Emergency Response

California has developed an emergency response plan to coordinate emergency services provided by federal, state, and local government and private agencies. Responding to hazardous materials incidents is one part of this plan. The plan is administered by the State Office of Emergency Services (OES), which coordinates the responses of other agencies, including Cal EPA, CHP, CDFG, the San Francisco Bay RWQCB, and the Oakland Fire Department (OFD). The OFD provides first response capabilities, if needed, for hazardous materials emergencies within the Plan Area.

Structural and Building Components

Adoption and development under the proposed Specific Plan could include demolition of structures which, due to their age, may contain asbestos, PCBs, or lead and lead-based paint. In addition, removal of existing aboveground tanks or USTs may be required.

Asbestos

State laws and regulations prohibit emissions of asbestos from asbestos-related manufacturing, demolition, or construction activities; require medical examinations and monitoring of employees engaged in activities that could disturb asbestos; specify precautions and safe work practices that must be followed to minimize the potential for release of asbestos fibers; and require notice to federal and local governmental agencies prior to beginning renovation or demolition that could disturb asbestos. Asbestos represents a human health risk when asbestos fibers become airborne (friable) and are inhaled into the lungs.

The Bay Area Air Quality Management District (BAAQMD) is vested by the California legislature with authority to regulate airborne pollutants, including asbestos, through both inspection and law enforcement, and is to be notified ten days in advance of any proposed demolition or abatement work. Cal/OSHA regulates asbestos removal to ensure the health and safety of workers removing asbestos containing materials and also must be notified of asbestos abatement activities.

Polychlorinated Biphenyls (PCBs)

As previously discussed, PCBs are organic oils that were formerly placed in many types of electrical equipment and in fluorescent lighting ballasts. PCBs are highly persistent in the environment and are toxic. In 1979, the USEPA banned the use of PCBs in most new electrical equipment and began

a program to phase out certain existing PCB-containing equipment. The use and management of PCBs in electrical equipment is regulated pursuant to the Toxic Substances Control Act (40 CFR). Fluorescent lighting ballasts that contain PCBs, regardless of size and quantity, are regulated as hazardous waste and must be transported and disposed of as hazardous waste.

Lead and Lead-Based Paint

The CCR, Title 22, considers waste soil with concentrations of lead to be hazardous if it exceeds a total concentration of 1,000 ppm and a soluble¹ concentration of 5 ppm. Both the federal and California OSHAs regulate all worker exposure during construction activities that involve lead-based paint. The Interim Final Rule found in 29 CFR Part 1926.62 covers construction work where employees may be exposed to lead during such activities as demolition, removal, surface preparation for re-painting, renovation, clean up and routine maintenance. The OSHA-specified method of compliance includes respiratory protection, protective clothing, housekeeping, hygiene facilities, medical surveillance, training, etc.

Local

Soil and Groundwater Contamination

In Alameda County, remediation of contaminated sites is performed under the oversight of the ACDEH and the San Francisco Bay RWQCB. The ACDEH implements a local oversight program under contract with the SWRCB to provide regulatory oversight of the investigation and cleanup of soil and groundwater contamination from leaking petroleum USTs and aboveground storage tanks. At sites where contamination is suspected or known to have occurred, the project sponsor is required to perform a site investigation and prepare a remediation plan, if necessary. For typical development projects, actual site remediation is completed either before or during the construction phase of the project. Site remediation or development may be subject to regulation by other agencies. As noted above, several properties within the Plan Area have contaminated soil and groundwater which is currently subject to oversight by ACDEH. Future investigation and remediation of soil or groundwater contamination that is known, or has not yet been identified, would be subject to oversight by ACDEH.

Alameda County Hazardous Waste Management Program

Assembly Bill (AB) 2948 requires counties and cities either to adopt a county Hazardous Waste Management Plan as part of their general plan, or enact an ordinance requiring that all applicable zoning subdivision, conditional use permit, and variance decisions be consistent with the county hazardous waste management plan. Once each County had its Hazardous Waste Management Program approved by the State, each city had 180 days to either 1) adopt a City Hazardous Waste Management Plan containing specified elements consistent with the approved County Hazardous Waste Management Program, 2) incorporate the applicable portions of the approved Program, by reference, into the City's General Plan, or 3) enact an ordinance which requires that all applicable zoning, subdivision, conditional use permits, and variance decisions be consistent with the specified

¹ Capable of being dissolved, especially in water.

portions of the Program. Alameda County has adopted a Hazardous Waste Management Program that addresses procedures for hazardous materials incidents.

Under the Unified Hazardous Waste and Hazardous Materials Management Regulatory Program, the ACDEH is certified by the DTSC to implement the following programs:

- Hazardous Materials Management Plan and Inventory (HMMP) and the Hazardous Materials Business Plan (HMBP);
- Risk Management Program (RMP);
- UST program;
- Spill Prevention, Control and Countermeasure (SPCC) Plan for aboveground storage tanks;
- Hazardous waste generators; and
- On-site hazardous waste treatment (tiered permit).

Local Plans and Policies

Discussion of Specific Plan overall consistency with the Oakland General Plan is provided in Section 4.9, *Land Use, Plans and Policies*, of this EIR. General Plan policies that are also significance criteria or contain a regulatory threshold, which the project must meet, are addressed in this section.

City of Oakland General Plan

The Safety Element of the City of Oakland General Plan contain the following policies pertaining to hazards and hazardous materials with potential relevance to adoption and development under the Specific Plan:

- ***Fire Hazards, Policy FI-3:*** Prioritize the reduction of the wildfire hazard, with an emphasis on prevention.
- ***Hazardous Materials, Policy HM-1:*** Minimize the potential risks to human and environmental health and safety associated with the past and present use, handling, storage and disposal of hazardous materials.

Action HM-1.2: Continue to enforce provisions under the zoning ordinance regulating the location of facilities which use or store hazardous materials.

Action HM-1.4: Continue to participate in the Alameda County Waste Management Authority and, as a participant, continue to implement policies under the county's hazardous-waste management plan to minimize the generation of hazardous wastes.

Action HM-1.6: Through the Urban Land Redevelopment program, and along with other participating agencies, continue to assist developers in the environmental clean-up of contaminated properties.

Action HM-1.7: Create and maintain a database with detailed site information on all brownfields and contaminated sites in the city.

- **Hazardous Materials, Policy HM-3:** Seek to prevent industrial and transportation accidents involving hazardous materials, and enhance the city's capacity to respond to such incidents.
 - Action HM-3.1:* Continue to enforce regulations limiting truck travel through certain areas of the city to designated routes, and consider establishing timebased restrictions on truck travel on certain routes to reduce the risk and potential impact of accidents during peak traffic hours.
 - Action HM-3.4:* Continue to rely on, and update, the city's hazardous materials area plan to respond to emergencies related to hazardous materials.

Oakland Municipal Code

To protect sensitive receptors from public health effects from a release of hazardous substances, the Oakland Municipal Code, Title 8 Section 42.105 allows the City, at its discretion, to require facilities that handle hazardous substances within 1,000 feet of a residence, school, hospital, or other sensitive receptor to prepare a Hazardous Materials Assessment Report and Remediation Plan (HMARRP).

The HMARRP must include public participation in the planning process, along with the following requirements:

- identify hazardous materials used and stored at the property and the suitability of the site;
- analyze off-site consequences that could occur as a result of a release of hazardous substances (including fire);
- include a health risk assessment; and
- identify remedial measures to reduce or eliminate on-site and off-site hazards.

City of Oakland Conditions of Approval and Uniformly Applied Development Standards Imposed as Standard Conditions of Approval

The City's SCAs relevant to hazards and hazardous materials are listed below for reference. If the Specific Plan is approved by the City, all applicable SCAs would be incorporated into the Specific Plan, adopted as conditions of approval, and required of the adoption and development under the Specific Plan, as applicable, to help ensure less-than-significant impacts associated with hazards and hazardous materials. The SCAs are incorporated and required as part of the Specific Plan, so they are not listed as mitigation measures. Standard Conditions of Approval applicable to potential hazards and hazardous materials impacts due to the adoption and development under the Specific Plan include:

- **SCA 35: Hazards Best Management Practices**
 - Prior to the commencement of demolition, grading, or construction.* The project applicant and construction contractor shall ensure that construction of Best Management Practices (BMPs) is implemented as part of construction to minimize the potential negative effects to groundwater and soils. These shall include the following:

- a) Follow manufacturers' recommendations on use, storage, and disposal of chemical products used in construction;
 - b) Avoid overtopping construction equipment fuel gas tanks;
 - c) During routine maintenance of construction equipment, properly contain and remove grease and oils;
 - d) Properly dispose of discarded containers of fuels and other chemicals.
 - e) Ensure that construction would not have a significant impact on the environment or pose a substantial health risk to construction workers and the occupants of the proposed development. Soil sampling and chemical analyses of samples shall be performed to determine the extent of potential contamination beneath all UST's, elevator shafts, clarifiers, and subsurface hydraulic lifts when on-site demolition, or construction activities would potentially affect a particular development or building.
 - f) If soil, groundwater or other environmental medium with suspected contamination is encountered unexpectedly during construction activities (e.g., identified by odor or visual staining, or if any underground storage tanks, abandoned drums or other hazardous materials or wastes are encountered), the applicant shall cease work in the vicinity of the suspect material, the area shall be secured as necessary, and the applicant shall take all appropriate measures to protect human health and the environment. Appropriate measures shall include notification of regulatory agency(ies) and implementation of the actions described in the City's Standard Conditions of Approval, as necessary, to identify the nature and extent of contamination. Work shall not resume in the area(s) affected until the measures have been implemented under the oversight of the City or regulatory agency, as appropriate.
- **SCA 41: Asbestos Removal in Structures**
Prior to issuance of a demolition permit. If asbestos-containing materials (ACM) are found to be present in building materials to be removed, demolition and disposal, the project applicant shall submit specifications signed by a certified asbestos consultant for the removal, encapsulation, or enclosure of the identified ACM in accordance with all applicable laws and regulations, including but not necessarily limited to: California Code of Regulations, Title 8; Business and Professions Code; Division 3; California Health & Safety Code 25915-25919.7; and Bay Area Air Quality Management District, Regulation 11, Rule 2, as may be amended.
 - **SCA 61: Site Review by the Fire Services Division**
Prior to the issuance of demolition, grading or building permit. The project applicant shall submit plans for site review and approval to the Fire Prevention Bureau Hazardous Materials Unit. Property owner may be required to obtain or perform a Phase II hazard assessment.
 - **SCA 62: Phase I and/or Phase II Reports**
Prior to issuance of a demolition, grading, or building permit. Prior to issuance of demolition, grading, or building permits the project applicant shall submit to the Fire Prevention Bureau, Hazardous Materials Unit, a Phase I environmental site assessment report, and a Phase II report if warranted by the Phase I report for the project site. The reports shall make recommendations for remedial action, if appropriate, and should be signed by a Registered Environmental Assessor, Professional Geologist, or Professional Engineer.

- **SCA 63: Lead-based Paint/Coatings, Asbestos, or PCB Occurrence Assessment**

Prior to issuance of any demolition, grading or building permit. The project applicant shall submit a comprehensive assessment report to the Fire Prevention Bureau, Hazardous Materials Unit, signed by a qualified environmental professional, documenting the presence or lack thereof of asbestos-containing materials (ACM), lead-based paint, and any other building materials or stored materials classified as hazardous waste by State or federal law.

- **SCA 64: Environmental Site Assessment Reports Remediation**

Prior to issuance of any demolition, grading or building permit. If the environmental site assessment reports recommend remedial action, the project applicant shall:

- a) Consult with the appropriate local, State, and federal environmental regulatory agencies to ensure sufficient minimization of risk to human health and environmental resources, both during and after construction, posed by soil contamination, groundwater contamination, or other surface hazards including, but not limited to, underground storage tanks, fuel distribution lines, waste pits and sumps.
- b) Obtain and submit written evidence of approval for any remedial action if required by a local, State, or federal environmental regulatory agency.
- c) Submit a copy of all applicable documentation required by local, State, and federal environmental regulatory agencies, including but not limited to: permit applications, Phase I and II environmental site assessments, human health and ecological risk assessments, remedial action plans, risk management plans, soil management plans, and groundwater management plans.

- **SCA 65: Lead-based Paint Remediation**

Prior to issuance of any demolition, grading or building permit. If lead-based paint is present, the project applicant shall submit specifications to the Fire Prevention Bureau, Hazardous Materials Unit signed by a certified Lead Supervisor, Project Monitor, or Project Designer for the stabilization and/or removal of the identified lead paint in accordance with all applicable laws and regulations, including but not necessarily limited to: Cal/OSHA's Construction Lead Standard, 8 CCR1532.1 and DHS regulation 17 CCR Sections 35001 through 36100, as may be amended.

- **SCA 66: Other Materials Classified as Hazardous Waste**

Prior to issuance of any demolition, grading or building permit. If other materials classified as hazardous waste by State or federal law are present, the project applicant shall submit written confirmation to Fire Prevention Bureau, Hazardous Materials Unit that all State and federal laws and regulations shall be followed when profiling, handling, treating, transporting and/or disposing of such materials.

- **SCA 67: Health and Safety Plan per Assessment**

Prior to issuance of any demolition, grading or building permit. If the required lead-based paint/coatings, asbestos, or PCB assessment finds presence of such materials, the project applicant shall create and implement a health and safety plan to protect workers from risks associated with hazardous materials during demolition, renovation of affected structures, and transport and disposal.

- **SCA 68: Best Management Practices for Soil and Groundwater Hazards**

The project applicant shall implement all of the following Best Management Practices (BMPs) regarding potential soil and groundwater hazards:

- a) Soil generated by construction activities shall be stockpiled onsite in a secure and safe manner. All contaminated soils determined to be hazardous or non-hazardous waste must be adequately profiled (sampled) prior to acceptable reuse or disposal at an appropriate off-site facility. Specific sampling and handling and transport procedures for reuse or disposal shall be in accordance with applicable local, state and federal agencies laws, in particular, the Regional Water Quality Control Board (RWQCB) and/or the Alameda County Department of Environmental Health (ACDEH) and policies of the City of Oakland.
- b) Groundwater pumped from the subsurface shall be contained onsite in a secure and safe manner, prior to treatment and disposal, to ensure environmental and health issues are resolved pursuant to applicable laws and policies of the City of Oakland, the RWQCB and/or the ACDEH. Engineering controls shall be utilized, which include impermeable barriers to prohibit groundwater and vapor intrusion into the building (pursuant to the Standard Condition of Approval regarding Radon or Vapor Intrusion from Soil and Groundwater Sources);
- c) Prior to issuance of any demolition, grading, or building permit, the applicant shall submit for review and approval by the City of Oakland, written verification that the appropriate federal, state or county oversight authorities, including but not limited to the RWQCB and/or the ACDEH, have granted all required clearances and confirmed that the all applicable standards, regulations and conditions for all previous contamination at the site. The applicant also shall provide evidence from the City's Fire Department, Office of Emergency Services, indicating compliance with the Standard Condition of Approval requiring a Site Review by the Fire Services Division pursuant to City Ordinance No. 12323, and compliance with the Standard Condition of Approval requiring a Phase I and/or Phase II Reports.

- **SCA 69: Radon or Vapor Intrusion from Soil or Groundwater Sources**

Ongoing. The project applicant shall submit documentation to determine whether radon or vapor intrusion from the groundwater and soil is located on-site as part of the Phase I documents. The Phase I analysis shall be submitted to the Fire Prevention Bureau, Hazardous Materials Unit, for review and approval, along with a Phase II report if warranted by the Phase I report for the project site. The reports shall make recommendations for remedial action, if appropriate, and should be signed by a Registered Environmental Assessor, Professional Geologist, or Professional Engineer. Applicant shall implement the approved recommendations.

- **SCA 74: Hazardous Materials Business Plan**

Prior to issuance of a business license. The project applicant shall submit a Hazardous Materials Business Plan for review and approval by Fire Prevention Bureau, Hazardous Materials Unit. Once approved this plan shall be kept on file with the City and will be updated as applicable. The purpose of the Hazardous Business Plan is to ensure that employees are adequately trained to handle the materials and provides information to the Fire Services Division should emergency response be required. The Hazardous Materials Business Plan shall include the following:

- a) The types of hazardous materials or chemicals stored and/or used on site, such as petroleum fuel products, lubricants, solvents, and cleaning fluids.
- b) The location of such hazardous materials.
- c) An emergency response plan including employee training information.
- d) A plan that describes the manner in which these materials are handled, transported and disposed.

4.7.3 Impacts and Mitigation Measures

Significance Criteria

Adoption and development under the Specific Plan would have a significant impact on the environment if it were to:

- 1. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- 2. 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;
- 3. Create a significant hazard to the public through the storage or use of acutely hazardous materials near sensitive receptors;
- 4. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- 5. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment;
- 6. Result in less than two emergency access routes for streets exceeding 600 feet in length unless otherwise determined to be acceptable by the Fire Chief, or his/her designee, in specific instances due to climatic, geographic, topographic, or other conditions;
- 7. Be 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, and would result in a safety hazard for people residing or working in the project area;
- 8. Be located within the vicinity of a private airstrip, and would result in a safety hazard for people residing or working in the project area;
- 9. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- 10. 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.

Approach to Analysis

Adoption and development under the Specific Plan would not result in direct physical impacts within the Plan Area. However, adoption and development under the Specific Plan could eventually result in various types of construction activities within the Plan Area that would require ground disturbance and use of hazardous materials. These types of construction activities could result in impacts from hazards or the use of hazardous materials. Potential impacts relative to hazards and hazardous materials are analyzed within the context of existing plans and policies, permitting requirements, local ordinances, and the City of Oakland's Standard Conditions of Approval. Impacts that would be substantially reduced or eliminated by compliance with these policies or requirements are found to be less-than-significant.

Retail, residential, office and commercial activities within the Plan Area typically use hazardous chemicals common in these types of settings. These chemicals would include familiar materials, such as toners, paints, lubricants, kitchen and restroom cleaners, and other maintenance materials as well as chemicals used during operations. These common consumer products would be used for the same purposes as in any office or support setting, including residences. Retail uses can also handle hazardous materials that are stored in containers provided by manufacturer. The amounts of hazardous materials that would be stored or handled cannot be determined at this time, however assumptions can be made that the amounts of hazardous materials and waste would not significantly change from existing conditions.

Based on the characteristics of adoption and development under the Specific Plan and the existing conditions, adoption and development under the Specific Plan would not result in impacts related to safety hazards associated with an airstrip or airport, interfere with an adopted emergency response or evacuation plan, or expose people and structures to wildland fires. No impact discussion is provided for these topics for the following reasons:

1. ***Interfere with Airstrip/Airport.*** The Plan Area is located more than two miles from the nearest airstrip or airport and therefore, would not interfere with any airport use plan or otherwise create a safety hazard related to any such facility.
2. ***Wildland Fires.*** The Plan Area is located in an urbanized area that is not adjacent to any wildland areas. Fire protection services are provided by the City of Oakland Fire Department and all proposed new construction would be constructed according to the most current fire safety code requirements. Therefore, adoption and development under the Specific Plan would not be susceptible to wildland fires and there is no impact.

Impacts

Hazardous Materials Use, Storage and Disposal

Impact HAZ-1: Adoption and development under the Specific Plan would result in an increase in the routine transportation, use, and storage of hazardous chemicals (Criteria 1 and 3). (Less than Significant)

As discussed in Chapter 3, *Project Description*, a key purpose of the Specific Plan is to enhance the condition of the Plan Area. The City could accomplish the plan objectives through various means

including those that require new construction or adaptive reuse of buildings and utilities. The adoption and development under the Specific Plan could include construction activities that employ hazards or the use of hazardous chemicals, such as fuels, oils and lubricants, paints and thinners, solvents, and other chemicals. Construction could also occur along the day-lighted portion of Glenn Echo Creek north of Grand Avenue along Harrison Street. Construction activities could generate chemical wastes that, if not properly managed, could flow into the storm drainage system or nearby surface water bodies such as Lake Merritt and ultimately San Francisco Bay, which are listed as impaired water bodies by the SWRCB. As such, adoption and development under the Specific Plan could potentially result in impacts from hazards or hazardous materials. Impacts would occur if construction-related activities were to result in hazards or the release of hazardous materials and could be considered potentially significant.

Ongoing commercial, retail and residential activities in the Plan Area also involve the use of chemical compounds and products that are considered hazardous materials. Adoption and development under the Specific Plan could require the transportation, use and storage of additional quantities of hazardous materials to new businesses and entities. If not handled, stored, or transported appropriately, these impacts could be potentially significant.

Adoption and development under the Specific Plan would involve handling and use of these hazardous materials and the disposal of the resulting hazardous wastes would be required to follow the applicable laws and regulations, as described in *Regulatory Framework* above. Additionally, projects requiring the use and disposal of hazardous materials would be required to comply with project-specific hazards best management practices as required by SCA 35: *Hazards Best Management Practices*.

Hazardous materials would be stored according to manufacturer's recommendations and according to the specifications within the project-specific HMMP and HMBP. As required, the hazardous materials would be stored in locations according to compatibility and in storage enclosures (i.e., flammable material storage cabinets) or in areas or rooms specially designed, protected, and contained for such storage, in accordance with applicable regulations. Hazardous materials would be handled and used in accordance with applicable regulations by personnel that have been trained in the handling and use of the material and that have received proper hazard-communication training. Hazardous materials reporting (i.e., California Hazardous Materials Business Planning, California Proposition 65 notification, and Emergency Planning and Community-Right-to-Know Act reporting) would be completed as required.

All hazardous materials would be transported to the Plan Area in accordance with applicable hazardous materials shipping regulations. Hazardous materials and waste would be delivered, stored, and handled in accordance with the HMMP. The HMMP would also provide details on appropriate personal protective equipment, disposal procedures, and spill response measures in the case of accidental upset conditions. Required compliance with applicable regulatory requirements would minimize hazards to workers, visitors, the public, and the environment from waste products. Additionally, implementation of SCA 35, *Hazards Best Management Practices*, would further

reduce potential impacts. As a result of these requirements, impacts resulting from hazardous materials and hazardous waste transport, use and disposal would be less than significant.

Mitigation: None Required.

Impact HAZ-2: Adoption and development under the Specific Plan would result in the accidental release of hazardous materials used during construction through improper handling or storage (Criterion 2). (Less than Significant)

Adoption and development under the Specific Plan could require construction activities which would use certain hazardous materials such as fuels, oils, lubricants, solvents, and glues. Inadvertent release of large quantities of these materials into the environment could adversely impact soil, surface waters, or groundwater quality. These impacts would be potentially significant.

However, the hazardous materials used on a construction site would be used in accordance with manufacturer recommendations. Spills of hazardous materials on construction sites are typically localized and are cleaned up in a timely manner. In most cases, the individual construction contractors are responsible for their hazardous materials and are required under their contract to properly store and dispose of these materials in compliance with state and federal laws. Additionally, the use of construction best management practices which would be required to be implemented as part of construction and required by SCA 35, *Hazards Best Management Practices*, along with SCA 63, *Lead-Based Paint/Coatings, Asbestos, or PCB Occurrence Assessment*; SCA 64, *Environmental Site Assessment Reports Remediation*; and SCA 67, *Health and Safety Plan per Assessment* would minimize the potential adverse effects to groundwater and soils.

Given the use of best management practices as required by the individual construction contractors, the threat of exposure to the public or contamination to soil and groundwater from construction-related hazardous materials is considered less than significant.

Mitigation: None Required.

Exposure to Hazardous Materials

Impact HAZ-3: Adoption and development under the Specific Plan would result in the exposure of hazardous materials in soil and ground water (Criteria 2 and 5). (Less than Significant)

Adoption and development under the Specific Plan could require excavation for installation of building foundations and underground utilities. Some of the excavation could be substantial. The development sites could have had a documented past release that has contaminated subsurface

soils and groundwater or a previously unknown release that would be exposed during excavation activities. Known sites currently listed in the Plan Area are discussed above in the Environmental Setting section and listed in Table 4.7-1. Consequently, construction in the Plan Area could potentially intercept and disturb impacted soil and/or groundwater. Disturbed contaminated soils could expose construction workers and the public to contaminants causing various short-term health effects such as nausea, vomiting, headache, dizziness, or burns. These impacts would be considered potentially significant.

If a specific development site is the location of a documented release of hazardous materials and is listed on a regulatory database it would be subject to site cleanup regulations as required by a designated regulatory agency, such as the SWRCB or DTSC. If the proposed land use were more sensitive than the existing land use, such as changing a commercial building to a residential unit, more stringent clean up regulations would apply even if the site has been considered remediated or closed based on complying with standards for its current land use. However, compliance with standards set forth in the Oakland Urban Land Redevelopment Program would ensure any developed site undergoes risk-based corrective action.

Per standard policy and practice, future projects under the Specific Plan would require a review of environmental databases for a given project site. If database review indicates there is contamination at the site, construction and operation of the project would be subject to the stringent state and local policies regarding the handling of contaminated soils and groundwater. Compliance with the Oakland Urban Land Redevelopment Program, SCA 68, *Best Management Practices for Soil and Groundwater Hazards*, and SCA 69, *Radon or Vapor Intrusion from Soil or Groundwater Sources*, would be required, ensuring that any potential impacts are less than significant.

Mitigation: None Required.

Impact HAZ-4: Adoption and development under the Specific Plan would result in the exposure of hazardous building materials during building demolition (Criterion 2). (Less than Significant)

Demolition of existing structures or portions thereof within the Plan Area may expose construction workers, the public, or the environment to hazardous materials such as lead-based paint, asbestos, and PCBs. The level of potential impact is dependent upon the age, construction, and building materials in each area of the building. As discussed above, asbestos containing materials may be present at the site which, if disturbed, could expose workers and the public during demolition. Any remaining asbestos containing materials would need appropriate abatement of identified asbestos prior to demolition. These impacts would be potentially significant.

Potential exposure to these hazardous building materials would be reduced through appropriate identification, removal and disposal according to applicable regulations to less-than-significant levels. Asbestos containing materials are regulated both as a hazardous air pollutant under the Clean Air Act and as a potential worker safety hazard under the authority of Cal-OSHA.

Cal-OSHA also regulates worker exposure to lead-based paint. In structures slated for demolition for adoption and development under the Specific Plan, any asbestos-containing materials would be abated in accordance with state and federal regulations prior to the start of demolition or renovation activities. Section 19827.5 of the California Health and Safety Code requires that local agencies not issue demolition or alteration permits until an applicant has demonstrated compliance with notification requirements under applicable federal regulations regarding hazardous air pollutants, including asbestos. The BAAQMD is vested by the California legislature with authority to regulate airborne pollutants, including asbestos, through both inspection and law enforcement, and is to be notified 10 days in advance of any proposed demolition or abatement work.

Notification includes the names and addresses of operations and persons responsible; description and location of the structure to be demolished/alterd including size, age, and prior use, and the approximate amount of friable asbestos; scheduled starting and completion dates of demolition or abatement; nature of planned work and methods to be employed; procedures to be employed to meet BAAQMD requirements; and the name and location of the waste disposal site to be used. The BAAQMD randomly inspects asbestos removal operations and would inspect any removal operation about which a complaint has been received.

Asbestos abatement contractors must follow state regulations contained in 8 CCR 1529 and 8 CCR 341.6 through 341.14 where there is asbestos-related work involving 100 square feet or more of asbestos-containing material. Asbestos removal contractors must be certified as such by the Contractors Licensing Board of the State of California. The owner of the property where abatement is to occur must have a hazardous waste generator number assigned by and registered with the DTSC in Sacramento. The site owner or responsible party and the transporter of the waste are required to file a hazardous waste manifest that details the transportation of the material from the site and its disposal.

Both the federal OSHA and Cal-OSHA regulate worker exposure during construction activities that disturb lead-based paint. The Interim Final Rule found in 29 CFR 1926.62 covers construction work in which employees may be exposed to lead during such activities as demolition, removal, surface preparation for repainting, renovation, cleanup, and routine maintenance. The OSHA-specified compliance includes respiratory protection, protective clothing, housekeeping, special high-efficiency filtered vacuums, hygiene facilities, medical surveillance, and training. No minimum level of lead is specified to activate the provisions of this regulation.

Compliance with these regulations and procedures, as well as SCA 65, *Lead-base Paint Remediation*, and SCA 41, *Asbestos Removal in Structures*, would ensure that any potential impacts due to lead-base paint or asbestos are less than significant.

Fluorescent lighting ballasts manufactured prior to 1978, and electrical transformers, capacitors, and generators manufactured prior to 1977, may contain PCBs. In accordance with the Toxic Substances Control Act and other federal and state regulations, adoption and development under the Specific Plan would be required to properly handle and dispose of electrical equipment and lighting ballasts that contain PCBs, reducing potential impacts to a less-than-significant level.

Mitigation: None Required.

Hazardous Materials within a Quarter Mile of a School

Impact HAZ-5: Adoption and development under the Specific Plan would require use of hazardous materials within 0.25 mile of a school (Criterion 4). (Less than Significant)

There are no schools located within the Plan Area; however, as discussed in the Environmental Setting, there are five schools or daycare facilities located within 0.25 miles of the Plan Area. These schools or daycare facilities include: Westlake Middle School, 2629 Harrison Street; St. Paul's Episcopal School, 262 Grand Avenue; Oakland Emiliano Zapata Street Academy, 417 29th Street; Snow White Pre-School, 241 West MacArthur Boulevard; and Samuel Merritt University, 3100 Telegraph Avenue. As discussed in the Environmental Setting section and *Impact HAZ-1* above, adoption and development under the Specific Plan as well as existing, zoned land uses in the Plan Area could require the use, transport and storage of hazardous materials. In the event of an accidental release of hazardous materials in the vicinity of a school, as outlined below, these potential risks would be less than significant given incorporation of SCAs and other existing regulatory requirements.

Adoption and development under the Specific Plan would be required to comply with the City of Oakland's Ordinances and General Plan Policies that require hazardous material handlers within 1,000 feet of a school or other sensitive receptor to prepare a Hazardous Materials Assessment Report and Remediation Plan (HMARRP). The HMARRP would disclose the use of hazardous materials at the site, conduct assessments of potential off-site risks (such as a Health Risk Assessment), and implement precautions to reduce identified risks. The HMARRP must identify hazardous materials used at a project site, the potential on-site and off-site risks, and measures to be implemented to reduce or eliminate these risks. The HMARRP is subject to review and approval by the City of Oakland. Additionally, those handling or storing hazardous materials would be required to prepare a Hazardous Materials Management Plan (HMMP) and Hazardous Materials Business Plan (HMBP) as required by Alameda County and the City's SCA 74, *Hazardous Materials Business Plan*. Completing these requirements would reduce to a less-than-significant level the potential for an unacceptable release of hazardous materials within 0.25 mile of a school.

Mitigation: None Required.

Emergency Access Routes

Impact HAZ-6: Development under Specific Plan could result in fewer than two emergency access routes for streets exceeding 600 feet in length but would not physically interfere with an adopted emergency response plan or emergency evacuation plan (Criteria 6 and 9). (Less than Significant)

Adoption and development under the Specific Plan could require temporary construction activities which could result in fewer than two emergency access routes for streets exceeding 600 feet in length. Temporary construction closures or limited emergency access could impede emergency response and create hazardous conditions for the public. As outlined below, these potential risks would be less than significant given incorporation of SCAs and other existing regulatory requirements.

Overall, the adoption and development under the Specific Plan would not impede an emergency access route and would continue to maintain the existing city grid system. Additionally, the adoption and development under the Specific Plan would not result in permanent road closures, and therefore, would not physically interfere with emergency response or evacuation plans. In addition, construction activities that would result in temporary road closures, would include traffic control plans to ensure emergency vehicle access and therefore would not cause an impact.

Adoption and development under the Specific Plan would be required to comply with City of Oakland's Ordinances and General Plan Policies. Overall, the construction of the adoption and development under the Specific Plan that would result in temporary road closures, would include traffic control plans to ensure at least two emergency access routes are available for streets exceeding 600 feet in length. Compliance with all applicable requirements would reduce potential impacts to a less-than-significant level.

Mitigation: None Required.

Cumulative Impacts

Impact HAZ-7: Adoption and development under the Specific Plan, when combined with other past, present, existing, approved, pending and reasonably foreseeable development in the vicinity, would result in cumulative hazards. (Less than Significant)

Geographic Context

The cumulative geographic context for hazardous materials for the adoption and development under the Specific Plan consists of the Plan Area in addition to all areas of the City and area roadways used to transport hazardous materials.

Impacts

Cumulative health and safety effects could occur if activities in the Plan Area and other existing and proposed development, together, could increase risks in the Plan Area. Cumulative health and safety impacts could occur if outdoor or off-site hazards related to adoption and development under the Specific Plan were to interact or combine with those of other cumulative development within and around the Plan Area (as described in Major Projects List in Appendix B to this Draft EIR). These impacts could occur through limited mechanisms: air emissions, transport of hazardous materials and waste to or from a project site, inadvertent release of hazardous materials to the sewer or non-hazardous waste landfill, and potential accidents that require hazardous materials emergency response capabilities. Air emissions are addressed in Section 4.2, *Air Quality*. The other mechanisms for cumulative off-site effects are discussed below.

Because several development projects in the vicinity of the Plan Area could involve the same roads used by developments within the Plan Area, the adoption and development under the Specific Plan could contribute to cumulative increases in the amount of hazardous material transported to and from the Plan Area. Cumulative increases in the transportation of hazardous materials and wastes would cause a less-than-significant impact because the probability of such accidents is relatively low due to the stringent policies regulating the transport, use and storage of hazardous materials. Adoption and development under the Specific Plan would be required to comply with the City's SCA 66, *Other Materials Classified as Hazardous Waste*, and SCA 74, *Hazardous Materials Business Plan*, which outlines the guidance for transporting hazardous materials safely to and from the project sites, in addition to SCA 61, *Site Review by Fire Services Division*, to ensure overall compliance of projects for hazardous materials.

Adoption and development under the Specific Plan would contribute to cumulative increases in the demand for hazardous materials emergency response capabilities in Oakland. Any growth involving increased hazardous materials use has the potential to increase the demand for emergency response capabilities in the area. However, first response capabilities and hazardous materials emergency response capabilities are currently available and sufficient for all cumulative projects. Furthermore, substantive hazardous materials accidents within the Plan Area or vicinity are expected to be rare, and when such incidents would occur, only one such incident would be expected at any one time (except during major catastrophes, such as major earthquakes). Furthermore, additional hazardous materials response services could be available through other jurisdictions, and private hazardous materials emergency response agencies could be used. Therefore, this cumulative impact would be less than significant.

Mitigation: None Required.

4.7.4 References

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