

Appendix A

2045 General Plan Update Map Atlas

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Oakland 2045

Map Atlas

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OAKLAND 2045
GENERAL PLAN



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INTRODUCTION AND OVERVIEW

- 1.1 Purpose of the Map Atlas
- 1.2 Setting and Planning Boundaries
- 1.3 Existing Plans and Other Areas

1. Introduction and Overview

From its beginning as a small town in an oak grove, Oakland has grown into a unique city with distinct and eclectic neighborhoods, commercial districts, a thriving Downtown, and rich cultural and recreational amenities. It is a city that has continually been defined by its location at a transportation crossroads – a major sailing and trading port, the original terminus of the first transcontinental railroad, and a postwar industrial powerhouse. Oakland’s landscape has been influenced by past aspirations to be an “industrial garden”¹ and a metropolitan “City Beautiful”, as well as by forces that have led to a crushing housing crisis and a geography of inequity, shaped by environmental racism and discriminatory policies, such as redlining, urban renewal, and exclusionary zoning.² Oakland is a city defined by its people, founded on land historically occupied by the Ohlone. It is one of the most racially and ethnically diverse cities in the country, but has a long way to go to overcome systemic racism that gives opportunity to some, but not all. Oakland is a city with a history of social justice movements and community leaders who have fought and continue to fight against oppression, for the right to thrive, to create, to preserve history, culture, and art.

What should the future of Oakland look like? The City is undertaking an update of its General Plan – its “constitution for development”. The current General Plan was adopted over 20 years ago, and the City and the broader context have changed dramatically since. The General Plan Update is an opportunity for all Oaklanders to work together to create a visionary blueprint for the future of the City over the next two decades. As a start, the City must acknowledge the burden of past practices on today’s Oakland, particularly on communities of color. This is an opportunity to begin the work to eliminate the root causes of inequity and undo the harms of the past.

¹ McClintock, N. (2008). From Industrial Garden to Food Desert: Unearthing the Root Structure of Urban Agriculture in Oakland, California. UC Berkeley: Institute for the Study of Societal Issues. Retrieved from <https://escholarship.org/uc/item/1wh3v1sj>

² For more on history of racial disparities in Oakland, please see the accompanying Environmental Justice and Racial Equity Baseline Report and General Plan Technical Memo.

The project is occurring in two phases. Phase 1 focuses on the Housing Element and Safety Element update, as well as the preparation of a new Environmental Justice Element, Industrial Lands Policy, Environmental Impact Report, and zoning code and map update, and is slated to be completed by early 2023. Phase 2 will update the Land Use and Transportation (LUTE), Estuary Policy Plan (the Land Use Element for much of the land below Interstate 880 along the Oakland Estuary), Open Space, Conservation and Recreation (OSCAR), Noise, and preparation of a new Infrastructure and Facilities Element. Phase 2 is slated to be completed in 2025. A Racial Equity Impact Analysis (REIA) conducted before and during the development of General Plan elements will help ensure that policies, programs, and actions will prioritize historically marginalized communities and maximize equitable outcomes. More information on the General Plan can be found at the City’s website: <https://www.oaklandca.gov/topics/general-plan-update>.



Photo: Greg Linhares, City of Oakland

1.1 Purpose of the Map Atlas

This Map Atlas provides baseline spatial data on existing conditions and mappable resources, trends, and critical concerns that will frame choices for the long-term physical development of Oakland. The Atlas includes information about land uses, natural and community resources, urban form, and transportation infrastructure. The Atlas will be used as a basis for:

- Facilitating community input on planning issues, priorities, and vision for the future;
- Understanding opportunities;
- Identifying constraints;
- Evaluating policy issues and options, including for housing sites (as part of Phase 1) and for preparing alternative land use and transportation concepts (as part of Phase 2);
- Formulating policies and implementation actions for the General Plan Update; and
- Conducting mapping and baseline assessment needed for the environmental setting portion of environmental impacts reports (currently anticipated for each of the two phases) for the General Plan Update.

This Map Atlas is one of several reports documenting and analyzing background conditions, trends, and opportunities to lay the groundwork for community deliberations and policy-making. Companion reports prepared include:

- Environmental and Racial Equity Baseline; and
- Economic Development: Trends and Prospects Report

In addition, analysis of housing sites and needs is underway as part of the 2023-2031 Housing Element update.



1.2 Setting and Planning Boundaries

REGIONAL SETTING

Oakland is located on the eastern shore of the San Francisco Bay and is the county seat of Alameda County and geographic center of the Bay Area. The City is defined by the Bay and Estuary on the southwest, the crest of the Berkeley-Oakland Hills on the northeast and east, the city boundaries of Berkeley and Emeryville to the north, and the City of San Leandro boundary to the south. San Francisco is located just west across the Bay Bridge. Oakland is at the crossroads of a significant portion of the Bay Area's transportation network. Four interstates (I-80, I-880, I-980, I-580) pass through the City. All Bay Area Rapid Transit (BART) lines traverse the City, serving eight stations. The City is also served by Amtrak, San Francisco Bay Ferry, and AC Transit. Oakland is the third most populous city in the Bay Area, and the eighth largest in the state; it is also the fastest growing of the state's dozen largest cities, with the population growing nearly 13 percent since 2010. Oakland International Airport connects the City and the region to the rest of the world. The Oakland Port is the fourth largest container port in the western US, with 99 percent of the containerized goods in Northern California flowing through the port. The City is a regional employment center as well, and home to major corporations, institutions, and numerous small businesses. Lake Merritt, the country's oldest wildlife refuge, serves as a central landmark and popular recreational attraction for residents. **(Figure 1-1)**

PLANNING BOUNDARIES

As shown in **Figure 1-2**, Oakland's Planning Area is bounded by: Tilden Regional Park, the City of Berkeley, and the City of Emeryville to the north; the Port of Oakland and the Oakland Estuary, with the City of Alameda on the opposite side of the Estuary, to the west; the City of San Leandro to the south; and Siesta Valley Recreation Area, Sibley Volcanic Regional Preserve, Reinhardt Redwood Regional Park, and Anthony Chabot Regional Park to the east. The City also abuts the City of Piedmont, which is bounded entirely by Oakland. The City's General Plan Planning Area encompasses an area of 78 square miles, including approximately 56 square miles of land. There are no unincorporated areas within the City's sphere of influence.

Certain parts of the Planning Area fall under jurisdictions aside from the City of Oakland. The Port of Oakland is given responsibility by the Oakland City Charter to own, develop and manage lands along the Oakland Estuary, including but not limited to the Oakland International Airport, within the specified area of Port jurisdiction. The land within the Port jurisdiction is subject, like the rest of the city, to the General Plan and is included within the City's General Plan Planning Area. Additionally, the San Francisco Bay Conservation and Development Commission (BCDC) oversees sites that lie within a 100-foot 'Shoreline Band' surrounding the San Francisco Bay, ensuring development within this area is consistent with the San Francisco Bay Plan and the San Francisco Bay Area Seaport Plan. BCDC reviews and has permit authority over all individual waterfront projects that are developed within the Shoreline Band, to ensure that they maximize public access

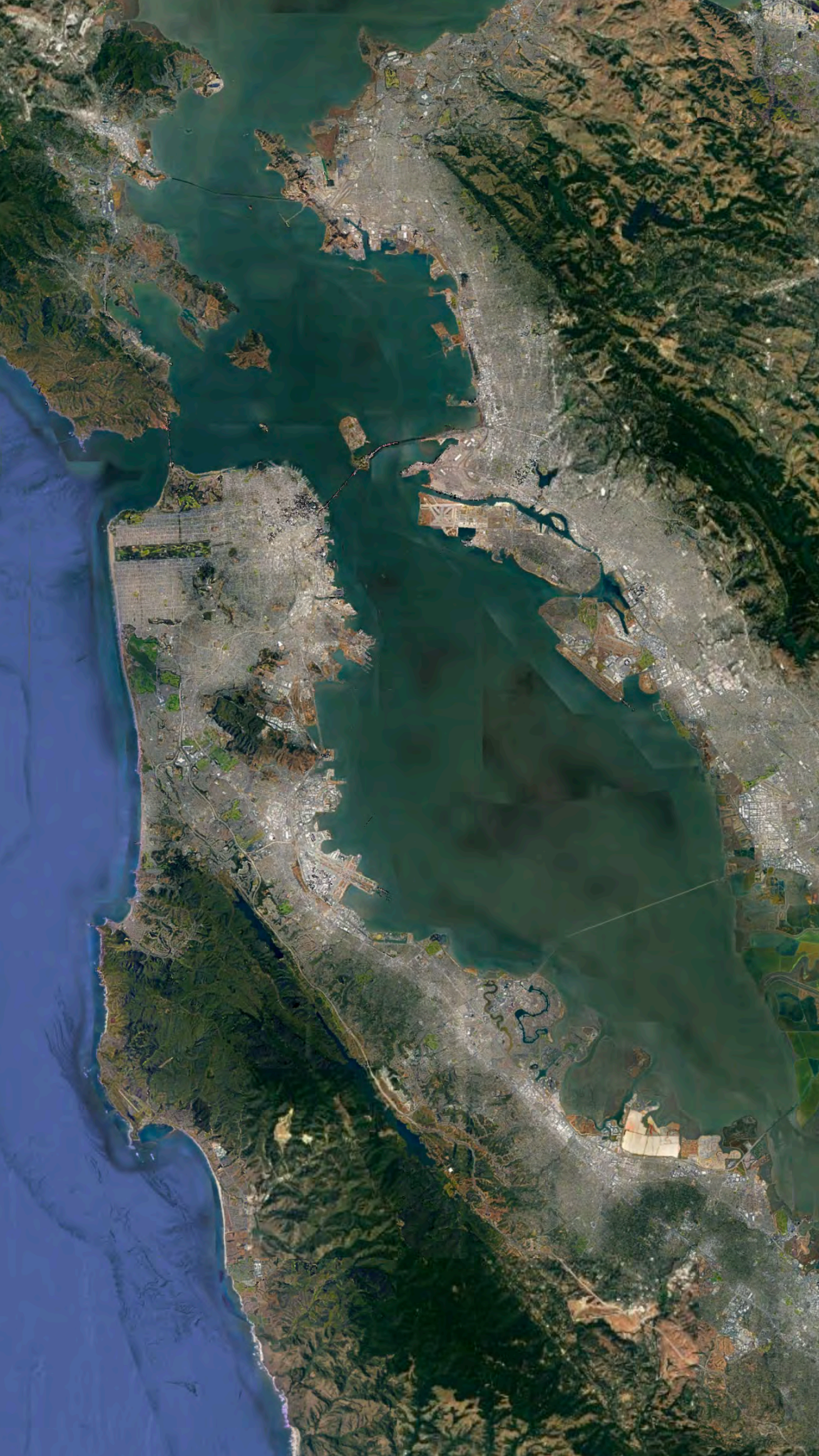
to the Bay and minimize the amount of bay fill that is used. The United States Army Corps of Engineers (USACE) governs the federally owned Inner Harbor Tidal Canal, which extends 1,800 feet northwest of the Park Street Bridge to the mouth of the San Leandro Bay. Work permits for any bridges, piers, and other properties that touch the canal must be reviewed by USACE to ensure compliance with Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act, in addition to review by the City and BCDC.

1.3 Existing Plans and Other Areas

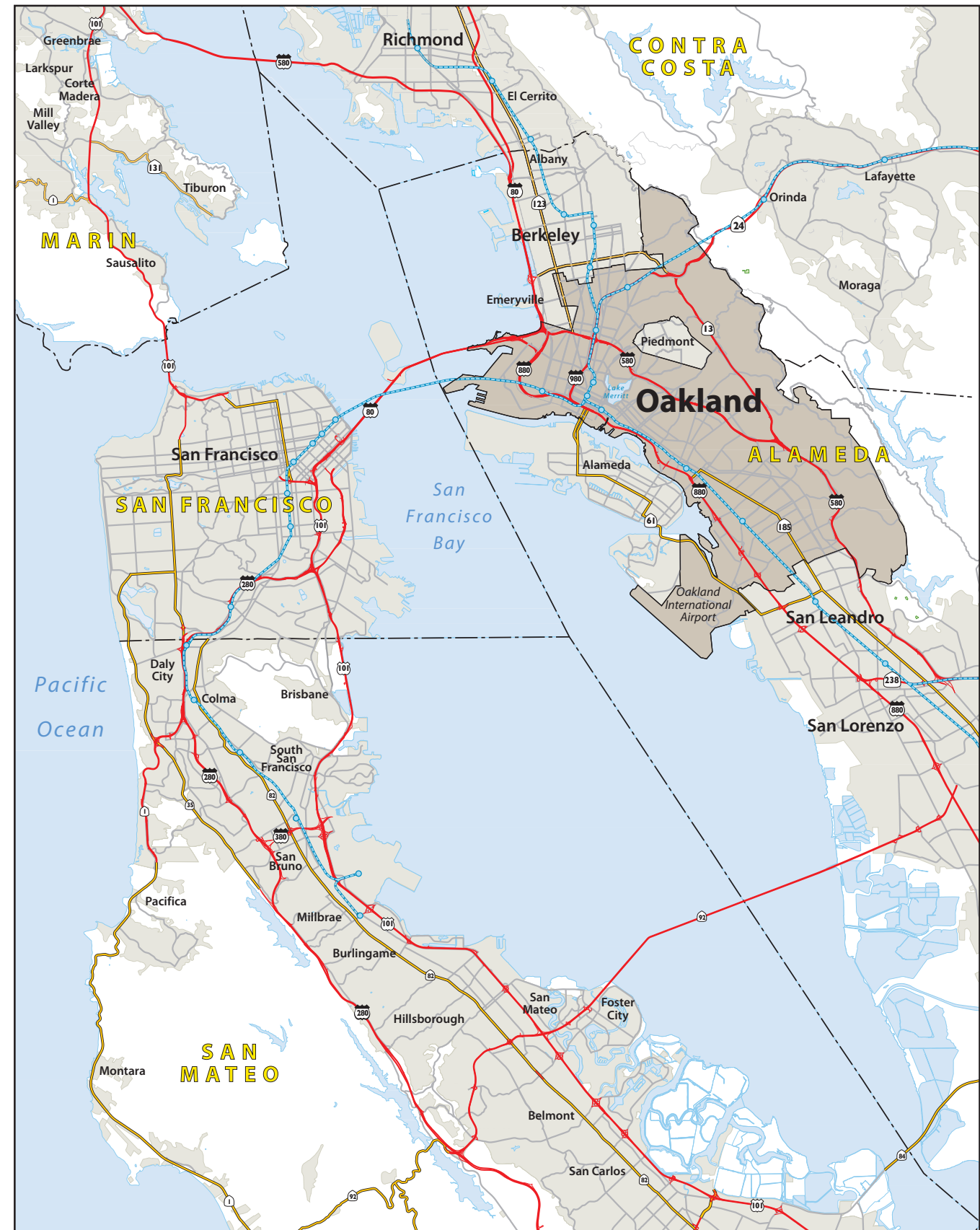
EXISTING CITY OF OAKLAND GENERAL PLAN

The current City of Oakland General Plan Elements were last updated and adopted at different dates. The OSCAR was adopted in 1996, the LUTE was adopted in 1998, the Estuary Policy Plan was adopted in 1999 and amended in 2013, the Safety Element was adopted in 2004 and amended in 2012, the Noise Element was adopted in 2005, and the current Housing Element was adopted in 2014. Some key topics addressed in the General Plan include the attraction and retention of businesses, accommodating a growing population, and meeting the transportation needs for the subset of the population without cars (25 percent at the time of publication). The Oakland Bike Plan (2019) and Pedestrian Plan (2017) were later adopted as part of the Circulation Element contained within the LUTE.

Figure 1-1: Regional Setting

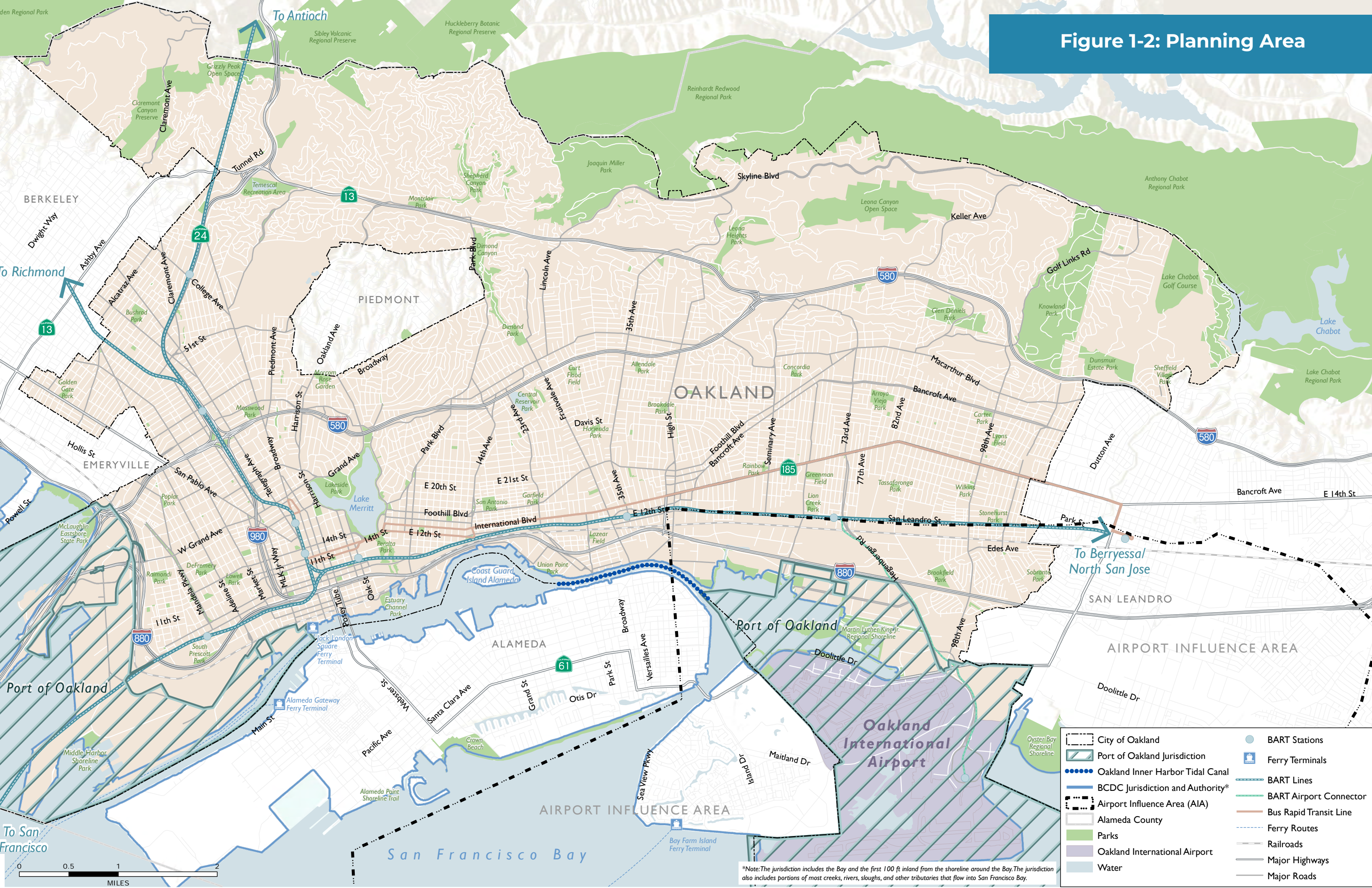


Regional Location



—●— BART — Freeway — State Route — Major Road

Figure 1-2: Planning Area



*Note: The jurisdiction includes the Bay and the first 100 ft inland from the shoreline around the Bay. The jurisdiction also includes portions of most creeks, rivers, sloughs, and other tributaries that flow into San Francisco Bay.

Oakland’s city limits extend to approximately midway along the Oakland Estuary that lies between Oakland and the City of Alameda. The Estuary Policy Plan (1999), the Land Use Element for much of the land along the Oakland Estuary, guides development along Oakland’s waterfront between Adeline Street, I-880, 66th Avenue, and the estuary shoreline. The Estuary Policy Plan preserves existing industrial areas while furthering Jack London Square as a dining and entertainment district, expanding open space access along the shoreline, and planning for mixed-use residential districts. The estuary area includes both City of Oakland and Port of Oakland jurisdictional areas, so the Estuary Policy Plan is a key document in balancing the roles of these agencies.

SPECIFIC PLANS

Five adopted Specific Plans provide greater specificity for future development and public improvements for several neighborhoods within Oakland. In addition, the City is currently completing the Downtown Oakland Specific Plan. These plans are summarized below, and the plan areas are shown on Figure 1-3. The General Plan Update provides an opportunity to revisit specific plans as needed to reflect the updated community vision.

Downtown Oakland Specific Plan (In Progress)

The Downtown Oakland Specific Plan encompasses 930 acres of land bounded by the Oakland Estuary to the south, Lake Merritt to the east, I-980 to the west, and 27th Street/Grand Avenue to the north. This plan seeks to create policy guidance as Downtown Oakland continues to redevelop, focusing on economic opportunity, housing needs and homelessness, transportation, cultural arts, public space, and social equity.

Coliseum Area Specific Plan (2015)

The Coliseum Area Specific Plan seeks to transform 800 acres of underutilized land around the Oakland-Alameda County Coliseum (centered around I-880, north of Hegenberger Road) into a state-of-the-art district with a sports, entertainment, and science and technology focus.



In tandem with this goal, the plan seeks to expand employment opportunities, create a pedestrian-friendly environment, and provide housing. At the time this plan was prepared, the area was home to the Oakland Raiders and Golden State Warriors, both of which have since departed to locations outside Oakland, and the Oakland A’s, future plans for which are currently in flux.

West Oakland Specific Plan (2014)

The West Oakland Specific Plan is a comprehensive approach to developing vacant or underutilized commercial and industrial parcels in West Oakland, a 1,900-acre area bounded by I-580 to the north, I-980 to the east, and I-880 wrapping around the south and west. It additionally identifies necessary transportation improvements and seeks to improve the quality of life for residents by reducing blight and creating 22,000 living-wage jobs through the development of commercial, office, and industrial space. It also supports transit-oriented, mixed-use development around the West Oakland BART station to supply 1,325-2,300 new housing units.



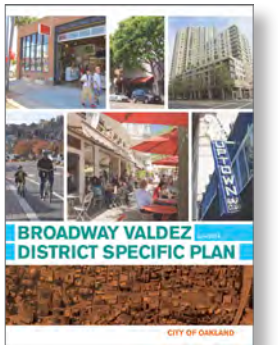
Lake Merritt Station Area Specific Plan (2014)

The Lake Merritt Station Area Specific Plan encompasses generally a half-mile radius around the Lake Merritt BART Station. This includes Chinatown, Laney College, the channel connecting Lake Merritt to the Oakland Estuary, and Oakland and Alameda County civic buildings. This plan seeks to: reduce auto use and increase multimodal transportation use (transit, biking, walking); increase housing near the BART station; streamline the real estate development process; increase jobs, services, and retail; support existing businesses; and increase recreational space.



Broadway Valdez District Specific Plan (2014)

The Broadway Valdez District Specific Plan includes approximately 95 acres, encompassing the Broadway corridor between West Grand Avenue and Interstate 580, including stretches of 27th and Valdez streets, where many of the City’s auto dealers were formerly located. The goal of this plan is to transform this area, located directly north of Downtown and near two BART stations, into a pedestrian-friendly retail and employment destination for the region. Additionally, the plan seeks to promote a diverse array of housing, medical services, and dining options.



Central Estuary Area Plan (2013)

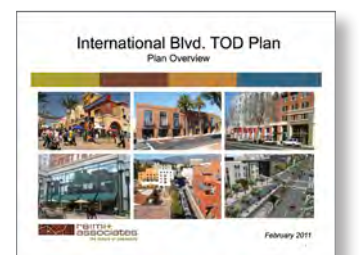
The Central Estuary Area Plan includes 416 acres and is composed of the estuary shoreline and surrounding neighborhoods, roughly from 19th Avenue south to 54th Avenue between the estuary (west) and I-880 (east). This plan was developed in response to increased development interest. The Plan addresses conflicting land use priorities and infrastructure deficiencies with the goal of developing a vibrant destination that supports a mix of uses. It recommends several transportation improvements and street redesigns for safer, pedestrian-oriented streets, and many objectives focus on public space and public access to the shoreline.



OTHER PLANS

International Boulevard Transit-Oriented Development (TOD) Plan (2011)

The International Boulevard TOD Plan is a transportation-focused plan that seeks to revitalize the once-bustling (during the early 20th century) International Boulevard corridor from 14th Avenue to the Oakland/San Leandro boundary. The impetus for the plan was the receipt of funding for a Bus Rapid Transit system along the corridor, which opened in 2020. The Plan includes assessing and realizing TOD projects for the corridor in tandem with citywide commercial and residential zoning code updates allowing for higher density development near transit hubs.



PLAN BAY AREA 2050

Plan Bay Area 2050 is the Association of Bay Area Government's (ABAG) and Metropolitan Transportation Commission's (MTC) long-range strategic plan focused on housing, the economy, transportation, and the environment. The Plan highlights four types of "Growth Geographies", including Priority Development Areas (PDAs) and Priority Production Areas (PPAs). Areas designated as PDAs will support future housing and job growth in the region, while areas designated as PPAs will support middle wage job growth in the region. The Plan also highlights Priority Conservation Areas (PCAs), which are regionally significant open spaces which have broad agreement for long-term protection.

PDA and PCA designations make Oakland eligible for targeted investment grants, such as the Federally funded One Bay Area Grant (OBAG). These grants may support a variety of projects, such as sustainable transportation improvements or enhancement of PCAs.

Priority Development Areas

The PDA program was created to meet regional housing needs in an equitable and sustainable way. PDAs are areas located near transit that are prioritized for developing new homes, jobs, and community amenities. This infill development minimizes impacts to the environment and enables future residents to take advantage of existing infrastructure, particularly transit. The areas were nominated by local governments for ABAG adoption.

Oakland has nine PDAs, which are shown on **Figure 1-3**:

- North Oakland/Golden Gate
- MacArthur Transit Village
- West Oakland
- Downtown & Jack London Square
- San Antonio
- MacArthur Blvd Corridor
- Fruitvale & Dimond Areas
- Eastmont Town Center/International Blvd TOD
- Coliseum BART Station Area

Priority Production Areas

PPAs are nominated for ABAG adoption by the local city council or board of supervisors to retain industrial land in key locations to support networks of production, advanced manufacturing, distribution, and repair services. The goal is to expand the number of middle wage jobs located near affordable housing. Oakland has two PPAs, shown on Figure 1-3: the Port of Oakland and Oakland Airport.

Priority Conservation Areas

Priority Conservation Areas (PCAs) are areas of regional significance that have an urgent need for protection. These areas provide important agricultural, natural resource, historical, scenic, cultural, recreational, and/or ecological values and ecosystem functions. PCAs are designated to accelerate protection of key natural lands in the San Francisco Bay Region through purchase or conservation easements. The areas were nominated by local jurisdictions and non-profit conservation groups for ABAG adoption. Oakland has 13 PCAs, which are shown on **Figure 1-3**:

- Potential Oakland Gateway Area
- Oakland Priority Estuaries
- Oakland Priority Creek Trails
- Oakland Priority Creeks
- East Bay Greenway
- Oakland Urban Greening
- Temescal Creek/North Oakland
- Oakland Natural Landscapes
- Oakland Recreational Trails
- Butters Canyon/Headwaters of Peralta Creek
- Ridgemont West
- Leona Canyon Creek Tributaries
- South Hills/San Leandro Creek

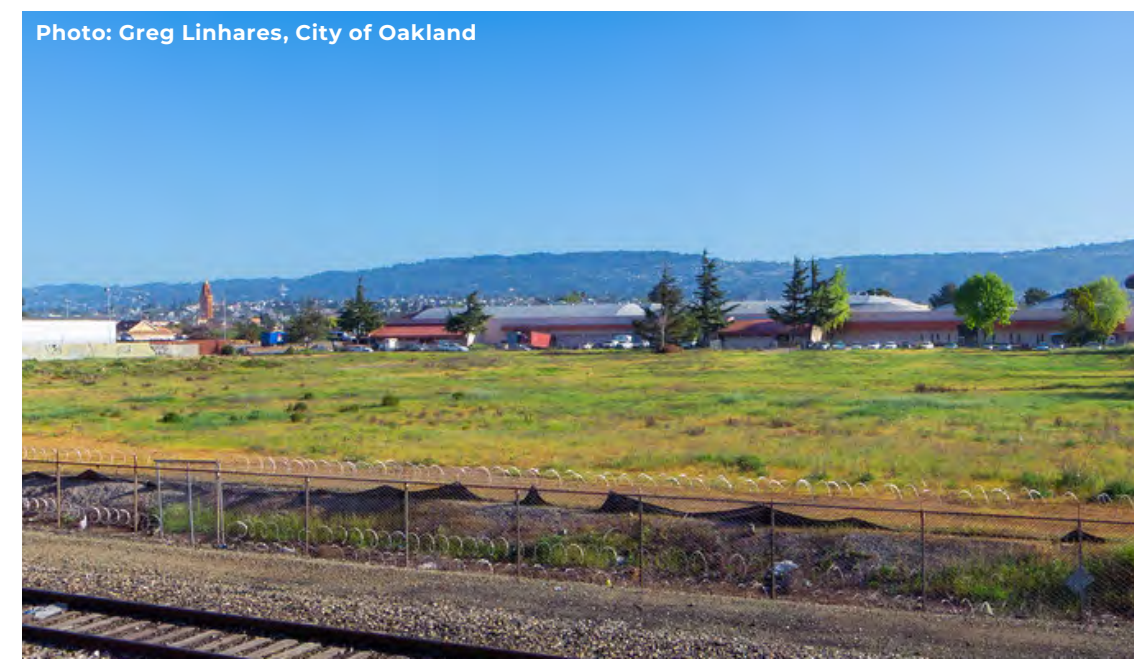
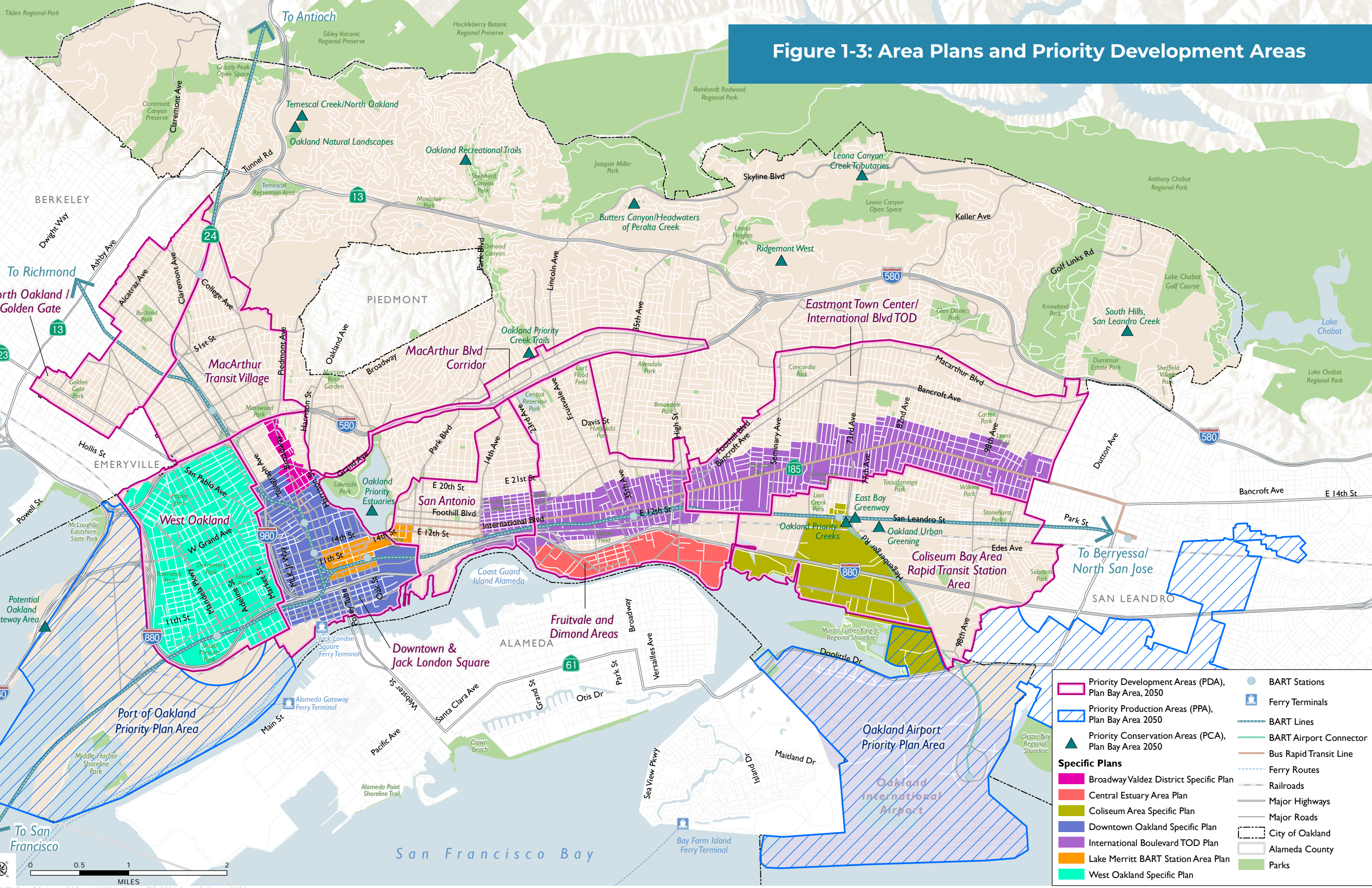


Figure 1-3: Area Plans and Priority Development Areas



Priority Development Areas (PDA), Plan Bay Area, 2050	BART Stations
Priority Production Areas (PPA), Plan Bay Area 2050	Ferry Terminals
Priority Conservation Areas (PCA), Plan Bay Area 2050	BART Lines
Broadway Valdez District Specific Plan	BART Airport Connector
Central Estuary Area Plan	Bus Rapid Transit Line
Coliseum Area Specific Plan	Ferry Routes
Downtown Oakland Specific Plan	Railroads
International Boulevard TOD Plan	Major Highways
Lake Merritt BART Station Area Plan	Major Roads
West Oakland Specific Plan	City of Oakland
	Alameda County
	Parks



02

LAND USE

- 2.1 Existing (On the Ground) Land Use**
- 2.2 Existing Land Use and Zoning Designations**
- 2.3 Recently Approved Development**
- 2.4 Existing Densities and Intensities**

2. Land Use

2.1 Existing (On the Ground) Land Use

Existing (on the ground) land uses were identified from City and County data and aerial photography. Oakland encompasses approximately 78 square miles (49,910 acres), including about 55.8 square miles of land and 22.2 square miles of water.

Figure 2-1 shows the pattern of existing (on the ground) land use in the City based on 2021 Alameda County Assessor data. **Table 2-1** shows the breakdown of existing land uses. “Mixed Use – Residential” includes any mixed-use parcel that is partly residential. “Mixed Use – Commercial” does not include any parcels with residential uses. The majority land use category is Residential (38 percent), particularly Single-Family Residential (28.3 percent), followed by Recreation and Open Space (29.9 percent), and then by Industrial (16.5 percent).

Oakland’s existing land use and development pattern reflects the City’s history and evolution. The City was incorporated in 1852, and the earliest development areas were Downtown and West Oakland. These areas have a strong grid pattern of streets. Downtown has a diverse mix of uses, including office and



general commercial uses, City and County administrative offices, courthouses and facilities such as the Main Library. Downtown features many entertainment venues, and while it was once a destination for department store shopping, it is now home to several vibrant restaurants and smaller retail shops. Downtown also includes a thriving Chinatown.

Soon after incorporation, Oakland was chosen as the western terminus of the Transcontinental Railroad, resulting in development of a major port and manufacturing establishments. The Port of Oakland, at the northern end of the waterfront, is the fourth largest container shipping port on the West Coast. The Oakland International Airport is at the southern end of the coastline. In between these two nodes, much of the estuary waterfront is lined with industrial establishments, with the exception of the Jack London District, where formerly industrial areas have been converted to retail, residential and entertainment uses, and Brooklyn Basin, a new master-planned residential development east of Estuary Park. Large concentrations of industrial uses extend inland in both West and East Oakland.

Commercial uses line the City’s major corridors, such as Telegraph Avenue and International Boulevard, many of which were previously streetcar lines. The former auto row along Broadway, proximate to Downtown, is being redeveloped with mid-rise residential and neighborhood commercial uses, facilitated by the Broadway-Valdez Specific Plan. As of March 2020, 1,605 units have been built. Downtown has also recently seen several new high-rise residential buildings.

Outside of Downtown, industrial areas, and the corridors, the dominant use is residential, arranged in many diverse neighborhoods, together with neighborhood commercial uses, parks and open spaces, and facilities such as schools. Oakland has significant concentration of high-density, mid-rise (three to five stories) residential uses around Lake Merritt, with the largest extent in the Adams Point area extending between Lake Merritt and Piedmont. Approximately 29 percent of the city’s population lives within a 1.5-mile radius centered on Children’s Fairyland next to Lake Merritt.



Oakland has several thriving neighborhood main streets and commercial areas with restaurants and cafés, neighborhood shopping, and small-scale retail uses. These include College Avenue in Rockridge, Lakeshore and Grand Avenues near Lake Merritt, Fruitvale Avenue, Chinatown, Montclair Village, and Jack London Waterfront District, as well as extensive neighborhood retail extending across multiple neighborhoods along East 12th Street, Telegraph and San Pablo avenues; Macarthur, Foothill, Park, and International boulevards. Commercial areas currently benefitting from focused investment include the 7th Street Corridor in West Oakland and the Seminary Point Shopping Center in East Oakland.

Across Oakland, many neighborhoods balance single- and multi-family buildings, while some are predominantly multi-family (such as Adams Point) and others are predominantly single-family (such as Maxwell Park). Densities are generally lower in areas of the hills because of the challenging topography and the substandard road network. There are several regional parks in the hills, as well as the Oakland Zoo and a municipal golf course (Lake Chabot).

Table 2-1: Existing Land Use Summary Table

EXISTING USE CATEGORIES	ACRES	PERCENTAGE
RESIDENTIAL	12535	38.0%
Single-Family Residential	9335	28.3%
Single-Family Residential - Attached	188	0.6%
Multi-Family Residential	2762	8.4%
Mobile Homes	4	0.0%
Mixed Use - Residential	246	0.7%
COMMERCIAL	1107	3.4%
Mixed Use - Commercial	14	0.0%
Service Stations	37	0.1%
Hotel, Motel, Lodging Commercial	104	0.3%
General Commercial	658	2.0%
Office	294	0.9%
INDUSTRIAL	5461	16.5%
General Industrial	1201	3.6%
Heavy Industrial	133	0.4%
Port	4126	12.5%
PUBLIC AND COMMUNITY FACILITIES	2664	8.1%
School/College/Educational Facility	1797	5.4%
Hospitals	70	0.2%
Religious/Institutional	298	0.9%
Assisted Living/Nursing Facility	35	0.1%

Cemetery/Mortuary	300	0.9%
Marina	165	0.5%
RECREATION AND OPEN SPACE	9865	29.9%
Parks, Recreation, & Open Space	4422	13.4%
Public	5443	16.5%
PARKING LOT/GARAGE	78	0.2%
VACANT	1312	4.0%
TOTAL	33022	100.0%



2.2 Existing Land Use and Zoning Designations

EXISTING GENERAL PLAN LAND USE DESIGNATIONS

Figure 2-2 shows the land use designations per the current LUTE (Inland area) and Estuary Policy Plan (Waterfront area). Downtown Oakland is primarily designated as Central Business District. Urban Residential and Community Commercial designations are found along major corridors throughout the flatlands. Lake Merritt to the north and east is surrounded by Urban Residential, and the Broadway Valdez District is primarily Community Commercial. North Oakland is largely Mixed Housing Type Residential, while West Oakland is a mix of Mixed Housing Residential, Business Mix, Urban Residential, and Housing and Business Mix. Much of East Oakland northeast of International Boulevard is Detached Unit Residential or Mixed Housing Type Residential. East Oakland southwest of International Boulevard is primarily a mix of Detached Unit Residential, Mixed Housing Type Residential, General Industry and Transportation, and Business Mix. The Oakland Hills are primarily designated Hillside Residential, Detached Unit Residential, Resource Conservation, and Urban Park and Open Space. Most of the Waterfront is designated General Industry and Transportation, Business Mix, and other industrial categories per the Estuary Policy Plan. The Port of Oakland and Oakland International Airport are designated General Industry and Transportation, while the Coliseum Area is primarily designated Regional Commercial.

Figure 2-1: Existing (On the Ground) Land Use

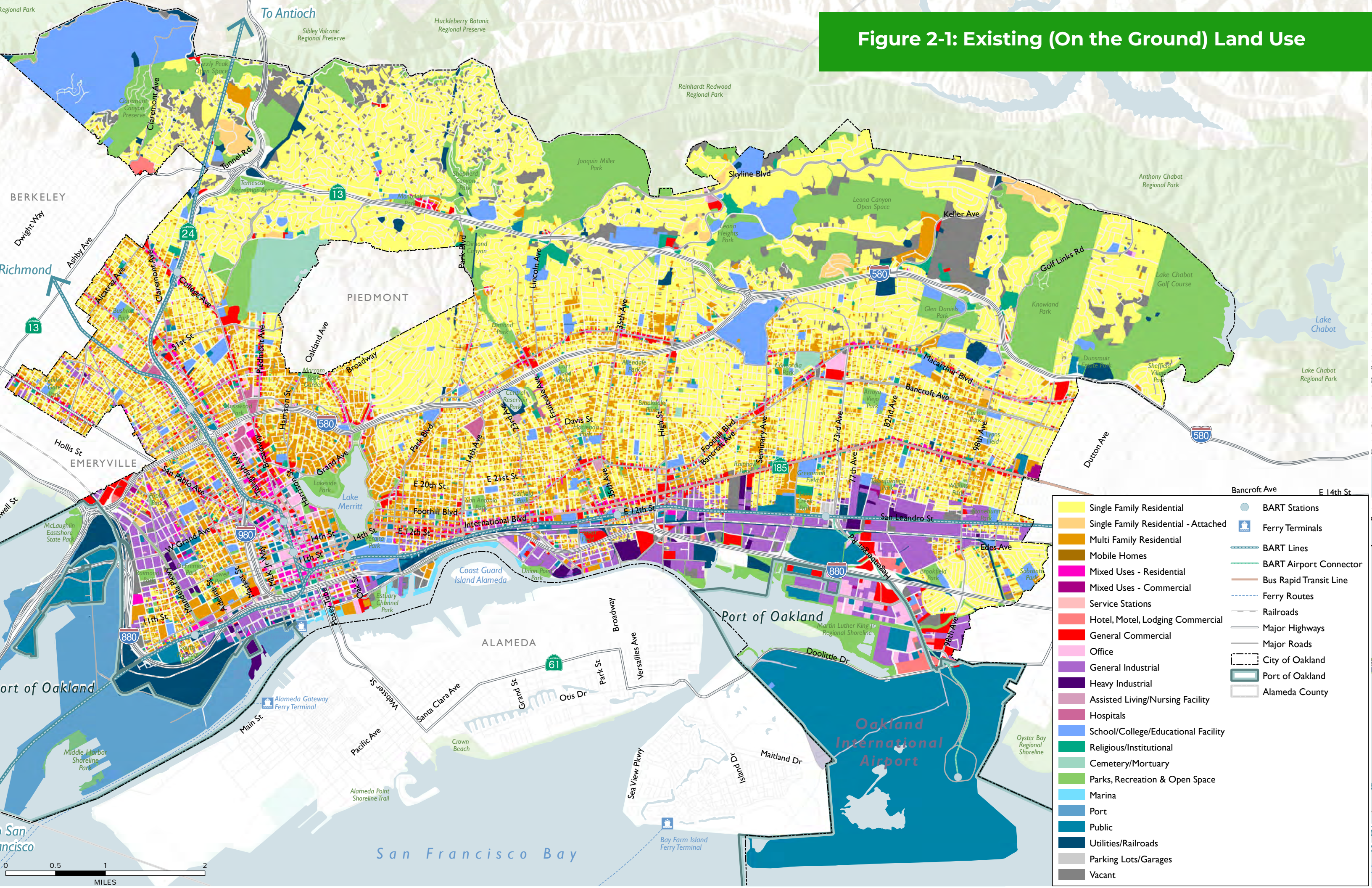
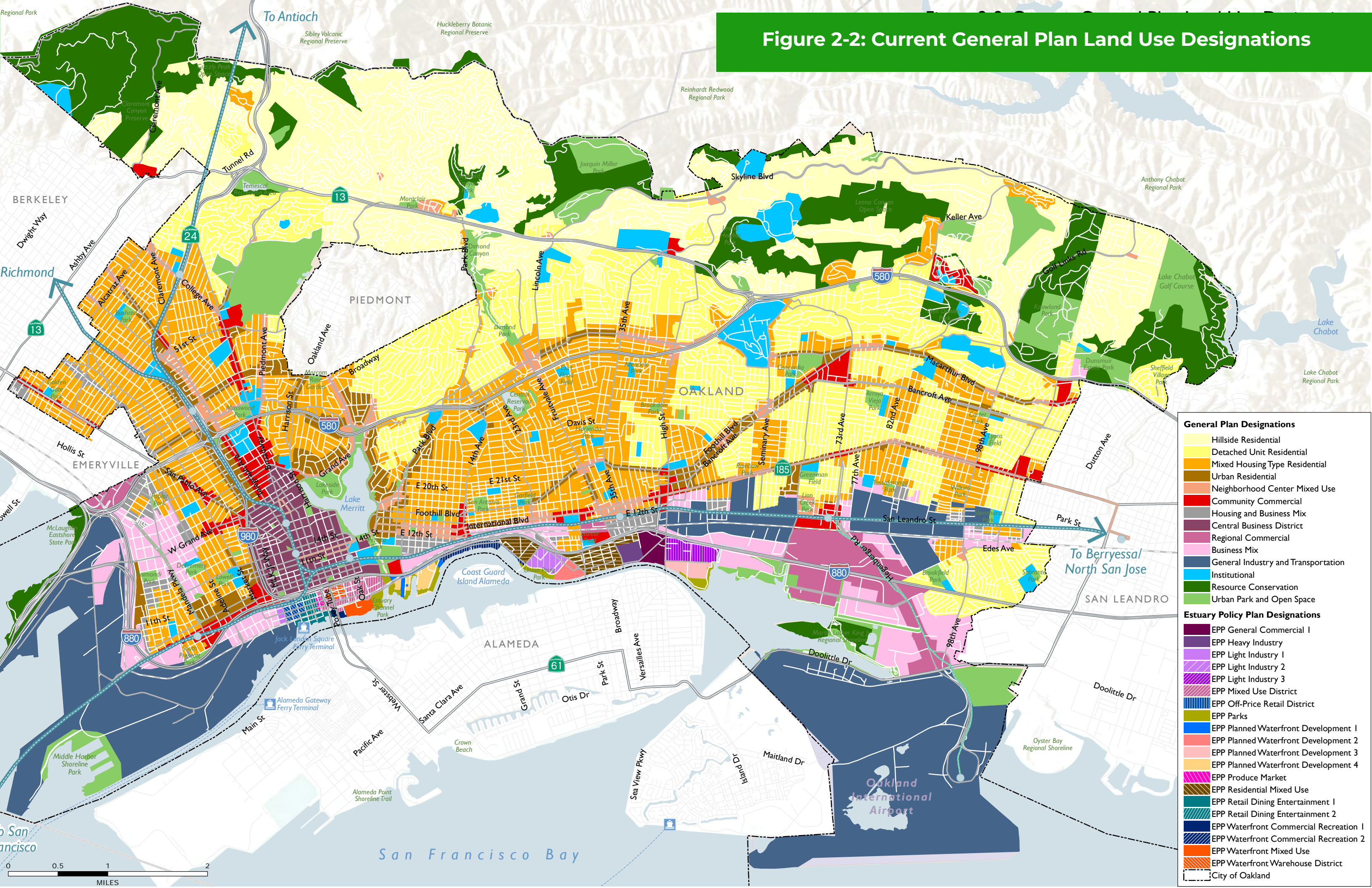


Figure 2-2: Current General Plan Land Use Designations



- General Plan Designations**
- Hillside Residential
 - Detached Unit Residential
 - Mixed Housing Type Residential
 - Urban Residential
 - Neighborhood Center Mixed Use
 - Community Commercial
 - Housing and Business Mix
 - Central Business District
 - Regional Commercial
 - Business Mix
 - General Industry and Transportation
 - Institutional
 - Resource Conservation
 - Urban Park and Open Space
- Estuary Policy Plan Designations**
- EPP General Commercial 1
 - EPP Heavy Industry
 - EPP Light Industry 1
 - EPP Light Industry 2
 - EPP Light Industry 3
 - EPP Mixed Use District
 - EPP Off-Price Retail District
 - EPP Parks
 - EPP Planned Waterfront Development 1
 - EPP Planned Waterfront Development 2
 - EPP Planned Waterfront Development 3
 - EPP Planned Waterfront Development 4
 - EPP Produce Market
 - EPP Residential Mixed Use
 - EPP Retail Dining Entertainment 1
 - EPP Retail Dining Entertainment 2
 - EPP Waterfront Commercial Recreation 1
 - EPP Waterfront Commercial Recreation 2
 - EPP Waterfront Mixed Use
 - EPP Waterfront Warehouse District
 - City of Oakland



Photo: Greg Linhares, City of Oakland

ZONING

Zoning implements the land use and other related policies put forth in the General Plan, as well as area and specific plans, through detailed development regulations. Zoning also regulates the form that development may take, and the land uses that are permitted in Oakland. **Figure 2-3** is a simplified zoning map for Oakland, and subsequent figures focus on residential, commercial, and industrial zoning gradation, respectively. While much of the City's zoning falls under "residential", "commercial", or "industrial", the first two categories sometimes allow for interchangeable uses. For instance, many commercial zones allow for residential on upper floors, while some residential uses permit or conditionally permit certain commercial uses.

Most of the City is zoned as Residential, with stretches of Commercial Zoning that also allows residential uses along its major corridors, and pockets of Open Space Zoning throughout, particularly in the hills. Zoning is more varied along Oakland's southwestern, waterfront edge. While a large portion of this area is zoned as Industrial to serve the Port, various area and specific plans guide the zoning in their corresponding districts: Central Estuary District, Lake Merritt Station Area District, and Coliseum Area District. Downtown Oakland is primarily designated as Central Business District. The Broadway Valdez District. Zoning has an emphasis on commercial retail with housing above and is explored in further detail below.

Figure 2-3A illustrates the gradation of residential density. High-Rise (mixed-use) and Urban Residential (also mixed-use, ranging from low-rise to high-rise) can be found along major corridors and streets in the flatlands, as well as clustered in denser areas,

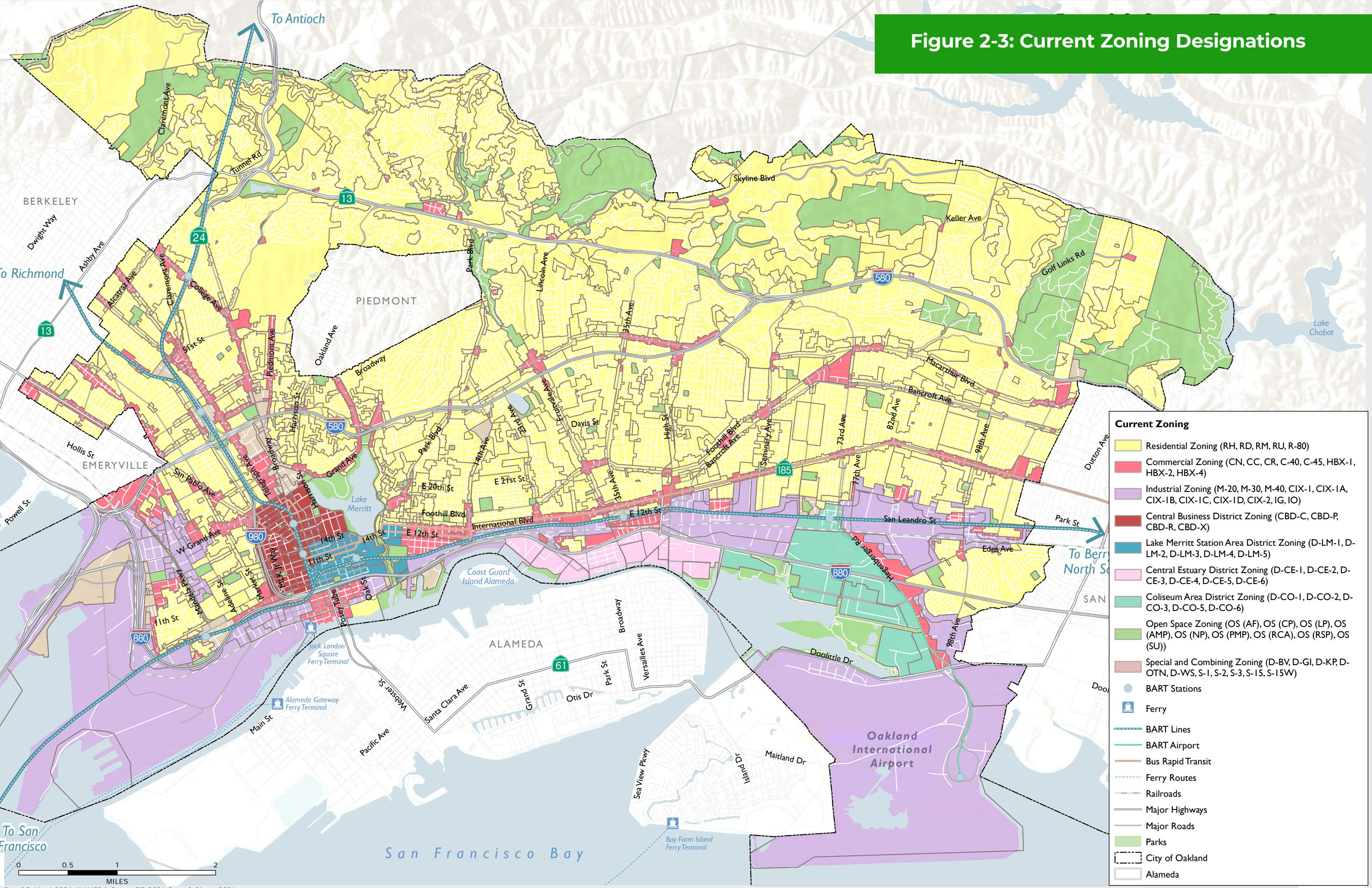
such as around Lake Merritt. Similar mixed-use and high-rise residential zoning can also be found within the special zoning districts of the Central Business District, Broadway-Valdez District, and Lake Merritt Station Area District. Mixed Housing Type is found in many of the neighborhoods of the flatlands; this zoning allows for a mix of residential types, ranging from single-family homes to small-unit multi-family buildings, as well as neighborhood businesses. Detached Unit Residential zoning can be found throughout much of East Oakland, as well as in residential neighborhoods bordering Piedmont and the Oakland Hills. While all Detached Unit Residential zoning categories allow for limited non-residential activities in existing older non-residential facilities that are scattered throughout the area, Detached Unit Residential zoning is primarily Single-Family, with Two-Family structures conditionally permitted in the RD-2 zone. Finally, Hillside Residential, which is large-lot, single-family zoning, characterizes most of the Oakland Hills.

Figure 2-3B shows the clusters of commercial zones across Oakland. Regional commercial uses are located near shipping ports, the airport, and railway. The Central Estuary District and Housing and Business Mix zones in Fruitvale/Jingletown and West Oakland are also located close to shipping and railway and support heavy commercial activities (mixed with other uses, such as live/work, industrial, and office). In Downtown Oakland, Central Business District and Lake Merritt Station Area District zoning supports pedestrian-oriented, ground-floor commercial uses with residential and office above. In the Jack London District, Community Shopping/Thoroughfare zones allow for pedestrian-oriented wholesale and retail commercial activities, typically clustered along major thoroughfares. Community Commercial

zoning is found primarily along major corridors in the flatlands, with CC-1 supporting shopping malls/centers and CC-2 allowing for businesses with direct frontage and access along major corridors. Neighborhood Center zoning can be found in pedestrian-oriented commercial districts meant to serve the nearby residents with daily needs. The Temescal District, Fruitvale District, areas along International Boulevard, and the Laurel District are a few examples.

Figure 2-3C illustrates the gradation of industrial intensity. The most intensive industrial uses are located primarily along Oakland's waterfront, near shipping terminals at the Port of Oakland, the I-880 freeway corridor, and along San Leandro Street. These areas are in Oakland's most permissive industrial zone "IG" General Industrial; example permitted activities include heavy/high impact manufacturing, recycling, and hazardous materials activities. The San Leandro Street industrial zones are located directly adjacent to residential and community uses (including elementary schools, libraries and parks), underscoring environmental justice issues that must be addressed. The companion Environmental and Racial Equity Baseline report explores these issues in depth. General manufacturing and warehousing activities are permitted in portions of the Fruitvale waterfront, Central Estuary, Coliseum area, and along the International Boulevard and Mandela Parkway area. Zones allowing light manufacturing maker/production uses (such as incubator spaces and art facilities) can be found in neighborhoods that also support residential uses, such as Jack London and West Oakland. Although the zoning currently prohibits heavy/high impact from the West Oakland neighborhood, significant "grandfathered" industrial businesses continue to operate today particularly north of West Grand Avenue.

Figure 2-3: Current Zoning Designations



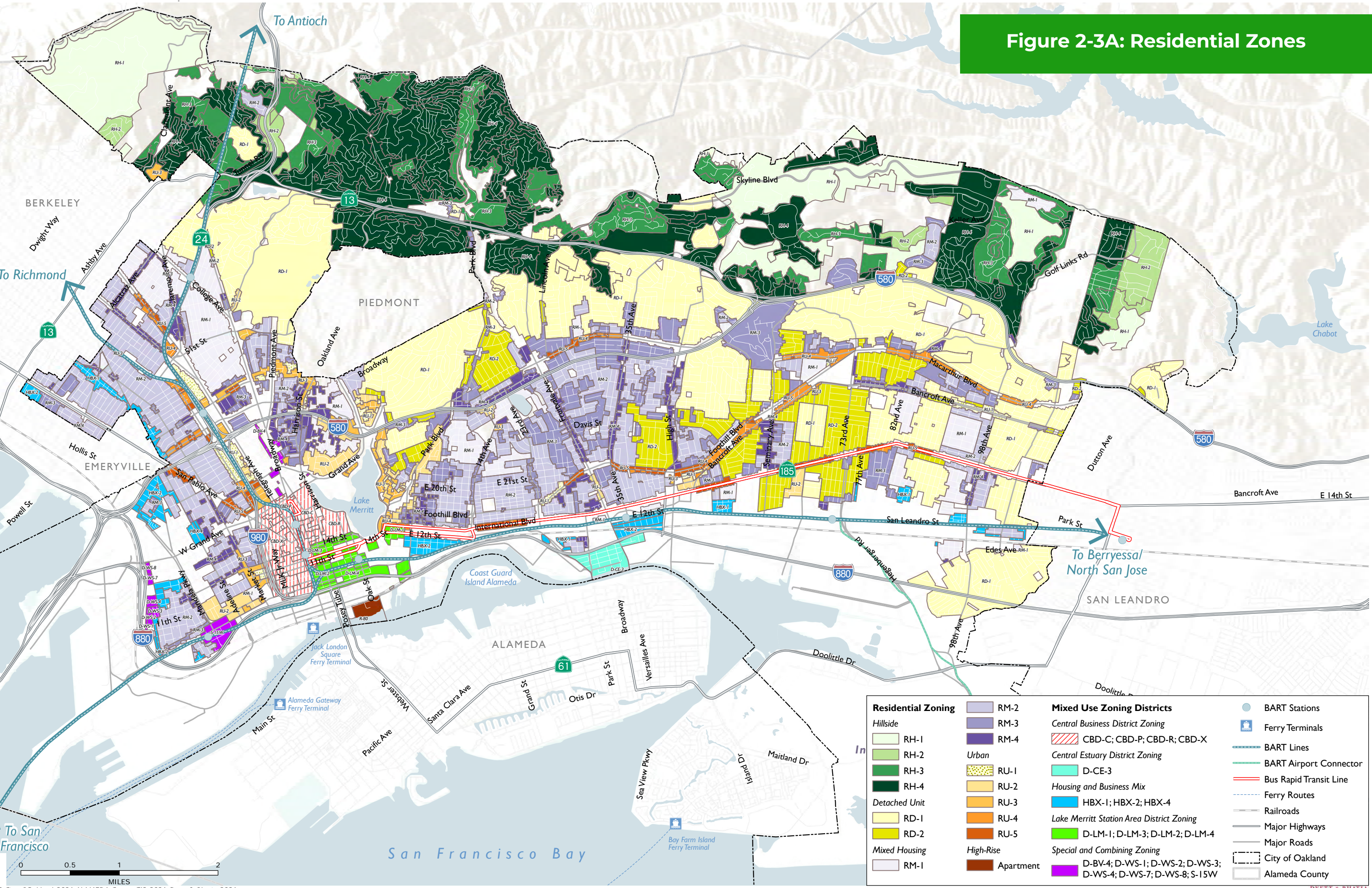
Current Zoning

- Residential Zoning (RH, RD, RM, RU, R-80)
- Commercial Zoning (CN, CC, CR, C-40, C-45, HBX-1, HBX-2, HBX-4)
- Industrial Zoning (M-20, M-30, M-40, CIX-1, CIX-1A, CIX-1B, CIX-1C, CIX-1D, CIX-2, IG, IO)
- Central Business District Zoning (CBD-C, CBD-P, CBD-R, CBD-X)
- Lake Merritt Station Area District Zoning (D-LM-1, D-LM-2, D-LM-3, D-LM-4, D-LM-5)
- Central Estuary District Zoning (D-CE-1, D-CE-2, D-CE-3, D-CE-4, D-CE-5, D-CE-6)
- Coliseum Area District Zoning (D-CO-1, D-CO-2, D-CO-3, D-CO-5, D-CO-6)
- Open Space Zoning (OS (AF), OS (CP), OS (LP), OS (AMP), OS (NP), OS (PMP), OS (RCA), OS (RSP), OS (SU))
- Special and Combining Zoning (D-BV, D-GI, D-KP, D-OTN, D-WS, S-1, S-2, S-3, S-15, S-15W)

BART Stations
 Ferry
 BART Lines
 BART Airport
 Bus Rapid Transit
 Ferry Routes
 Railroads
 Major Highways
 Major Roads
 Parks
 City of Oakland
 Alameda



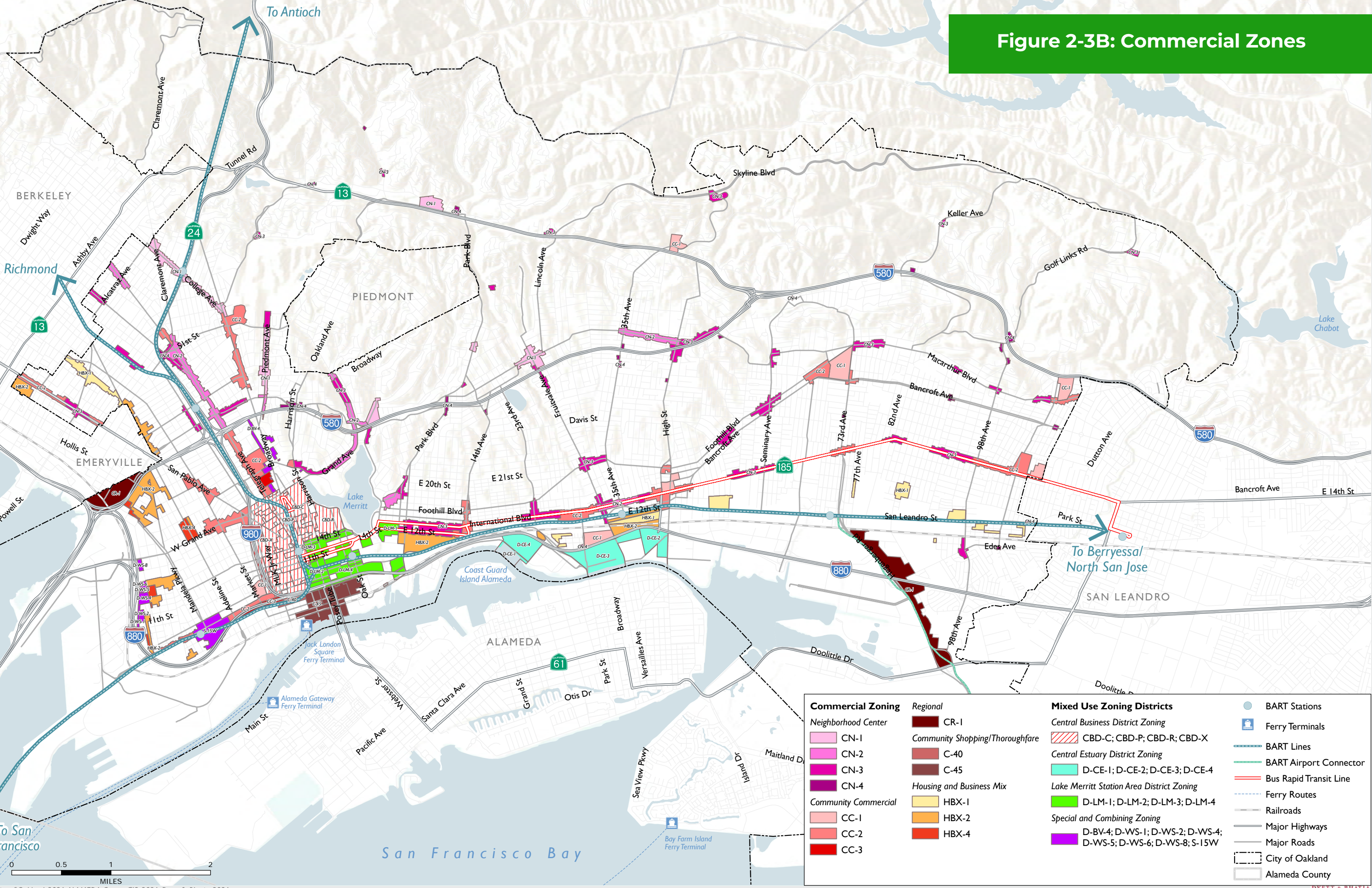
Figure 2-3A: Residential Zones



Residential Zoning		Mixed Use Zoning Districts		Transportation	
Hillside	RH-1	Central Business District Zoning	CBD-C; CBD-P; CBD-R; CBD-X	BART Stations	Blue circle
	RH-2	Central Estuary District Zoning	D-CE-3	Ferry Terminals	Blue square
	RH-3	Housing and Business Mix	HBX-1; HBX-2; HBX-4	BART Lines	Blue line
	RH-4	Lake Merritt Station Area District Zoning	D-LM-1; D-LM-3; D-LM-2; D-LM-4	BART Airport Connector	Green line
Detached Unit	RD-1	Special and Combining Zoning	D-BV-4; D-WS-1; D-WS-2; D-WS-3; D-WS-4; D-WS-7; D-WS-8; S-15W	Bus Rapid Transit Line	Red line
	RD-2			Ferry Routes	Blue dashed line
Mixed Housing	RM-1			Railroads	Grey line
	RM-2			Major Highways	Thick grey line
	RM-3			Major Roads	Thin grey line
	RM-4			City of Oakland	Dashed black line
Urban	RU-1			Alameda County	Dotted black line
	RU-2				
	RU-3				
	RU-4				
	RU-5				
High-Rise	Apartment				



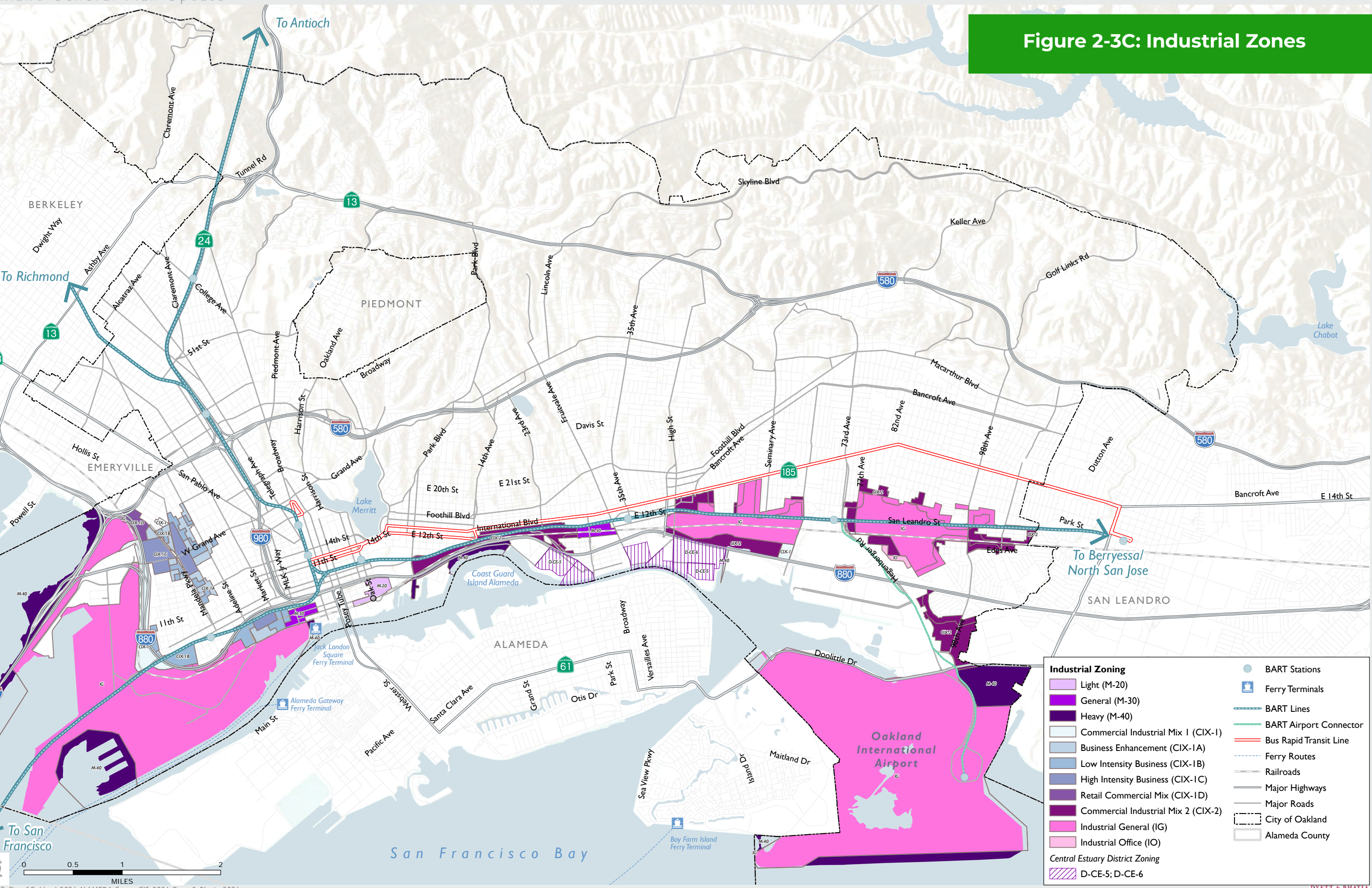
Figure 2-3B: Commercial Zones



Commercial Zoning		Regional	Mixed Use Zoning Districts		Transit & Infrastructure	
Neighborhood Center	CR-1	Community Shopping/Thoroughfare	CBD-C; CBD-P; CBD-R; CBD-X	BART Stations	Ferry Terminals	
<ul style="list-style-type: none"> CN-1 CN-2 CN-3 CN-4 	C-40	Central Business District Zoning	D-CE-1; D-CE-2; D-CE-3; D-CE-4	BART Lines		
Community Commercial	C-45	Central Estuary District Zoning	D-LM-1; D-LM-2; D-LM-3; D-LM-4	BART Airport Connector	Bus Rapid Transit Line	
<ul style="list-style-type: none"> CC-1 CC-2 CC-3 	Housing and Business Mix	Lake Merritt Station Area District Zoning	D-BV-4; D-WS-1; D-WS-2; D-WS-4;		Ferry Routes	
	<ul style="list-style-type: none"> HBX-1 HBX-2 HBX-4 	Special and Combining Zoning	D-WS-5; D-WS-6; D-WS-8; S-15W		Railroads	
					Major Highways	
					Major Roads	
					City of Oakland	
					Alameda County	



Figure 2-3C: Industrial Zones



Industrial Zoning	
	Light (M-20)
	General (M-30)
	Heavy (M-40)
	Commercial Industrial Mix 1 (CIX-1)
	Business Enhancement (CIX-1A)
	Low Intensity Business (CIX-1B)
	High Intensity Business (CIX-1C)
	Retail Commercial Mix (CIX-1D)
	Commercial Industrial Mix 2 (CIX-2)
	Industrial General (IG)
	Industrial Office (IO)
	Central Estuary District Zoning D-CE-5; D-CE-6

	BART Stations
	Ferry Terminals
	BART Lines
	BART Airport Connector
	Bus Rapid Transit Line
	Ferry Routes
	Railroads
	Major Highways
	Major Roads
	City of Oakland
	Alameda County

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2.3 Recently Approved Development

Figure 2-4 shows the locations of 128 recently approved residential, non-residential, and mixed-use development projects. Thirty-seven projects are non-residential, forty-six are mixed use, and forty-five are residential. Most projects are located in Downtown Oakland, Uptown Oakland, and the Estuary area. Approved projects can also be found across West Oakland, Temescal, and the Bus Rapid Transit corridor running through East Oakland, particularly near the Coliseum. In the southern foothills, Oak Knoll is a large residential project that will include a mix of single-family homes and townhouses.

From 2015 to 2021, 22 new projects with affordable housing were completed, totaling approximately 1038 affordable units. These projects are shown in **Figure 2-5**, and details for each project are shown in **Table 2-2**.



Table 2-2: Projects with Affordable Units, 2015-2021

PROJECT NAME	ADDRESS	YEAR BUILT ¹	TOTAL UNITS	AFFORDABLE UNITS ²	% AFFORDABLE
Prosperity Place	188 11th St	2015	71	70	99%
Acts Cyrene Apartments	9400 International Blvd	2015	59	58	98%
Embark Apartments	2126 MLK Jr Way	2017	62	62	100%
-	1680 14th Street	2017	26	2	8%
Alta Waverly	1680 Valdez St	2017	234	25	11%
Estrella Vista	3706 San Pablo Ave	2017	33	33	100%
Redwood Hill Homes	4856-68 Calaveras Ave	2017	28	27	96%
Civic Center 14 TOD	632 14th St	2017	40	39	98%
Maya Apartments	4045 Broadway	2018	47	4	9%
Casa Arabella	3611 E 12th St	2019	94	92	98%
Coliseum Connections	805 71st Ave	2020	110	55	50%
Camino 23	1245 23rd Ave	2020	37	36	97%
Inn @ Temescal (Homekey Project)	3720 Telegraph Ave	2021	22	21	95%
Skylyne at Temescal	3883 Turquoise Way	2021	402	45	11%
The Logan	5110 Telegraph Ave	2017	204	17	8%
Brooklyn Basin 2 (Vista Estero)	285 8th Ave	2021	110	109	99%
Brooklyn Basin 1 (Paseo Estero)	255 8th Ave	2021	101	100	99%
NOVA Apartments (aka Oak Hill)	445 30th St	2021	57	56	98%
Monarch Homes (aka 3268 San Pablo)	3268 San Pablo Ave	2021	51	50	98%
Aurora Apartments	3737 MLK Jr Way	2021	44	43	98%
-	1233 23rd Ave	2021	37	36	97%
Coliseum Place	3300 Hawley St	2021	59	58	98%
TOTAL			1,928	1,038	

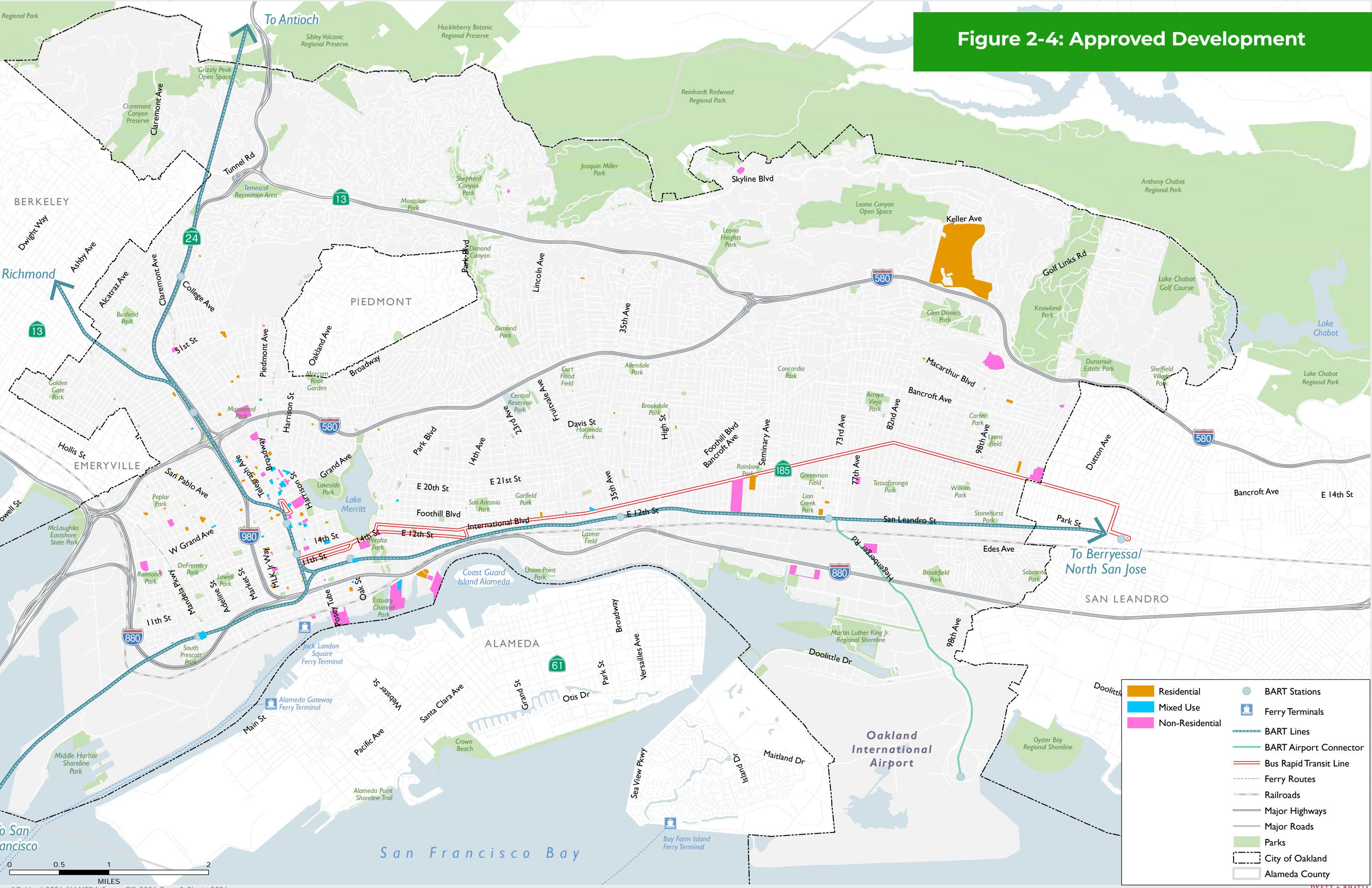
Notes:

1 "Year Built" refers to date of project completion as recorded in 2015-2017 Annual Progress Reports Table A and 2018-2021 Annual Progress Reports Table A2.

2 Affordable Units = Very Low (30-50% of Area Median Income) and Low-Income (50-80% of Area Median Income) Units

Source: City of Oakland Annual Progress Reports, 2015, 2016, 2017 (Table A); 2018, 2019, 2020, 2021 (Table A2)

Figure 2-4: Approved Development



- Residential
- Mixed Use
- Non-Residential
- BART Stations
- Ferry Terminals
- BART Lines
- BART Airport Connector
- Bus Rapid Transit Line
- Ferry Routes
- Railroads
- Major Highways
- Major Roads
- Parks
- City of Oakland
- Alameda County

Figure 2-5: Projects with Affordable Housing Units, Constructed 2015-2020



- Affordable Units, as % of Total**
- 100%
 - 95% - 99%
 - 50% - 95%
 - < 50%
 - BART Stations
 - Ferry Terminals
 - BART Lines
 - BART Airport Connector
 - Bus Rapid Transit Line
 - Ferry Routes
 - Railroads
 - Major Highways
 - Major Roads
 - City of Oakland
 - Alameda County
 - Parks

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2.4 Existing Densities and Intensities

RESIDENTIAL DENSITY

Figure 2-6 shows the currently existing residential density across the City. For residential uses, density is expressed as the number of dwelling units per acre. The highest residential densities are concentrated within a 1.5-mile radius of the City's core. Downtown has recently experienced some of the tallest residential building developments in the City and has many buildings with densities above 200 units/acre. The Jack London and Broadway Valdez districts both feature many new mid-rise residential buildings, including some in the 100-200 units/acre category, and Adams Point and other neighborhoods around Lake Merritt feature older mid-rise residential buildings, with many between 40 and 100 units/acre. Thirty-six percent of Oakland's total housing units are found within a one and a half mile radius of Lake Merritt, as shown in **Figure 2-7**. North Oakland, West Oakland and East Oakland are primarily mid-low density at 8-20 units/acre, with clusters of denser buildings, and densities gradually decrease towards the Hills. Most of the southern Oakland Hills, east of I-580, is characterized by the lowest density (up to four units/acre), while most of the northern Oakland Hills, east of Highway 13, is 4-8 units/acre.

Chart 2-1 summarizes the City's land acreage by density, while **Chart 2-2** summarizes the City's units by density. While the lowest density category (up to 4 units/acre; found only in Hills and adjacent neighborhoods) comprises 20.49 percent of the City's residential acreage, it supplies only 2.91 percent of the City's units; similarly, while nearly a quarter of the City's residential land is 4-8 units/acre (primarily in the Hills) this category supplies only 10.56 percent of the City's units. The largest portion of residential land (37.87 percent) falls into the 8-20 units/acre category, consistent with the fact that this category is abundant in North, West, and East Oakland; 31.02 percent of the City's units fall into this density category. The highest-density category (above 200 units/acre; found primarily in Downtown) only comprises 0.24 percent of the City's residential land yet it supplies nearly five percent of the City's units.

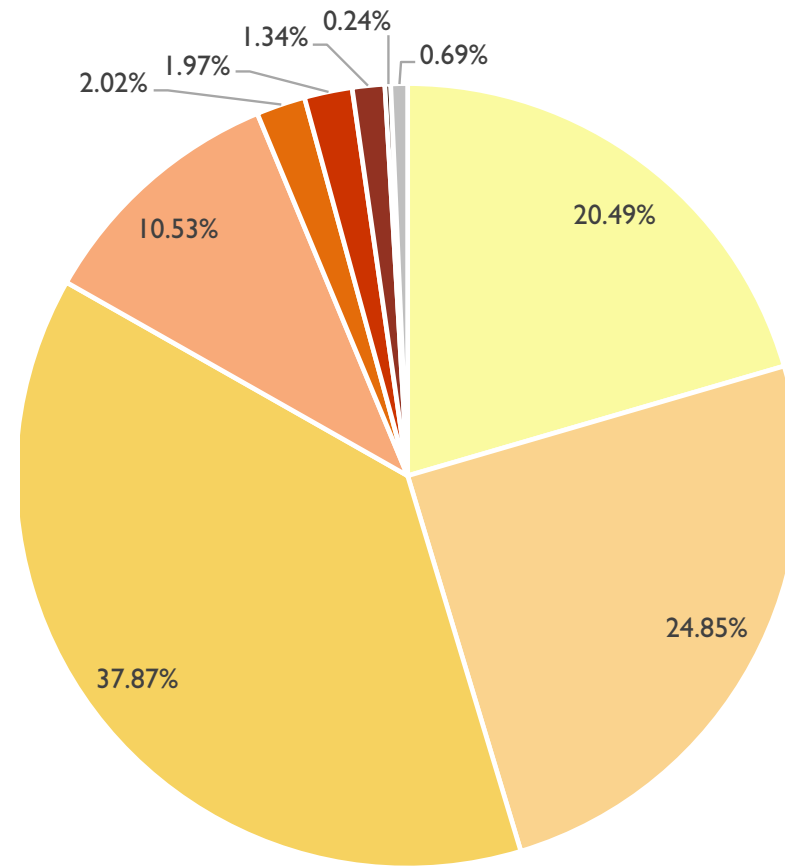


Chart 2-1: Percent Land Acreage by Residential Density

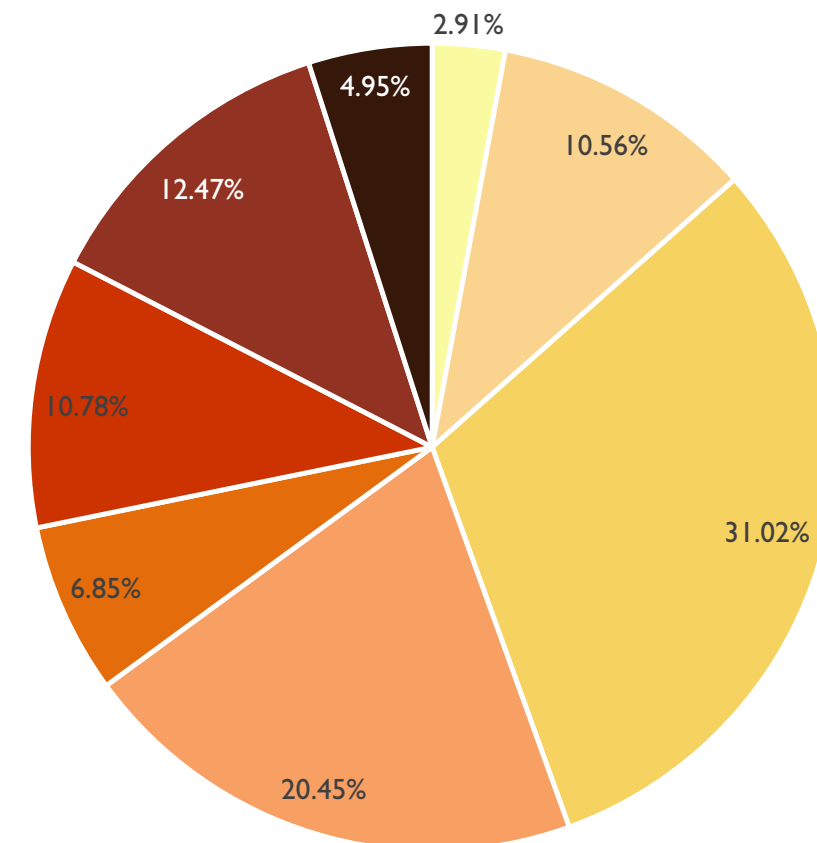
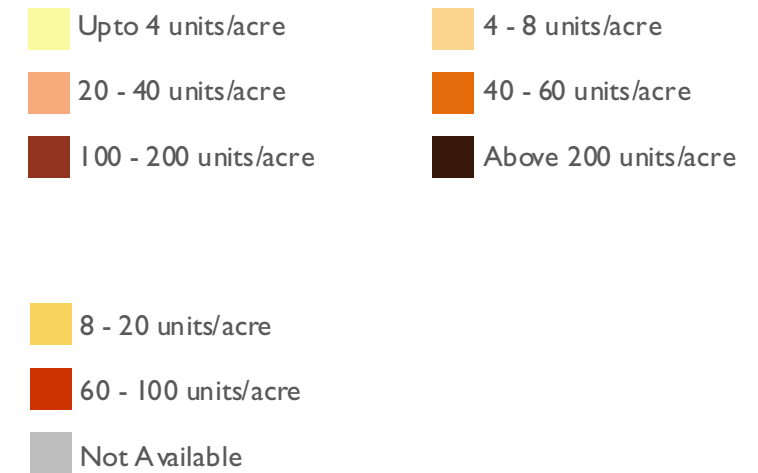


Chart 2-2: Percent Units by Residential Density

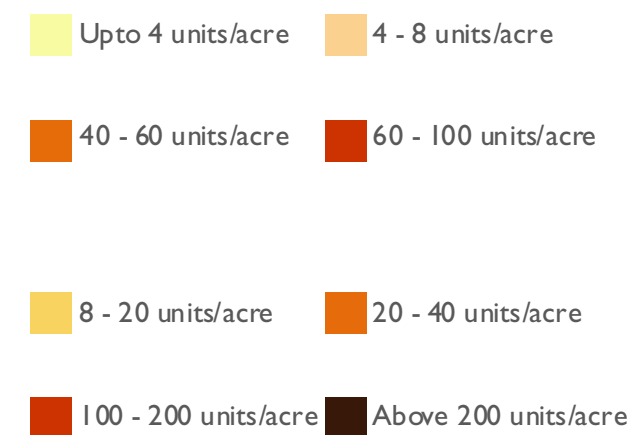


Figure 2-6: Existing Residential Density

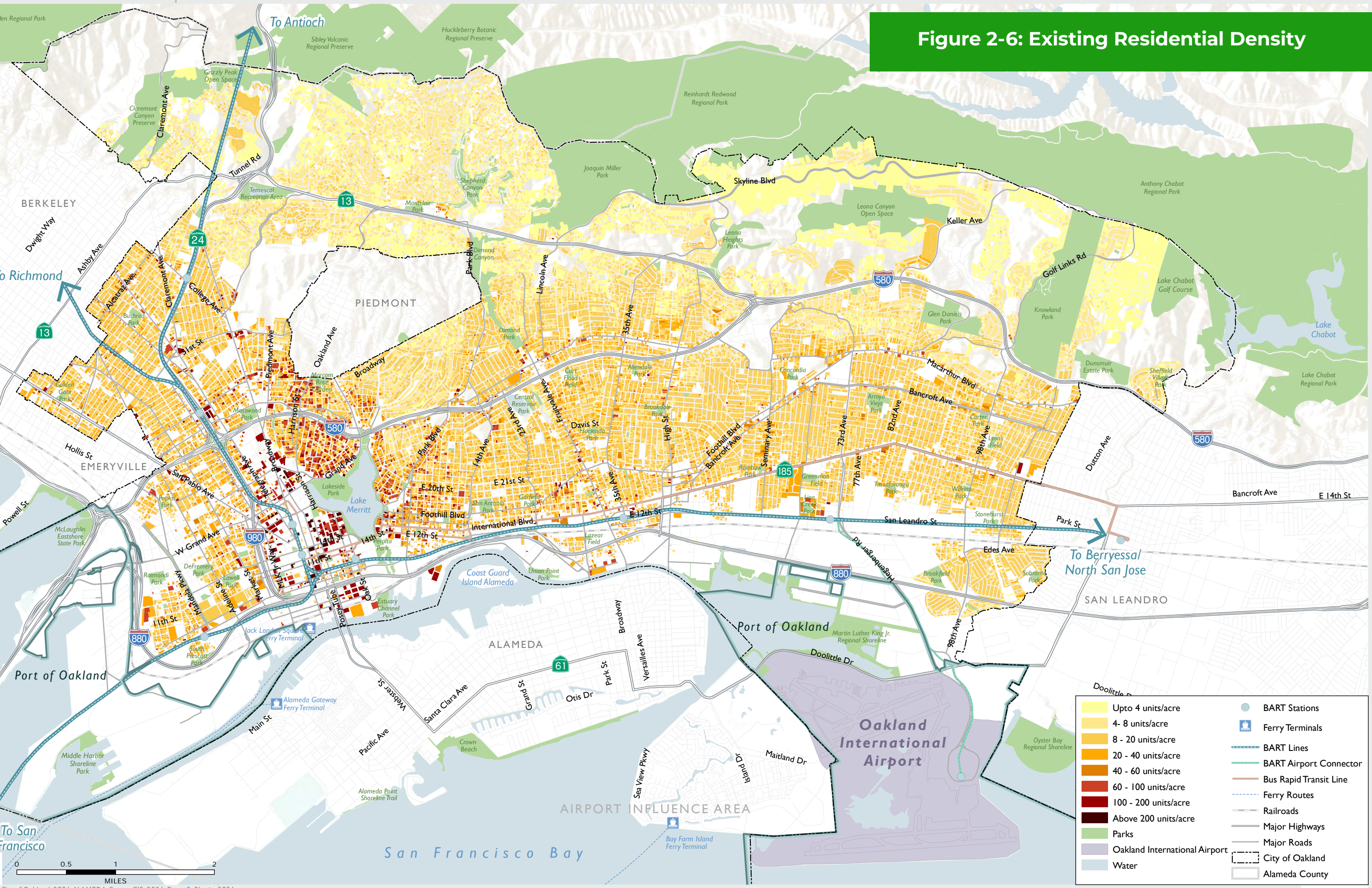
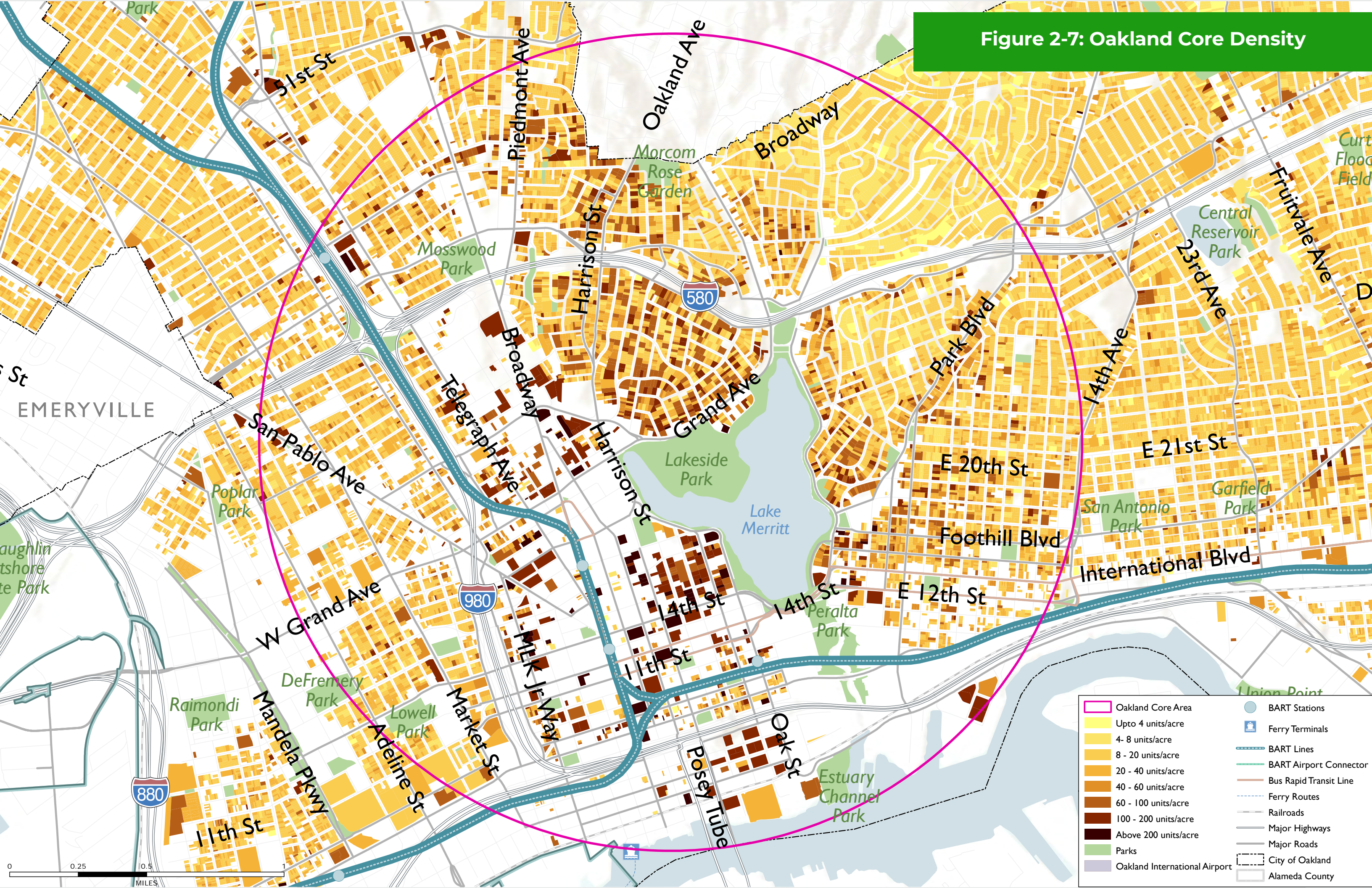


Figure 2-7: Oakland Core Density



- | | |
|-------------------------------|------------------------|
| Oakland Core Area | BART Stations |
| Upto 4 units/acre | Ferry Terminals |
| 4 - 8 units/acre | BART Lines |
| 8 - 20 units/acre | BART Airport Connector |
| 20 - 40 units/acre | Bus Rapid Transit Line |
| 40 - 60 units/acre | Ferry Routes |
| 60 - 100 units/acre | Railroads |
| 100 - 200 units/acre | Major Highways |
| Above 200 units/acre | Major Roads |
| Parks | City of Oakland |
| Oakland International Airport | Alameda County |

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Chart 2-3: Percent Land Acreage by Intensity

NON-RESIDENTIAL INTENSITY

The intensity of non-residential development (office, commercial, and industrial) in Oakland is shown in **Figure 2-8**. Development intensity is expressed as Floor Area Ratio (FAR), which refers to the ratio between a building’s total floor area and the total area of the site (excluding any area devoted to parking). For instance, a one-story building occupying half of a parcel has an FAR of 0.5; a two-story building occupying the same half of a parcel has an FAR of 1.0. In Oakland, the highest intensity uses (5.0 FAR and greater) are in Downtown and Uptown. Mid-high level intensities (0.5-10.0 FAR) can be found in the Jack London District and Broadway Valdez District. Mid-low level intensities (0.3-2.0 FAR) can be found in West Oakland, Jingtletown, southwest of San Leandro Street around the Coliseum, and clustered around San Leandro Street between 77th and 98th avenues. Lowest intensity uses (0.15-1.0 FAR) are located primarily along major commercial corridors in North and East Oakland.

Chart 2-3 below summarizes the City’s land acreage by intensity. Nearly a third of the City’s land used for non-residential purposes falls within a FAR of 0.5-1.0 and a fifth falls within a FAR of 0.30-0.50, suggesting much of Oakland’s land is dedicated to low intensity uses. There are 1,333 parcels (approximately 15 percent of the City’s non-residential building acreage) for which the building square footage is not reported in the County Assessor’s data.

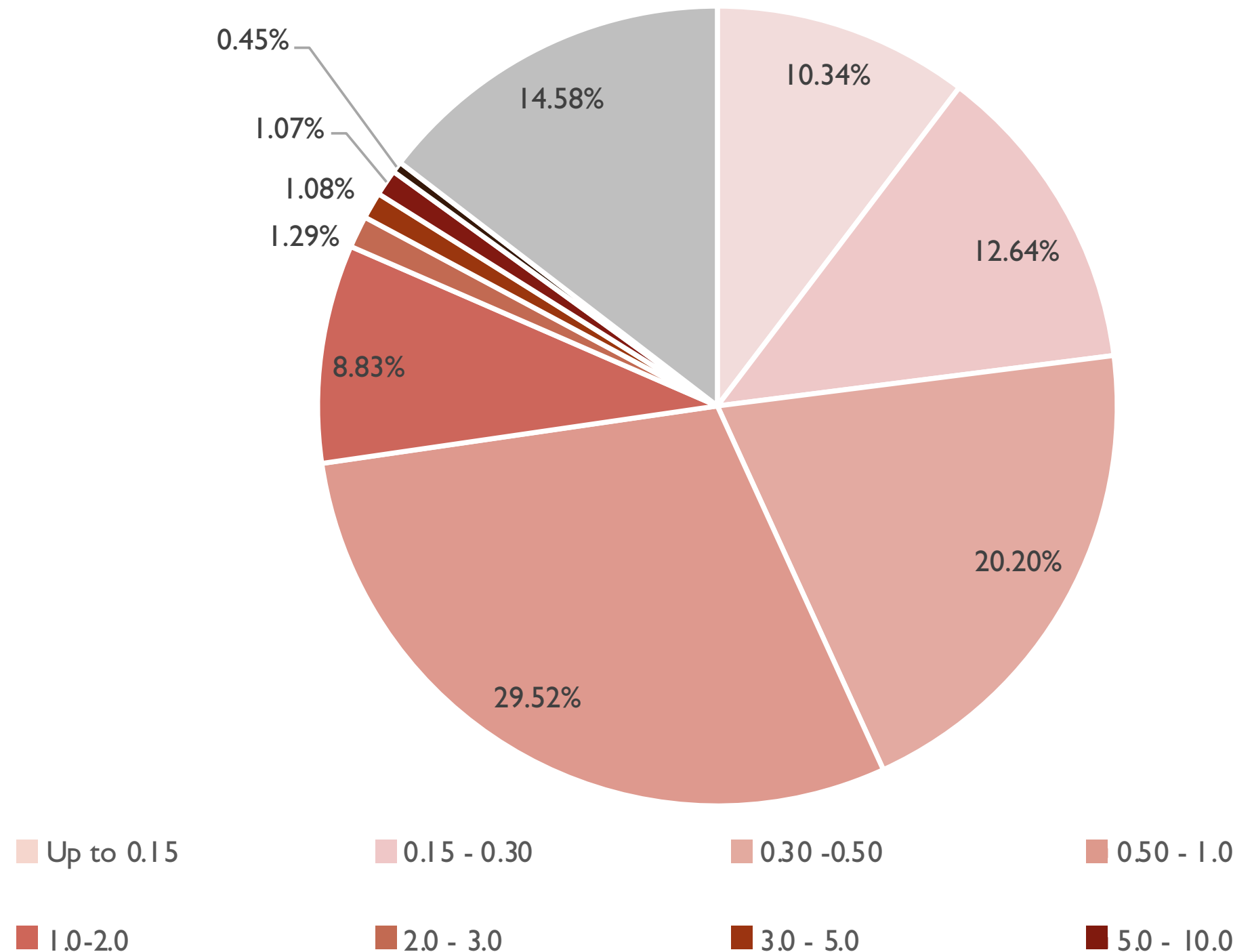
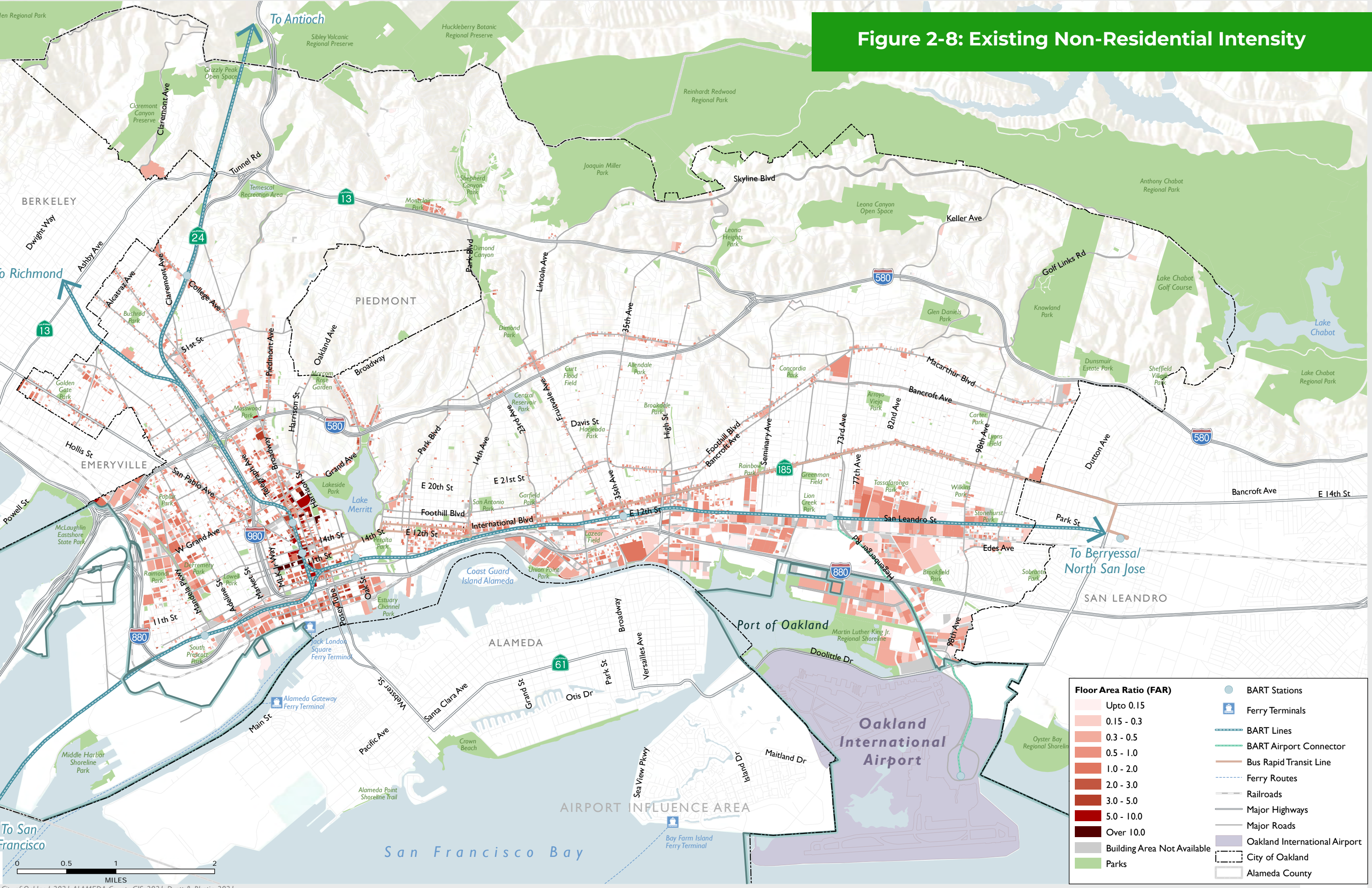


Figure 2-8: Existing Non-Residential Intensity



03

MOBILITY

- 3.1 Context**
- 3.2 Street Network**
- 3.3 Transit**
- 3.4 Planned Regional Improvements**
- 3.5 Bicycle and Pedestrian Facilities Network**
- 3.6 Goods Movement**

3. Mobility

3.1 Context

TRAVEL PATTERNS

Travel patterns for trips to and from Oakland were analyzed to understand existing travel characteristics and to inform needs and priorities that will shape General Plan policies. The analysis was completed using the Alameda Countywide Model¹ to estimate Year 2020 non-pandemic trip patterns.

MODE SHARE

Table 3-1 summarizes the estimated mode split for trips beginning or ending in Oakland in 2020 under pre-pandemic conditions. The analysis was completed separately for High Equity Priority Neighborhoods (defined by Oakland Department of Transportation, “OakDOT”, as neighborhoods with higher percentages of people of color, low-income households, people with disabilities, seniors, single-parent families, severely rent-burdened households, and low educational attainment) and the rest of Oakland to identify equity-related differences in travel patterns. OakDOT has classified the Priority Neighborhoods into five levels of priority between lowest and highest. For the purpose of this analysis, High Equity Priority Areas refers to the neighborhoods classified as high or highest in the Oakland Equity Map.²

Drive alone trips make up almost half of all travel within Oakland, with trips by auto (drive alone and shared ride) making up approximately three quarters of all trips. Transit, biking, and walking make up slightly less than a quarter of all trips.

¹ Alameda Countywide Transportation Model was developed in 2015 (prior to the Covid-19 pandemic). The Year 2020 refers to the forecast horizon year for the model. More information can be found here: https://www.alamedactc.org/wp-content/uploads/2018/12/AlamedaCTC_ModelDocumentation_FinalReport_20151109-2.pdf

² Oakland Equity Map: <https://oakgis.maps.arcgis.com/apps/MapSeries/index.html?appid=fd47784582294d7b87c9b3ee1b047ea8>

For High Equity Priority Areas within Oakland, there are fewer drive alone trips and a higher share of shared ride trips. However, there is no significant difference in mode split between these areas and other areas of Oakland.

TRIP DESTINATIONS

Trips to and from Oakland were analyzed to understand existing travel patterns for those who live, work, and visit Oakland. **Table 3-2** summarizes trip destinations for trips beginning in Oakland in 2020 under pre-pandemic conditions. The analysis was completed separately for High Equity Priority Areas and rest of Oakland to identify equity-related differences in travel patterns.

For non-work travel, roughly two-thirds of trips that begin in Oakland also end within the City limits. For work trips made by Oakland residents, less than half remain in Oakland, reflecting travel to San Francisco and other Bay Area destinations.

Table 3-1: Mode Share for Trips Beginning or Ending in Oakland

TRAVEL MODE	HIGH EQUITY PRIORITY AREAS	REST OF OAKLAND
Drive Alone	40%	46%
Shared Ride	34%	30%
Transit	12%	11%
Bike	2%	2%
Walk	12%	11%
Total	100%	100%

Source: Alameda Countywide Travel Model, Plan Bay Area 2040 version, May 2019; Kittelson & Associates, Inc.



Table 3-2: Trip Destinations for Trips Beginning in Oakland

DESTINATION	HOME TO WORK TRIPS		NON-WORK TRIPS	
	HIGH EQUITY PRIORITY AREAS	REST OF OAKLAND	HIGH EQUITY PRIORITY AREAS	REST OF OAKLAND
Oakland	41.90%	39.20%	67.50%	62.20%
Alameda County Other	29.40%	27.10%	19.40%	20.00%
San Francisco	16.10%	21.20%	7.40%	10.30%
San Mateo County	2.80%	2.80%	0.50%	0.40%
Santa Clara County	1.90%	1.80%	0.40%	0.30%
Contra Costa County	4.00%	4.80%	3.30%	5.30%
North Bay	3.90%	3.20%	0.70%	0.80%
Outside Bay Area	0.10%	0.10%	0.80%	0.60%
Total	100%	100%	100%	100%

Source: Alameda County Model, 2020



integrated safety and equity-driven approach. The Safe Oakland Streets Initiative was launched in 2021 as a partnership between Oakland Department of Transportation, Oakland Police Department, Department of Race and Equity, and the City Administrator's Office; more information can be found at www.oaklandca.gov/SOS.

Table 3-3: Traditional Traffic Safety Approach vs. Safe Oakland Streets Approach

TRADITIONAL APPROACH	SAFE OAKLAND STREETS (SOS) APPROACH
Focus on all crashes	Focus on fatal and severe injury crashes, and eliminating inequities
Individual responsibility	Safe System that Protects the Most Vulnerable
Perfecting human behavior	Anticipate that people make mistakes and have a range of abilities
Agencies working in silos	Interdepartmental coordination is a valuable asset
Community engagement is too time consuming	We must engage with communities most impacted
Complaint-driven improvements	Strategic investments where sever injuries are concentrated, in areas of historic underinvestment

Source: City of Oakland, 2021

The High Equity Priority Areas show more travel within Oakland and Alameda County compared to the rest of Oakland, suggesting the importance of mobility options for shorter-distance trips.

ACTIVE TRANSPORTATION AND MICROMOBILITY

Planning for people walking and bicycling has changed significantly since the adoption of Oakland's Land Use and Transportation Element in 1998. More recent planning efforts have been shaped by a new focus on health, equity, and safety.

The following summarizes these changes by discussing Oakland's Bicycle and Pedestrian Plans, shifting local and state policy priorities, and the emergence of micromobility.

Oakland Walks (2017)

Oakland's Pedestrian Plan, Oakland Walks, centers pedestrian planning, policy, and programming around safety and equity. Acknowledging the racial disparities in pedestrian-involved collisions and the importance of safe pedestrian facilities for youth, older adults, people with disabilities, and low-income residents to access vital services, the Plan offers context-appropriate goals, policies, and programming to transform Oakland into a "walker's paradise."



Let's Bike Oakland (2019)

Let's Bike Oakland situates bicycle planning around supporting the City's most vulnerable groups to live their "desired condition of well-being". The plan applies a new approach that focuses on equity, partnering with community-based organizations, meeting people where they're at, and applied research to recommend bicycle infrastructure, policy, and programming with the following goals in mind:



- **Access** to neighborhood destinations
- **Health & Safety** related to traffic safety, police interactions, and pollution-burden
- **Affordability** by reducing household transportation costs
- **Collaboration** through an increased role for the community in the planning process

Safe Oakland Streets Approach

Safe Oakland Streets (SOS) is a Citywide initiative to prevent serious and fatal traffic crashes and eliminate crash inequities on Oakland's streets by prioritizing safety over speed on our streets with a focus on historically underserved communities. In Oakland, 60 percent of severe and fatal crashes occur on 6 percent of the total street network; 95 percent of which are in medium to high priority equity communities. Every week, two Oaklanders are killed or severely injured in traffic crashes on our streets. These crashes disproportionately harm people in Black, Indigenous, and people of color (BIPOC) communities, people with disabilities, seniors, and low-income communities. Crashes are also a leading cause of death among Oakland youth. The SOS approach recognizes that all severe and fatal traffic crashes are preventable. The SOS approach integrates the "Safe Systems" approach to traffic safety in which roadways are designed to anticipate human error and prevent severe and fatal collisions by designing a system that protects those who are most vulnerable. This differs from a more traditional traffic safety approach, which often relies on perfecting individual human behavior (Table 3-3).

Safe Oakland Streets is working across departments and building partnerships with the community to implement the most effective and equitable strategies. Previous planning efforts have laid the foundation for SOS, including Oakland Department of Transportation's 2016 Strategic Transportation Plan, Oakland's 2017 Pedestrian Plan, Oakland Walks, and Oakland's 2019 Bicycle Plan, Let's Bike Oakland, which prioritize taking an

3.2 Street Network

Oakland’s streets connect neighborhoods, services, and employment opportunities both locally and regionally. Streets also support adjacent land uses and travel by bus, walking, and biking. **Figure 3-1** shows the street network, which is classified as follows:

FUNCTIONAL CLASSIFICATION

Freeways

The freeways within Oakland consist of Interstates 80, 880, 580, and 980, along with State Routes 24 and 13. These freeways are owned and maintained by California Department of Transportation (“Caltrans”) and provide regional connectivity to and through Oakland. Freeways are limited-access routes with no direct access to adjacent land uses.

Major Arterial and Minor Arterial Streets

The City of Oakland has designated arterial streets that provide mobility for longer-distance travel by transit, driving, and biking. Major arterial streets carry higher traffic volumes than minor arterial streets. Major arterial and minor arterial streets often support adjacent commercial or community-serving land uses. Some arterial streets are under Caltrans’ jurisdiction, while the remainder are owned and maintained by the City. **Table 3-4** provides the list of major arterial streets segments along with information on average daily traffic volumes (ADT) and ownership.

Collector and Local Streets

Collector and local streets prioritize access to adjacent land uses. Local streets provide circulation within neighborhoods, while collector streets provide for connections between neighborhoods.

Table 3-4: Average Daily Traffic Volume and Ownership for Major Roadways

ROADWAY	LIMITS	FUNCTIONAL CLASSIFICATION	OWNERSHIP	DATA YEAR	ADT
I-80	Between Bay Bridge and W Grand Avenue	Interstate/Other Freeway	Caltrans	2019	227,000
I-880	Between W Grand Avenue and Adeline Street	Interstate/Other Freeway	Caltrans	2019	95,000
I-880	Between Adeline Street and I-980	Interstate/Other Freeway	Caltrans	2019	109,000
I-880	Between I-980 and Webster Street	Interstate/Other Freeway	Caltrans	2019	81,000
I-880	Between Webster Street and Embarcadero	Interstate/Other Freeway	Caltrans	2019	176,000
I-880	Between Embarcadero and Kennedy Street	Interstate/Other Freeway	Caltrans	2019	194,000
I-880	Between Kennedy Street and Hegenberger Road	Interstate/Other Freeway	Caltrans	2019	197,000
I-880	Between Hegenberger Road and 105th Avenue	Interstate/Other Freeway	Caltrans	2019	195,000
I-580	Between Ashby Avenue and 40th Street	Interstate/Other Freeway	Caltrans	2019	217,000
I-580	Between Mandela Pkwy and I-980	Interstate/Other Freeway	Caltrans	2019	148,000
I-580	Between I-980 and Grand Avenue	Interstate/Other Freeway	Caltrans	2019	154,000
I-580	Between Grand Avenue and 13th Street	Interstate/Other Freeway	Caltrans	2019	168,000
I-580	Between 13th Street and 35th Street	Interstate/Other Freeway	Caltrans	2019	143,000
I-580	Between SR 13 and 98th Avenue	Interstate/Other Freeway	Caltrans	2019	153,000
I-980	Between I-880 and I-580	Interstate/Other Freeway	Caltrans	2019	103,000
SR 24	Between I-580 and Broadway	Interstate/Other Freeway	Caltrans	2019	127,000
SR 24	Between Broadway and SR -13	Interstate/Other Freeway	Caltrans	2019	140,000
SR 24	Between SR-13 and Camino Pablo	Interstate/Other Freeway	Caltrans	2019	142,000
SR 13	Between SR -24 and Moraga Avenue	Interstate/Other Freeway	Caltrans	2019	71,000
SR 13	Between Moraga Avenue and Lincoln Avenue	Interstate/Other Freeway	Caltrans	2019	59,000
SR 13	Between Lincoln Avenue and I-580	Interstate/Other Freeway	Caltrans	2019	53,000
International Boulevard	Between 1st Avenue and 42nd Avenue	Major Arterial	City of Oakland	2013	12,680
International Boulevard	Between 42nd Avenue and Seminary Avenue	Major Arterial	Caltrans	2019	20,700
International Boulevard	Between Seminary Avenue and 86th Avenue	Major Arterial	Caltrans	2019	24,100
International Boulevard	Between 86th Avenue and Durant Avenue	Major Arterial	Caltrans	2019	21,600
Doolittle Drive	Between Hegenberger Road and Harbor Bay Pkwy	Major Arterial	Caltrans	2019	20,500
San Pablo Avenue	Between 67th and 53rd Street	Major Arterial	Caltrans	2019	17,800
42nd Avenue	Between I-880 and International Boulevard	Major Arterial	Caltrans	2019	12,100
E 14th Street	Between Mandela Pkwy and Magnolia Street	Major Arterial	City of Oakland	2016	8,990
E 14th Street	Between Magnolia Street and Brush Street	Major Arterial	City of Oakland	2016	10,230
14th Street	Between Brush Street and Clay Street	Major Arterial	City of Oakland	2016	11,660
14th Street	Between Clay Street and Webster Street	Major Arterial	City of Oakland	2016	8,840
14th Street	Between Webster Street and Lakeside Dr	Major Arterial	City of Oakland	2016	8,840
1st Avenue	Between International Boulevard and E 18th Street	Major Arterial	City of Oakland		NA
3rd Avenue	Between E 18th Street and Park Boulevard	Major Arterial	City of Oakland	2013	2,380

Table 3-4: Average Daily Traffic Volume and Ownership for Major Roadways

ROADWAY	LIMITS	FUNCTIONAL CLASSIFICATION	OWNERSHIP	DATA YEAR	ADT
42nd Avenue	Between San Leandro and International Boulevard	Major Arterial	City of Oakland	2013	10,890
4th Avenue	Between E 12 Street and Park Boulevard	Major Arterial	City of Oakland		NA
73rd Avenue	Between International Boulevard and Simson Street	Major Arterial	City of Oakland	2017	26,412
Adeline Street	Between 3rd Street and W Grand Avenue	Major Arterial	City of Oakland	2013	6,730
Airport Drive	Between Doolittle Drive and Neil Armstrong Way	Major Arterial	City of Oakland		NA
Broadway	Between 5th Street and Keith Avenue	Major Arterial	City of Oakland		NA
E 18th Street	Between 1st Avenue and 3rd Avenue	Major Arterial	City of Oakland		NA
MacArthur Boulevard	Between Hollis Street and Grand Avenue	Major Arterial	City of Oakland	2013	3,980
MacArthur Boulevard	Between Grand Avenue and Park Boulevard	Major Arterial	City of Oakland	2013	5,980
MacArthur Boulevard	Between Park Boulevard and Oakland Avenue	Major Arterial	City of Oakland	2013	11,095
Edgewater Drive	Between Hegenberger Road and Garretson Point Trail	Major Arterial	City of Oakland		NA
Fruitvale Avenue	Between Lyman Road and Blanding Avenue	Major Arterial	City of Oakland		NA
Harrison Street	Between W Grand Avenue and MacArthur Boulevard	Major Arterial	City of Oakland	2013	23,940
Hegenberger Road	Between International Boulevard and Doolittle Drive	Major Arterial	City of Oakland		NA
High Street	Between Tidewater Avenue and Brookdale Avenue	Major Arterial	City of Oakland	2016	16,650
Hillmont Drive	Between Overdale Avenue and Simson Street	Major Arterial	City of Oakland		NA
Lake Merritt Drive	Between Lakeside Drive and 1st Avenue	Major Arterial	City of Oakland		NA
Lakeshore Drive	Between 1st Avenue and E 18th Street	Major Arterial	City of Oakland	2013	13,850
Martin Luther King Jr. Way	Between 47th Street and 62nd Street	Major Arterial	City of Oakland		NA
Middle Harbor Road	Between Adeline Street and Maritime Street	Major Arterial	City of Oakland	2013	12,060
Oakland Avenue	Between W Grand Avenue and W MacArthur Avenue	Major Arterial	City of Oakland	2013	11,250
Park Boulevard	Between International Boulevard and Mountain Boulevard	Major Arterial	City of Oakland		NA
Webster Street	Between 6th Street and Embarcadero West	Major Arterial	City of Oakland	2016	10,670
Webster Posey Tube	Between Marina Village Parkway and Embarcadero West	Major Arterial	City of Oakland		NA
Telegraph Avenue	Between 16th Street and 66th Street	Major Arterial	City of Oakland		NA
W Grand Avenue	Between Bay Place and Park View Terrace	Major Arterial	City of Oakland	2020	15,260
W Grand Avenue	Between Euclid Avenue and MacArthur Boulevard	Major Arterial	City of Oakland	2020	16,670
Foothill Boulevard	Between 24th Avenue and Irving Avenue	Minor Arterial	City of Oakland	2019	10,140
Foothill Boulevard	Between Mitchell Street and 28th Street	Minor Arterial	City of Oakland	2019	9,730
Foothill Boulevard	Between Rosedale Avenue and 41st Street	Minor Arterial	City of Oakland	2019	8,630

Source: Interstate and Other Freeway - Caltrans 2019; Major Arterial from previous traffic counts



Photo: Greg Linhares, City of Oakland

SUMMARY OF ROADWAY MILEAGE

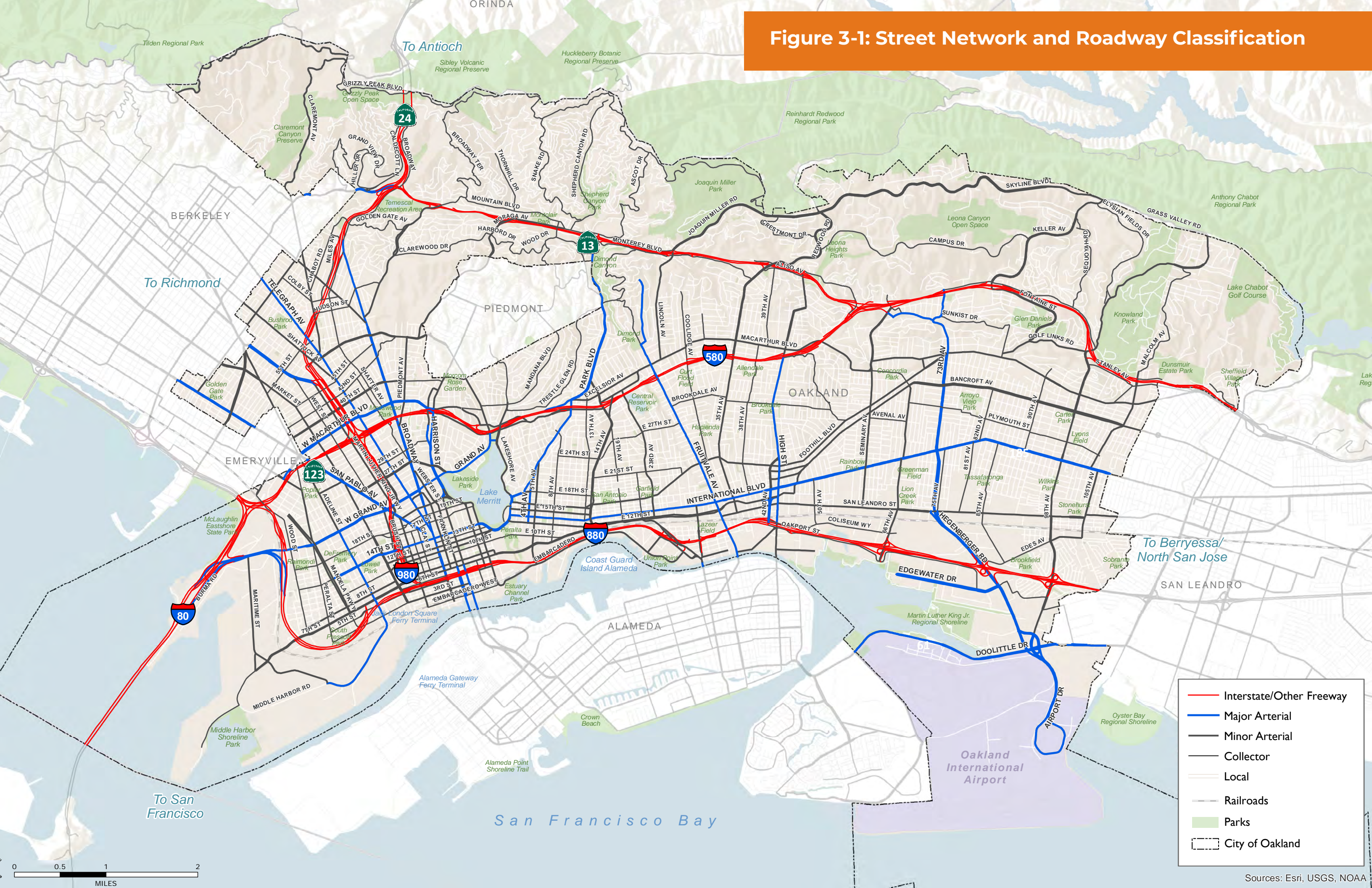
Table 3-5 on page 7 summarizes the total mileage by roadway classification, both for the City of Oakland as a whole and for the High Equity Priority Areas within the City. As shown in the table, local streets make up most of the roadway mileage in the City, both citywide and within High Equity Priority Areas. Arterial streets make up a higher percentage of roadway miles in High Equity Priority Areas (23 percent) versus citywide (17 percent). Since arterial streets carry higher traffic volumes and also serve pedestrians, bicyclists, and transit users, the design and management of arterial streets is an especially important element of transportation equity.

FREEWAY TRAFFIC CONGESTION

The Alameda County Transportation Commission, as part of its Congestion Management Program, completes a Performance Monitoring Report every two years, with the last analysis completed for Fall 2020 conditions. Since these conditions were atypical due to the COVID-19 pandemic, the 2018 report was used instead.

The Year 2018 analysis reflects pre-pandemic travel patterns, showing congestion along segments of I-80, I-580, I-880, SR 13, and SR 24 within Oakland. The Year 2020 analysis reflects pandemic travel conditions with reduced congestion across these segments and throughout the region.

Figure 3-1: Street Network and Roadway Classification



- Interstate/Other Freeway
- Major Arterial
- Minor Arterial
- Collector
- Local
- Railroads
- Parks
- City of Oakland

Sources: Esri, USGS, NOAA

Table 3-5: Total Mileage of Streets by Roadway Classification

ROADWAY CLASSIFICATION	CITYWIDE		HIGH EQUITY PRIORITY AREAS	
	ROADWAY MILES	PERCENT OF TOTAL	ROADWAY MILES	PERCENT OF TOTAL
Freeways	133	12%	63.7	12%
Major and Minor Arterial Streets	188.7	17%	117.2	22%
Collector Streets	106.9	10%	41.2	8%
Local Streets	663.6	61%	305.2	58%
Total	1092.2	100%	527.3	100%

Source: Caltrans, 2022; Alameda CTC, 2021

Table 3-6: AC Transit Schedule and Day of Operation

SERVICE TYPE	DAYS OF OPERATION	HOURS OF OPERATIONS	FREQUENCY
Trunks and Major Corridors	Every day	19 to 24 hours per day, for example, 5:00 a.m. to at least midnight	Every 15 - 20 mins
Rapids		14 to 16 hours per day, for example, 6:00 a.m. to at least 8:00 p.m.	Every 10 - 14 mins
Urban Crosstowns	Some or portion of the routes are suspended during the weekend	14 to 16 hours per day, for example, 5:00 a.m. to at least 7:00 p.m.	Every 15 -20 mins
Suburban Crosstowns		14 to 16 hours per day, for example, 7:00 a.m. to at least 9:00 p.m	Every 21 - 30 mins
Very-Low Density Lines		14 to 16 hours per day, for example, 6:00 a.m. to at least 8:00 p.m.	Every 31 - 60 mins
Transbay	Mondays through Fridays except holidays	Peak Commute Periods Only	Every 21 - 30 mins

Source: AC- Transit Short Range Transit Plan, 2019

3.3 Transit

Oakland is served by a variety of transit options. **Figure 3-2** shows the primary transit services and routes, which are summarized below:

PRIMARY TRANSIT SERVICES

AC Transit

Alameda Contra-Costa Transit (AC Transit) provides bus transit services for portions of the East Bay in Alameda and Contra Costa Counties. AC Transit bus routes serve almost all Oakland’s neighborhoods. AC Transit operates several types of services within Oakland, including local bus routes, routes serving schools, routes for early morning and late-night periods (Early Bird and All Nighter), and Transbay routes connecting Oakland to San Francisco. In 2021, AC Transit initiated the Tempo bus rapid transit service along International Boulevard; this service includes bus-only lanes and other features to improve bus speeds, reliability, and quality of travel. **Table 3-6** shows service frequency and hours of operations by service type.

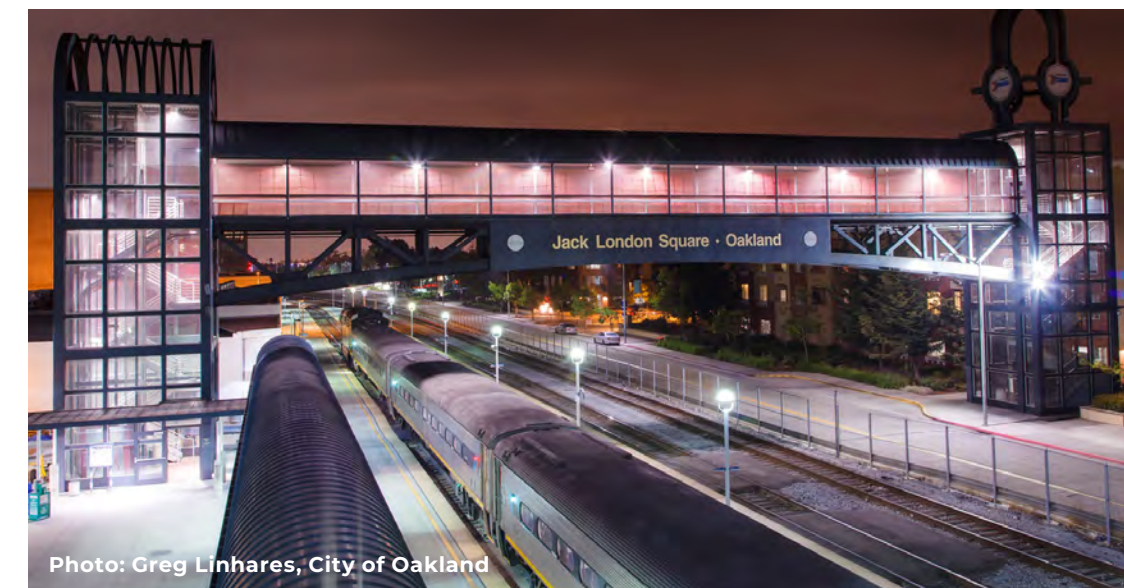


Photo: Greg Linhares, City of Oakland



Photo: Greg Linhares, City of Oakland

Table 3-7: BART Schedule and Day of Operation

SERVICE NAME	DAYS OF OPERATION	HOURS OF OPERATIONS	FREQUENCY
Antioch - SFO + Millbrae (Yellow Line)	Every day	Weekdays (5:00 am - Midnight)	Every 15 mins
		Saturday (6:00 am - Midnight)	Every 15 mins
		Sunday (8:00 am - Midnight)	Every 30 mins
Dublin/Pleasanton - Daly City (Blue Line)	Every day	Weekdays (5:00 am - Midnight)	Every 15 mins
		Saturday (6:00 am - Midnight)	Every 15 mins
		Sunday (8:00 am - Midnight)	Every 30 mins
Berryessa/North San Jose - Richmond (Orange Line)	Every day	Weekdays (5:00 am - Midnight)	Every 15 mins
		Saturday (6:00 am - Midnight)	Every 15 mins
		Sunday (8:00 am - Midnight)	Every 30 mins
Berryessa/North San Jose - Daly City (Green Line)	Weekdays Only	Weekdays (5:00 am - Midnight)	Every 15 mins
Richmond - Millbrae + SFO (Red Line)	Weekdays Only	Weekdays (5:00 am - Midnight)	Every 15 mins
Oakland International Airport (OAK)	Every day	Weekdays (5:00 am - Midnight)	Every 15 mins
		Saturday (6:00 am - Midnight)	Every 15 mins
		Sunday (8:00 am - Midnight)	Every 30 mins

Source: BART, 2022 (<https://www.bart.gov/schedules>)

Table 3-8: WETA Schedule and Day of Operation

DAYS OF OPERATION	HOURS OF OPERATIONS	FREQUENCY
Weekdays	6:30 am - 10:15 pm	Every 25 mins during peak commute period (directional)
Weekends	8:30 am - 9:30 pm	Every 60 mins during peak hours and 75 mins during off peak

Source: WETA, 2022 (sanfranciscobayferry.com)

BART

Bay Area Rapid Transit (BART) operates regional rail transit services connecting Oakland with the Bay Area. BART serves portions of Alameda, Contra Costa, San Francisco, San Mateo, and Santa Clara Counties, and Downtown Oakland serves as the center of the BART system. There are nine BART stations within Oakland. The headway (service intervals) on all Oakland BART stations is below five minutes throughout the hours of operations, with West Oakland having the shortest headways of about three minutes. **Table 3-7** shows the service frequency and hours of operations by service route.

WETA

The Water Emergency Transportation Authority (WETA) operates the San Francisco Bay Ferry, which connects San Francisco with Oakland and other destinations around the Bay. There is one WETA ferry terminal within Oakland located at Jack London Square. This location provides ferry service to San Francisco, Alameda, and South San Francisco. **Table 3-8** shows the WETA schedule and days of operations.

Capitol Corridor

Capitol Corridor is a passenger rail service operated by Amtrak that extends from San Jose to the Sacramento region. There are two Capitol Corridor stations in Oakland: one at Jack London Square and the other at Oakland Coliseum. There are 11 round-trip trains running during the weekdays and nine round trip trains during the weekends.

Table 3-9: Transit Street Mileage Categorization

TRANSIT STREET CATEGORIES	HIGH EQUITY PRIORITY AREAS		REST OF OAKLAND	
	ROADWAY MILES	PERCENT OF TOTAL	ROADWAY MILES	PERCENT OF TOTAL
Low-Frequency	50.81	48%	74.15	48%
Medium-Frequency	38.83	37%	38.80	25%
High-Frequency	15.90	15%	41.39	27%
Grand Total	105.55	100%	154.34	100%

Source: Oakland Transit Action Strategy, 2020

TRANSIT STREETS

According to the Oakland Transit Action Strategy, any street that has bus service can be thought of as a “transit street.” Transit streets are further categorized based on frequency of buses as listed below:

- **High Frequency Transit Streets** serve over 20 buses per hour, or a bus passing a stop at least every three minutes.
- **Medium-Frequency Transit Streets** have between 10 to 20 buses per hour or a bus passing a stop every three to six minutes.
- **Low-Frequency Transit Streets** have fewer than 10 buses per hour or a bus passing a stop less frequently than every six minutes.

Table 3-9 summarizes the total street mileage by transit service frequency, both for the High Equity Priority Areas and the rest of the City. As shown in the table, high-frequency transit streets are less prevalent in High Equity Priority Areas (27 percent of total miles) than compared to the rest of the City (15 percent of total miles). This highlights the need for an equity-focused approach to transit policies and investments.

OTHER TRANSIT SERVICES

Other transit services not shown on the figure are East Bay Paratransit, private shuttles, transportation network companies, and car sharing services.

East Bay Paratransit

East Bay Paratransit is a public transit service for those who are unable to use regular buses or trains due a disability or a disabling health condition. East Bay Paratransit provides door-to-door service and meets Americans with Disabilities Act (ADA) requirements.

Private Shuttles

Numerous privately-operated shuttles run throughout the city to serve individual employers, developments, and/or business districts. Some services connect to BART stations and employment destinations within Oakland, while others provide access to regional employment outside of Oakland.

Transportation Network Companies (TNCs)

TNCs, such as Uber and Lyft, provide last-mile connections using smartphone applications. While data on TNC use (especially for commute trips) is still limited, these services are becoming a significant part of the transportation system. The City of Oakland is exploring the concept of mobility hubs – providing multiple modes of transportation in the same location. The hubs may include designated white curb space for passenger pickup and drop off for ride share services and taxis.³

Car Sharing Services

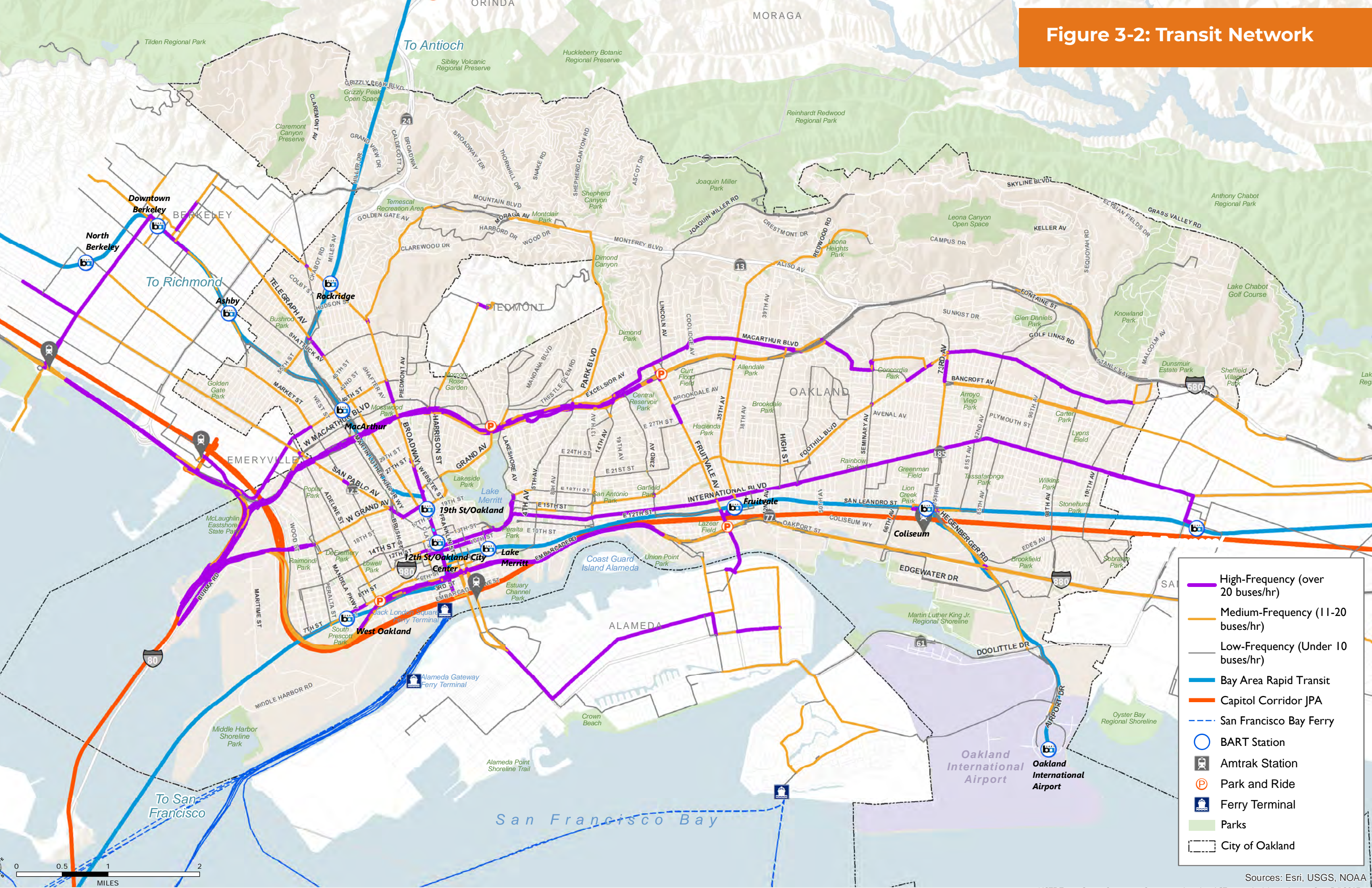
Car sharing services such as Gig car and Zipcar provides an alternative to car rental and ownership. These services are membership-based and are available to all qualified drivers in a community. The services allow members to rent out vehicles for hourly or daily at a fraction of the cost of owning a personal car or moped. The City adopted its first formal car share policy in 2015, which provided a regulatory framework for car share in the public right-of-way and municipal lots and garages.

The Parking and Mobility Division within the City’s Department of Transportation is implementing two separate car share pilot programs: the Free-Floating Car Share Pilot and the Dedicated Space Car Share Pilot. Each of the pilot programs, allow “qualified car share organizations” to purchase permits from the City.⁴

³ City of Oakland. (2016). *Oakland Smart + Equitable City*. Retrieved From: <https://www.transportation.gov/sites/dot.gov/files/docs/CA%20Oakland.pdf>

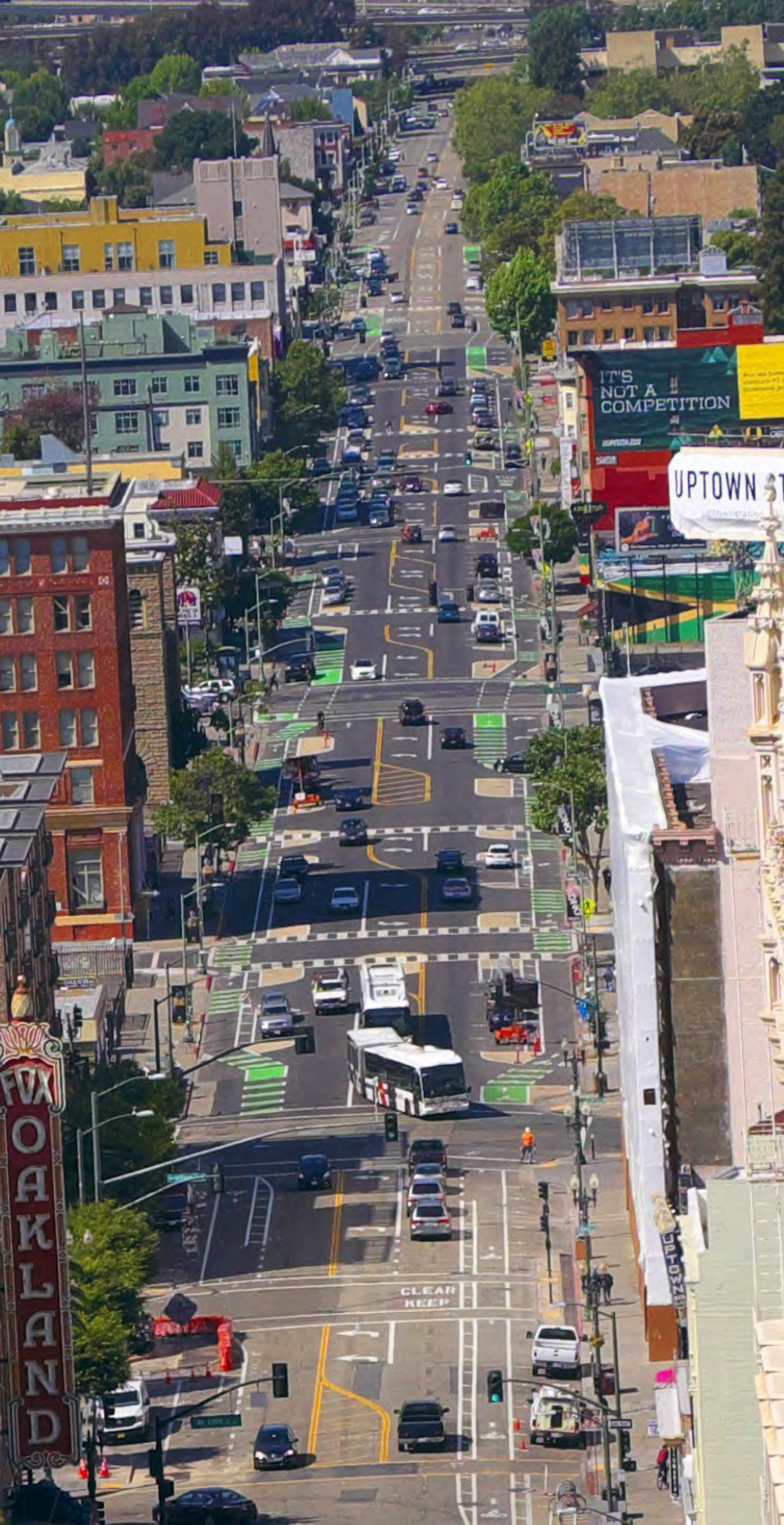
⁴ More information is available at: <https://www.oaklandca.gov/topics/car-share-program>

Figure 3-2: Transit Network



- High-Frequency (over 20 buses/hr)
- Medium-Frequency (11-20 buses/hr)
- Low-Frequency (Under 10 buses/hr)
- Bay Area Rapid Transit
- Capitol Corridor JPA
- San Francisco Bay Ferry
- b BART Station
- Amtrak Station
- P Park and Ride
- Ferry Terminal
- Parks
- City of Oakland

Sources: Esri, USGS, NOAA



3.4 Planned Regional Improvements

Figure 3-3 shows planned regional transportation improvements within and through Oakland. These improvements cover all modes of transportation and have been identified through several countywide and regional transportation efforts, as summarized below.

PLAN BAY AREA 2050

Plan Bay Area 2050 is a long-range plan completed by the Metropolitan Transportation Commission and the Association of Bay Area Governments (MTC/ABAG) for the nine-county Bay Area. It focuses on the importance of availability of transportation choices and its interrelatedness with housing and employment. It also recognizes the impact of transportation sector on climate change, being the largest contributor (over 40%) of California's greenhouse gas emissions. The plan has adopted a set of 35 strategies to weather uncertain future conditions and advance equity, that fall into the following three themes:

- Maintain and Optimize the Existing System
- Create Healthy and Safe Streets
- Build a Next-Generation Transit Network

ALAMEDA COUNTYWIDE TRANSPORTATION PLAN

The 2020 Alameda Countywide Transportation Plan (CTP) covers transportation projects, policies, and programs out to the year 2050 for Alameda County. The CTP includes both near-term priorities and long-term projects and is updated every four years. For Oakland, 31 projects are prioritized for implementation over the next decade. These regional improvements include four Greenways and Trails, 12 Multimodal Corridors, four interchange and Freeway Safety projects, seven Transit Access and Operations

projects, three goods movement projects, and one Sea Level Rise Resiliency project. The CTP has identified following six strategies and several sub-strategies to advance the vision and goals of the plan:

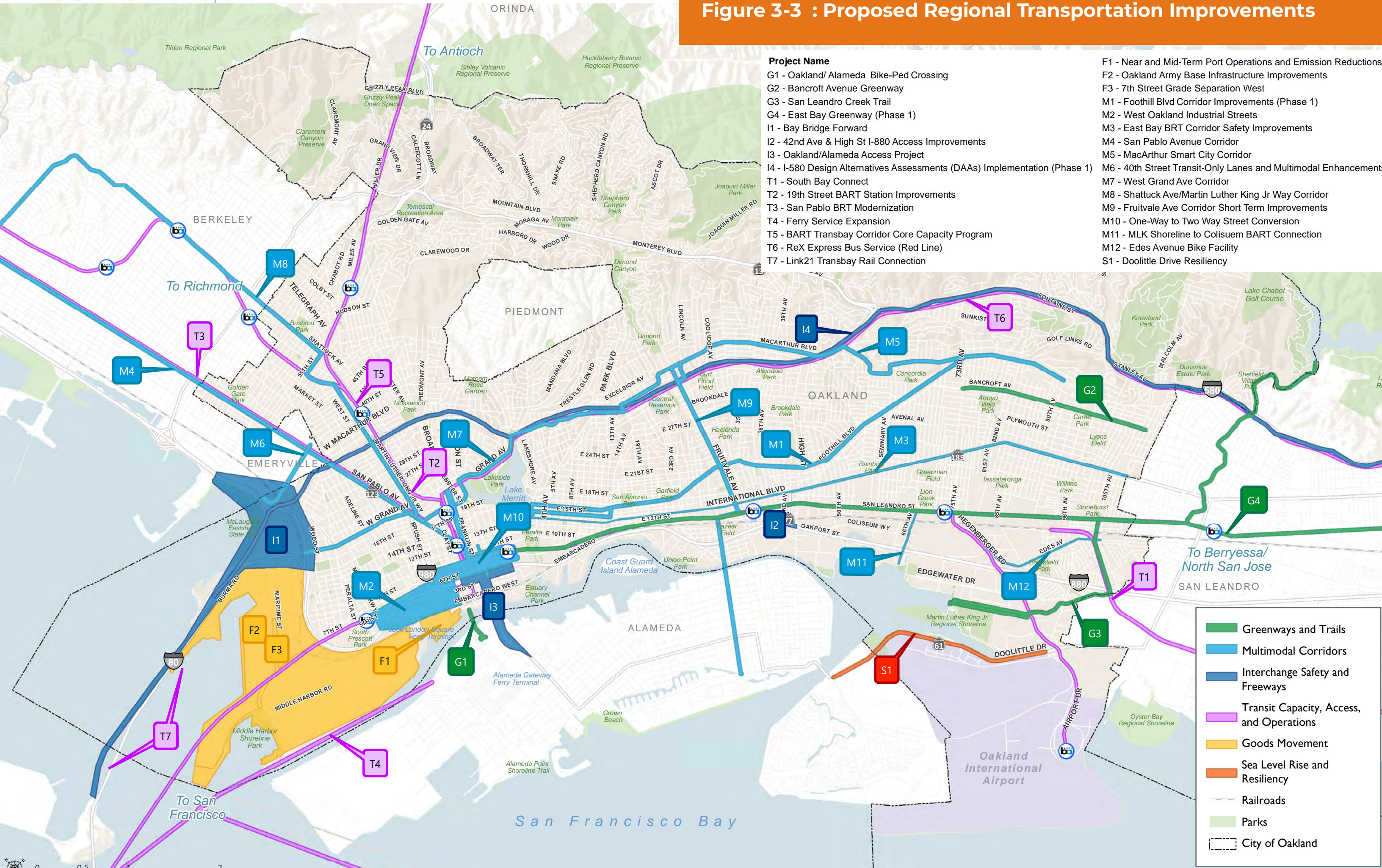
- Advance Equity
- Safe System Approach
- Complete Corridors Approach
- Partnerships to Address Regional & Megaregional Issues
- Transit Accessibility & Transportation Demand Management (TDM)
- New Mobility and an Automated, Low-Emission, and Shared Future

The 2020 CTP was adopted in 2020.

LINK21

The Link21 program is a partnership between BART and Capitol Corridor to plan for an integrated passenger rail network in Northern California. The key component of Link21 is a new transbay passenger rail crossing between Oakland and San Francisco. The alignment and location for this crossing have not been defined.

Figure 3-3 : Proposed Regional Transportation Improvements



Project Name

- G1 - Oakland/ Alameda Bike-Ped Crossing
- G2 - Bancroft Avenue Greenway
- G3 - San Leandro Creek Trail
- G4 - East Bay Greenway (Phase 1)
- I1 - Bay Bridge Forward
- I2 - 42nd Ave & High St I-880 Access Improvements
- I3 - Oakland/Alameda Access Project
- I4 - I-580 Design Alternatives Assessments (DAAs) Implementation (Phase 1)
- T1 - South Bay Connect
- T2 - 19th Street BART Station Improvements
- T3 - San Pablo BRT Modernization
- T4 - Ferry Service Expansion
- T5 - BART Transbay Corridor Core Capacity Program
- T6 - ReX Express Bus Service (Red Line)
- T7 - Link21 Transbay Rail Connection

- F1 - Near and Mid-Term Port Operations and Emission Reductions
- F2 - Oakland Army Base Infrastructure Improvements
- F3 - 7th Street Grade Separation West
- M1 - Foothill Blvd Corridor Improvements (Phase 1)
- M2 - West Oakland Industrial Streets
- M3 - East Bay BRT Corridor Safety Improvements
- M4 - San Pablo Avenue Corridor
- M5 - MacArthur Smart City Corridor
- M6 - 40th Street Transit-Only Lanes and Multimodal Enhancements
- M7 - West Grand Ave Corridor
- M8 - Shattuck Ave/Martin Luther King Jr Way Corridor
- M9 - Fruitvale Ave Corridor Short Term Improvements
- M10 - One-Way to Two Way Street Conversion
- M11 - MLK Shoreline to Coliseum BART Connection
- M12 - Edes Avenue Bike Facility
- S1 - Doolittle Drive Resiliency

- Greenways and Trails
- Multimodal Corridors
- Interchange Safety and Freeways
- Transit Capacity, Access, and Operations
- Goods Movement
- Sea Level Rise and Resiliency
- Railroads
- Parks
- City of Oakland

3.5 Bicycle and Pedestrian Facilities Network

BICYCLE AND PEDESTRIAN NETWORK

Safer, comfortable, and convenient pedestrian and bicycle facilities can connect people to local destinations, support neighborhood businesses, cultivate culture, and protect the environment. Oakland has made significant investments in recent decades to build a comprehensive and connected bicycle and pedestrian network. However, many of these investments mirror historic patterns of disinvestment, resulting in significant gaps in spaces for walking and biking in West and East Oakland, as noted in both Oakland Walks and Let’s Bike Oakland.

Oakland is home to 1,120 miles of sidewalks, with 31 miles of gaps in the sidewalk network. Oakland’s sidewalk gaps are concentrated in parts of West Oakland and scattered across East Oakland. According to Oakland Walks, sidewalks in East and West Oakland are more likely to be damaged and to be missing critical amenities such as curb ramps. Unfortunately, East and West Oakland neighborhoods are disproportionately burdened by roadway fatalities and serious injuries involving people walking. Moreover, the neighborhoods along International Boulevard and parts of West Oakland north of Adeline Street are less likely to have sufficient tree coverage, exposing people walking to an uncomfortable environment characterized by extreme heat and pollution.

Oakland is also home to 183 miles of bikeways with an additional 339 miles of planned bikeways (Figure 3-4). Prior to the 2000s, much of Oakland’s bicycle infrastructure was located along the shoreline or in the hills. Since 2000, Oakland has constructed nearly 130 miles of bikeways. Existing bikeway types are listed in Table 3-10.

Table 3-10: Existing Bikeway Types

BIKEWAY TYPE	DESCRIPTION
Shared-use Paths (Class I)	Mileage: 29.8 Description: Paved rights-of-way completely separated from streets; shared with pedestrians. Examples in Oakland: Lake Merritt Boulevard, SF Bay Trail
Rapids Bike Lanes (traditional) (Class II)	Mileage: 82.4 Description: On-street bikeways that are delineated by painted pavement markings such as stripes and stencils. Examples in Oakland: Howe Street, Mandela Parkway, E 12th Street
Buffered Bike Lane (Class IIB)	Mileage: 40.09 Description: Buffer striping to provide greater separation between bicyclists and parked or moving vehicles. Examples in Oakland: Madison Street, Oak Street, Clay Street
Bicycle Routes (Class III)	Mileage: 14 Description: Streets designated for bicycle travel and shared with motor vehicles. Examples in Oakland: 90th Avenue, 40th Street
Neighborhood Bike Routes / Slow Streets / Bicycle Boulevards (Class IIIB)	Mileage: 14.3 Description: Bike routes on residential streets that prioritize people walking and biking with traffic calming treatments. Examples in Oakland: Webster Street, 32nd Street, 11th Avenue, Plymouth Street
Separated Bike Lanes (Class IV)	Mileage: 2.3 Description: Space for bicyclists separated by parked cars, curbs, bollards, or planter boxes. Examples in Oakland: Telegraph Avenue

Sources: Oakland Department of Transportation, Bikeway Types, 2021; Oakland Department of Transportation, Existing and Proposed Bikeways, 2021; The forthcoming AASHTO Guide for the Development of Bicycle Facilities discourages implementation of bicycle routes a because of the lack of protection they provide for bicyclists.

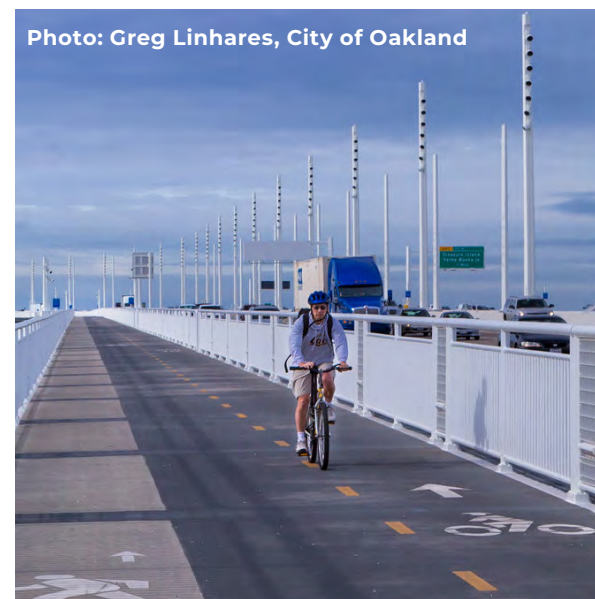
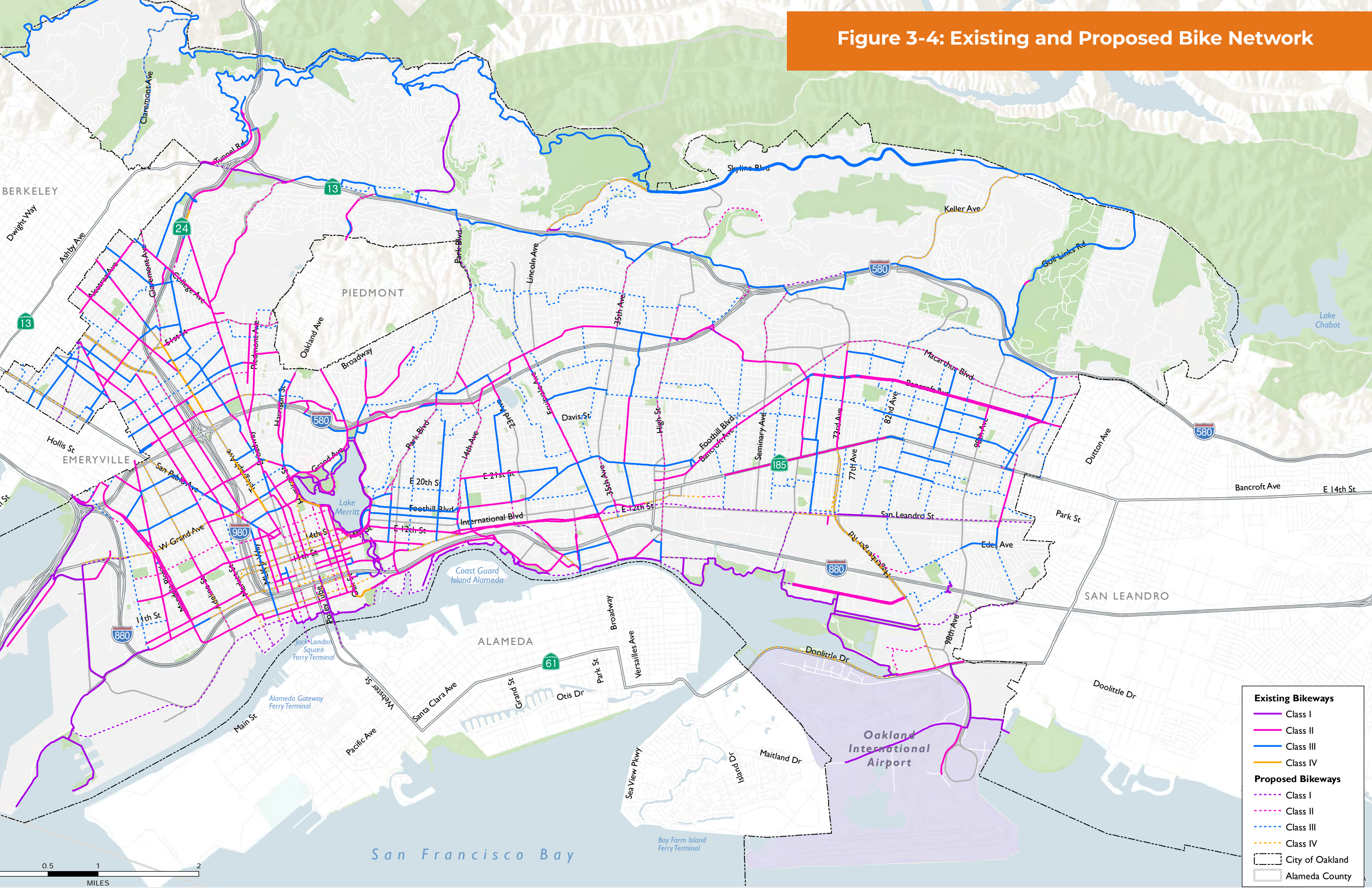


Figure 3-4: Existing and Proposed Bike Network



Existing Bikeways	
	Class I
	Class II
	Class III
	Class IV
Proposed Bikeways	
	Class I
	Class II
	Class III
	Class IV
	City of Oakland
	Alameda County

MICROMOBILITY

Micromobility has emerged in cities throughout the United States and across the world since the middle of the 2010s. The term “micromobility” encompasses bikeshare, electric bikes (e-bikes), scootershare, electric scooters, mopeds, and other personal mobility devices.

Today, the following companies operate shared micromobility services in Oakland:

- Lime (Electric Scootershare)
- VeoRide (Electric Scootershare)
- LINK (Electric Scootershare)
- Lyft (Bikeshare)

Shared micro mobility services tend to be used more in areas that have a high density of jobs, homes and public transit, and a low rate of auto ownership. In Oakland, the areas that get the highest level of use are downtown and neighborhoods bordering Lake Merritt. All of the shared micromobility services in Oakland are operated by private companies, without public subsidy, and with business models that leave little margin for loss. Therefore, the operators tend to deploy vehicles where they will be used the most and generate enough revenue to sustain the service.

The City mandates minimum levels of service coverage to help ensure equitable distribution of vehicles. For the bike share program, staff worked to ensure that ten percent of stations were located east of 14th Avenue. The scooter share program mandates that, for operators with fleets over 250 vehicles, ten percent of vehicles be located in the Fruitvale neighborhood and ten percent in East Oakland.

3.6 Goods Movement

The City of Oakland is the transportation and logistics center for the Bay Area. The Bay Area is the midpoint of Interstate Highway 5, which traverses the west coast from Canada to Mexico, and the western terminus of Interstate 80, connecting Oakland to New York. The spurs and beltways radiating from these two interstate highways form a grid that connects the entire Bay Area – with Oakland as the region’s hub.⁵ Thus, Oakland plays an important role in sustaining supply chains.

Figure 3-5 shows the primary goods movement network within Oakland. The network can be classified into global gateways and regional corridors to serve global, national, regional, and local needs. It consists of the following:

GLOBAL GATEWAYS

Port of Oakland

Located in West Oakland, the Port of Oakland is the largest container port in Northern California and the fifth busiest container port in the U.S. The Port is an important global gateway for moving high volumes of trade goods between the U.S. and other countries.

Oakland International Airport

Oakland International Airport, located in East Oakland, is the second busiest domestic air freight airport in the State, home to a major FedEx hub, and is critical for high-value goods movement shipments and the growing e-commerce sector. It is owned by the Port of Oakland.

⁵ Oct. 16, 2001 Oakland City Council Agenda Report (related to “Extra Legal Load Transportation Permits”)





Photo: Greg Linhares, City of Oakland

REGIONAL CORRIDORS

Caltrans State Designated Truck Routes

Caltrans state legal truck routes include both grade-separated freeways and at-grade state routes such as San Pablo Avenue/State Route 123. Commercial trucks are authorized to use Caltrans state legal truck routes, consistent with the California Vehicle Code, except where specific restrictions have been adopted.

In addition to restrictions that are specific to individual roadways, trucks are restricted from using any Caltrans state legal truck route if the vehicle exceeds 80,000 pounds or is longer than 65 feet. The weight limit is implemented to manage the impact of trucks on roadway surfaces and safety concerns of other roadway users.

I-580 Truck Route Restriction

A specific truck route restriction exists on I-580 between Grand Avenue and the Oakland/San Leandro border where trucks exceeding 4.5 tons (9,000 pounds) are not allowed to use the roadway. The restriction was implemented when I-580 was constructed in the 1960s and was adopted into the California Vehicle Code in 1999.

Oakland residents living near I-880 and on truck routes between MacArthur Boulevard and I-880 have raised concerns that the restriction shifts truck traffic and impacts away from wealthier areas near I-580 onto historically underserved communities in the Oakland Flats. For example, trucks traveling to commercial businesses on Foothill Boulevard and MacArthur Boulevard likely travel a greater distance on at-grade roads from I-880 through underserved communities rather than taking a more direct route using I-580.

Heavy Weight Truck Routes

Many shippers maximize the loading of heavy commodities that move through the Port. The City of Oakland and the Port maintain the joint Port-City of Oakland Heavyweight Container Permit Program, which allows vehicles up to 95,000 pounds (versus the 80,000-pound limit for Caltrans state legal truck routes) to travel between the Port of Oakland and East Oakland on designated city roads.

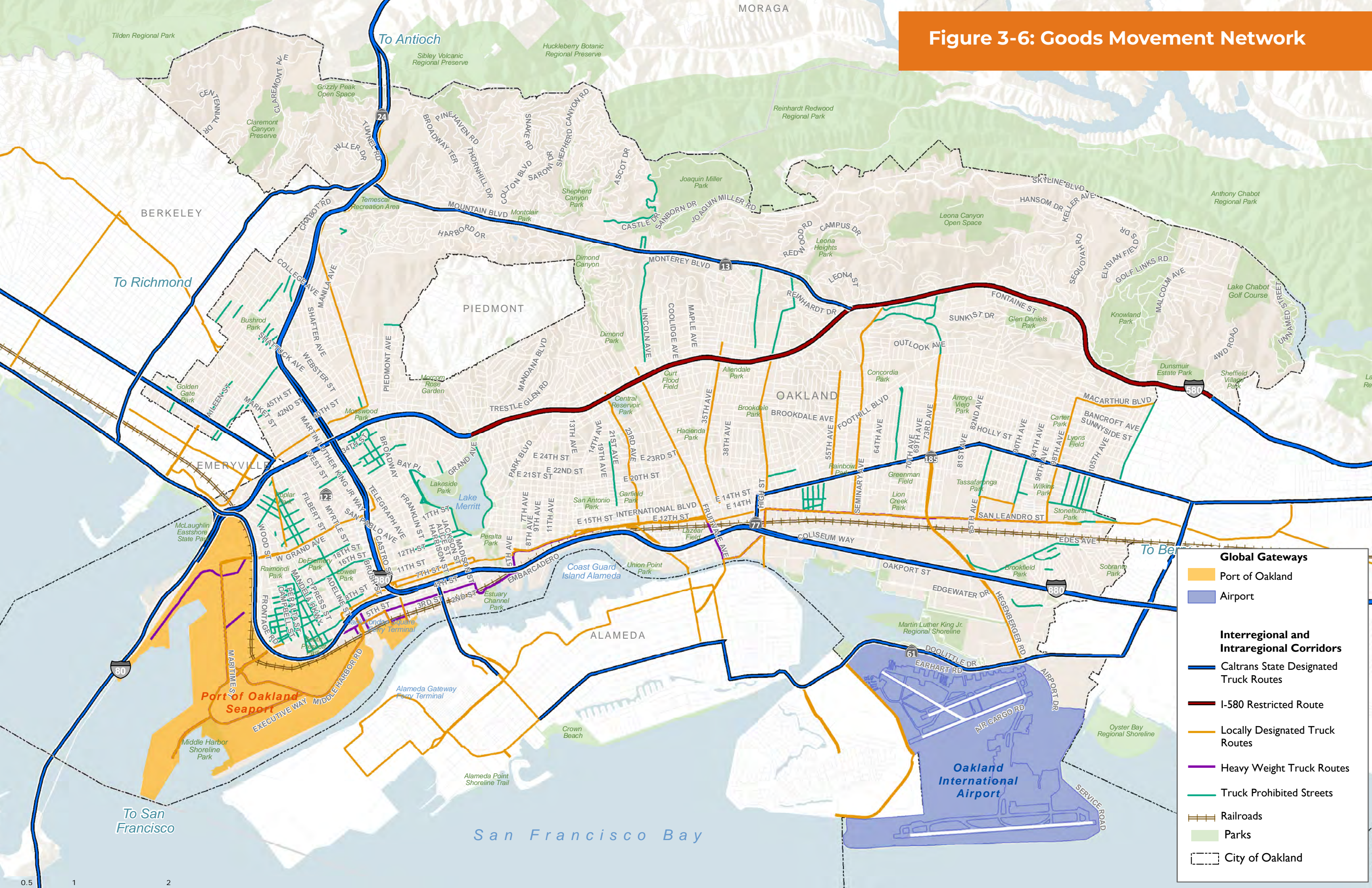
Locally Designated Truck Routes and Truck Prohibited Streets

Truck routes and truck prohibited streets describe specific classification of streets as defined in the Oakland Municipal Code. Oakland uses these designations as a primary method for regulating truck movement. Truck routes are the designated routes for commercial vehicles to travel through and within the City. Truck prohibited streets are streets, or parts of streets, that are designated as prohibited to trucks.

Rail Corridors

Railway service that is part of the goods movement system includes freight corridors operated by Union Pacific (UP) and Burlington Northern Santa Fe Railway (BNSF) Railway. Unlike the highway and port elements of the goods movement network, freight rail corridors are privately owned and operated.

Figure 3-6: Goods Movement Network



- Global Gateways**
- Port of Oakland
 - Airport
- Interregional and Intraregional Corridors**
- Caltrans State Designated Truck Routes
 - I-580 Restricted Route
 - Locally Designated Truck Routes
 - Heavy Weight Truck Routes
 - Truck Prohibited Streets
 - Railroads
 - Parks
 - City of Oakland

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04

PUBLIC RESOURCES & FACILITIES

- 4.1 Educational and Institutional Resources
- 4.2 Emergency Services
- 4.3 Water Supply, Wastewater, and Stormwater

4. Public Resources and Facilities

4.1 Educational and Institutional Resources

Well-distributed access to educational, institutional and community resources is essential for healthy communities and ensuring community quality of life. **Figure 4-1** illustrates the distribution of these resources throughout Oakland. The Oakland Unified School District (OUSD) includes 51 elementary schools, 11 middle schools, and 15 high schools, distributed throughout the City. The figure does not reflect the very recent (February 2022) school closures announced by the OUSD. There are also a number of charter schools located throughout the City. Most private schools, particularly those with larger campuses, are in or near the hills; there are none in West Oakland and few in East Oakland beyond Fruitvale. Childcare/School Age Care facilities are well-distributed throughout the City, with gaps in more sparsely populated areas (parts of the hills and areas adjacent to or within industrial zones). Oakland is home to several colleges, including Merritt College, Laney College, Mills-Northeastern College, Holy Names University, Samuel Merritt University, Lincoln University, and California College of the Arts.

Eighteen libraries are distributed across Oakland, primarily in the flatlands plus one in the hills. Community Centers, which include senior-focused, arts and culture-focused, educational, and environmental programming, are concentrated around downtown and Lake Merritt. Two community centers are located in West Oakland, two are located in North Oakland, three are located in East Oakland, and three are located in the Oakland Hills.

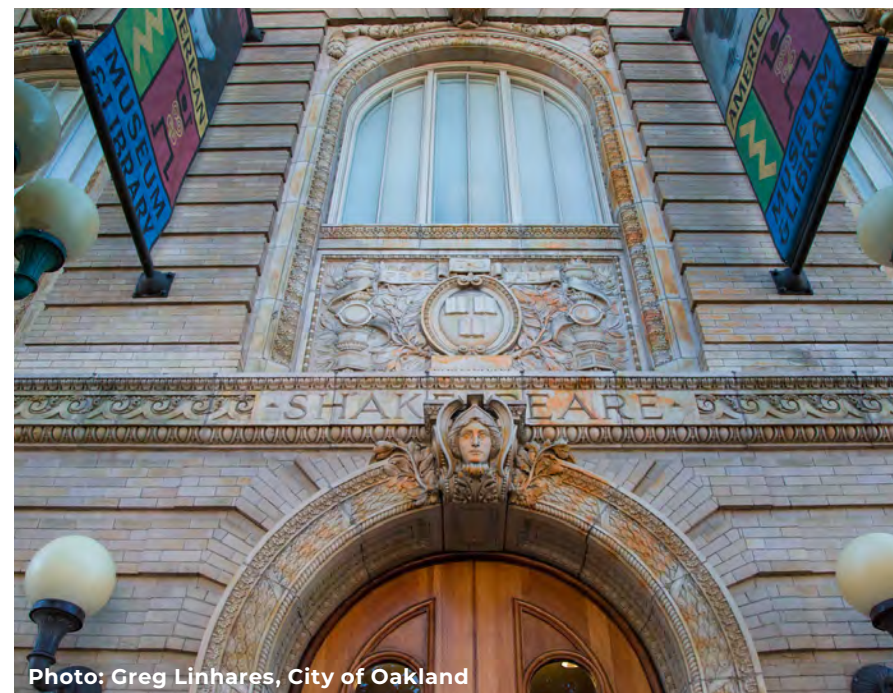


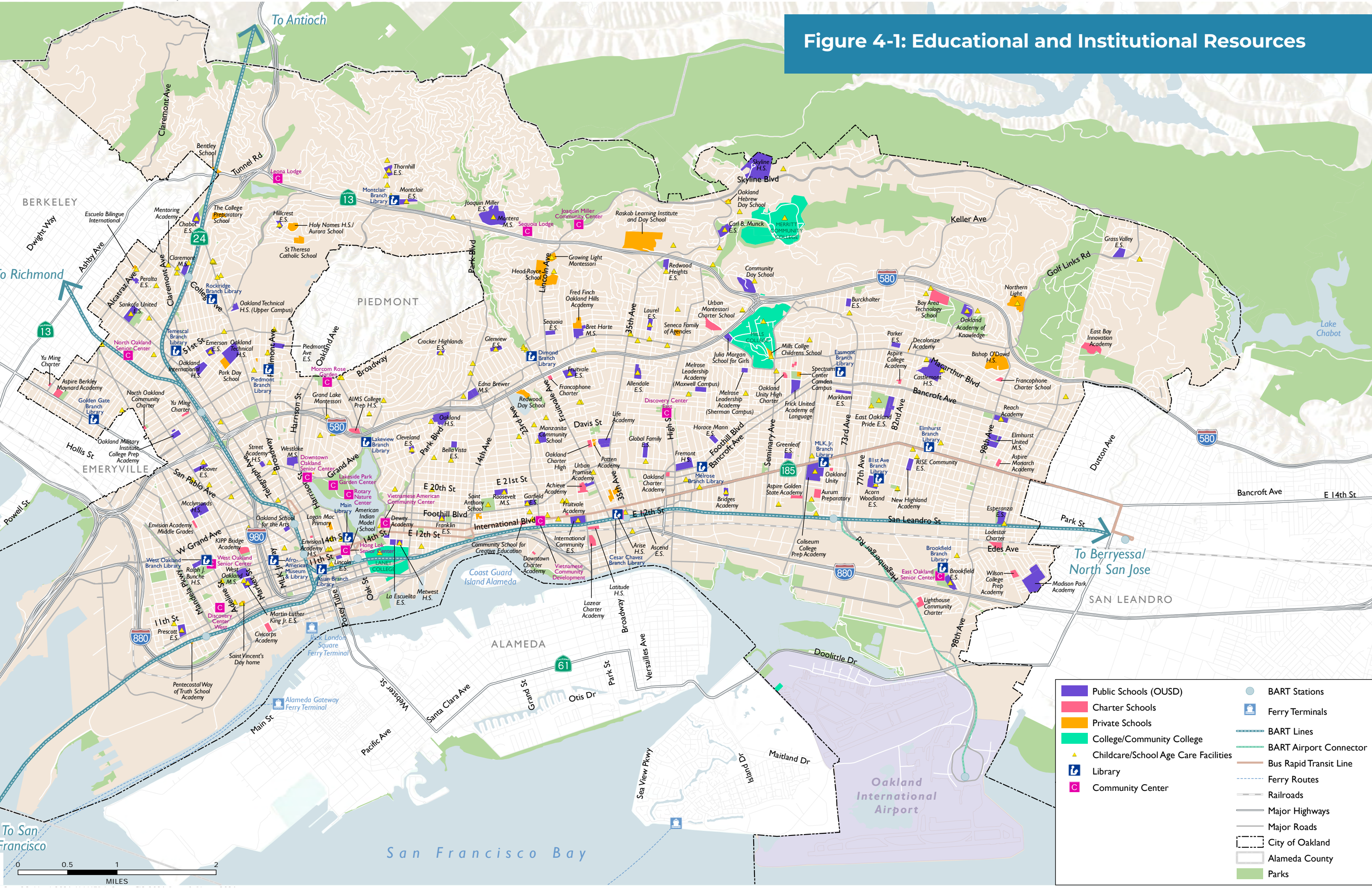
Photo: Greg Linhares, City of Oakland

4.2 Emergency Services

Community health also depends on access to emergency services. First responders should be well distributed throughout the City to respond promptly to emergency situations. Health care facilities that are accessible via public transit means that medical care is more readily accessible to those who do not drive or own cars.

Figure 4-2 shows the distribution of fire stations, police stations, and hospitals in Oakland. Twenty-five fire stations are distributed throughout the City. Hospitals are clustered around freeways: Kaiser system's flagship hospital is located close to the junction of I-580 and I-980/State Route 24, Summit Hospital in "Pill Hill" and UCSF Benioff Children's Hospital are located along State Route 24 in the north, and Highland Hospital, Alameda Health System's flagship and a renowned trauma center, is located in central Oakland adjacent to I-580. The first three hospitals are accessible from the MacArthur BART Station, and all four are located along AC Transit bus routes. Additionally, three hospitals in the adjacent City of San Leandro serve East Oakland residents; of those three, only San Leandro Hospital is accessible by public transit (AC Transit bus). Aside from the Police Administration Building downtown, there are two police stations, one located in Fruitvale and one located in the southeastern part of the City in Eastmont. In February 2022, the Oakland City Council passed a resolution to move the Police headquarters to the Coliseum area, and develop the present site with housing, retail and other uses.

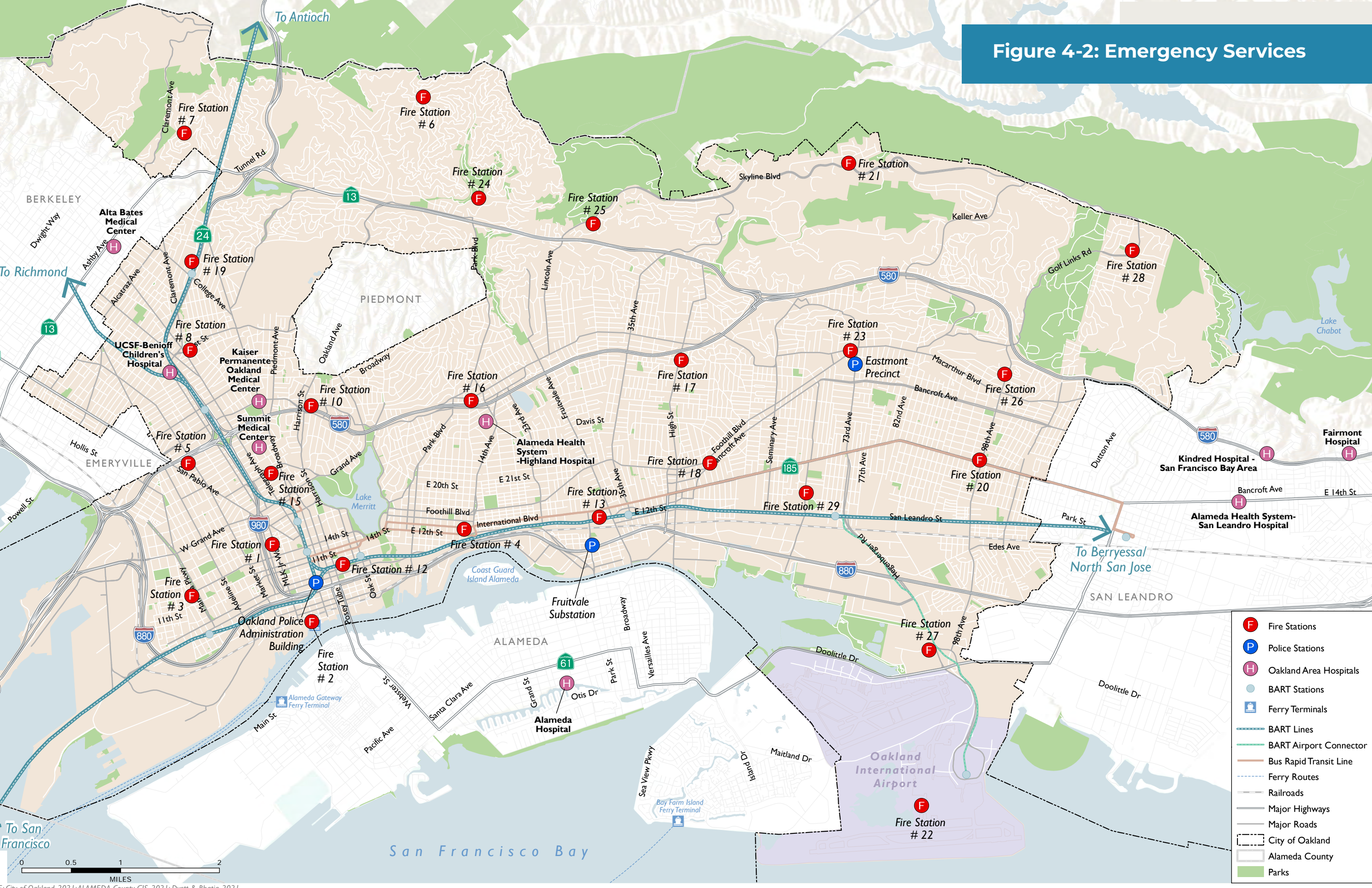
Figure 4-1: Educational and Institutional Resources



- Public Schools (OUSD)
- Charter Schools
- Private Schools
- College/Community College
- Childcare/School Age Care Facilities
- Library
- Community Center
- BART Stations
- Ferry Terminals
- BART Lines
- BART Airport Connector
- Bus Rapid Transit Line
- Ferry Routes
- Railroads
- Major Highways
- Major Roads
- City of Oakland
- Alameda County
- Parks

0 0.5 1 2
MILES

Figure 4-2: Emergency Services



- F Fire Stations
- P Police Stations
- H Oakland Area Hospitals
- BART Stations
- Ferry Terminals
- BART Lines
- BART Airport Connector
- Bus Rapid Transit Line
- Ferry Routes
- Railroads
- Major Highways
- Major Roads
- City of Oakland
- Alameda County
- Parks



4.3 Water Supply, Wastewater, and Stormwater

WATER SUPPLY

Oakland is served by existing water supplies, treatment facilities, and distribution systems, which are operated and managed by the East Bay Municipal Utility District (EBMUD). EBMUD provides potable water to approximately 1.4 million people throughout portions of Alameda and Contra Costa counties, including the City of Oakland. EBMUD obtains approximately 90 percent of its water from the Mokelumne River watershed and transports it through pipe aqueducts to temporary storage reservoirs in the East Bay hills. EBMUD has water rights and facilities to divert up to a daily maximum of 325 million gallons per day (mgd).

EBMUD's water supply system consists of a network of reservoirs, aqueducts (pipelines), water treatment plants (WTP), pumping plants, and other distribution facilities and pipelines that convey Mokelumne River water from Pardee Reservoir to EBMUD customers. While the number of accounts has increased steadily since 1970, the average daily water demand has not increased correspondingly; outside of droughts, demand remains relatively stable. The average daily water demand was approximately 155 mgd in 2020. This figure represents potable water demand only and does not include recycled water. Total domestic demand is projected to increase to 201 mgd in 2040 and to 218 mgd by 2050; these figures are adjusted to account for water conservation and recycled water. Despite EBMUD's aggressive conservation and water recycling programs, Mokelumne River and the local watershed supply are not enough to meet the projected 2040 customer demands during multi-year droughts without achieving potentially significant water use reductions.

To meet projected water needs and address deficient supply during severe droughts, EBMUD is working to identify supplemental water supplies and additional recycled water programs. New water supplies will come from water transfers, groundwater storage, and regional supply projects. In dry years, EBMUD may use Sacramento River water (up to 100 mgd) via the Freeport Regional Water Facility, located south of Sacramento on the Sacramento River. There are six water treatment plants in the EBMUD water supply and distribution system which have a treatment capacity of over 375 mgd.

Recycled water treatment facilities have been constructed at EBMUD's wastewater treatment plant, located at the foot of the San Francisco-Oakland Bay Bridge. EBMUD stores the recycled water in a 1.5-million-gallon storage tank at the wastewater treatment plant and uses another 2.4 mgd at the plant for various industrial processes as well as landscape irrigation. EBMUD's 2019 Updated Recycled Water Master Plan identifies additional implementation programs including planned expansions of the San Ramon Valley recycled water project, the East Bayshore recycled water project, and a satellite recycled water project at the Diablo Country Club. These are expected to increase production use by approximately 1mgd in 2025.

WASTEWATER

The City provides citywide sanitary sewer collection services to the Plan Area, while EBMUD provides sewage transport, treatment, and discharge services. Sewer discharge from

buildings within Oakland flows through lateral lines to the City's sewer network, which is mostly gravity fed. Currently, the City operates and maintains approximately 930 miles of sewer lines, 29,000 structures, and 7 pump/lift stations. **Figure 4-4** maps the sewer lines and shows the locations of the sewer pump stations. The City's wastewater collection system is approximately 50 years old, with some of the existing infrastructure dated over 100 years. The sewer network is connected directly to trunk lines that convey sewage flows to EBMUD wastewater interceptors and finally to the Municipal Wastewater Treatment Plant located in West Oakland. EBMUD wastewater interceptors consist of 29 miles of reinforced concrete pipes ranging from 1 to 9 feet in diameter.

Groundwater infiltration and stormwater inflow into the aging sanitary sewer system from misconnections, cracks, and other imperfections in system pipes, joints, and manholes can cause a 10-fold increase in the volume of wastewater that reaches EBMUD's sewer interceptor pipes and the Municipal Wastewater Treatment Plant. In the 1980s, EBMUD began building large tanks to prevent raw sewage overflow into the Bay as a result of storms. In conjunction with this, Oakland's infiltration/inflow (I/I) correction program began in the 1980s to rehabilitate 25 percent of the sewer system sub-basins, work which was completed in 2014. However, in 2009 the U.S. Environmental Protection Agency filed a complaint against EBMUD, Stege Sanitary District, and the Cities of Oakland, Berkeley, Alameda, Emeryville, Piedmont and Albany, prohibiting them from dumping wastewater into the Bay. To settle the complaint, a 2014 Consent Decree required all the involved parties to repair and replace all sewer lines by 2036

to drastically reduce I/I and discharge into the Bay. The City of Oakland's wastewater rehabilitation program rehabilitates approximately 13 miles of sewer pipeline yearly to meet the compliance requirements. Additionally, the City of Oakland participates in the Regional Private Sewer Lateral Ordinance which requires property owners to validate compliance when selling, building, or remodeling properties. Over time, these programs will reduce the non-wastewater components flowing into the system.

EBMUD provides domestic, commercial, and industrial wastewater treatment services to approximately 685,000 people in a service district known as Special District No.1, an 83-square-mile area of Alameda and Contra Costa counties. EBMUD owns and operates a network of 15 wastewater pumping stations (with 0.5- to 54.7-mgd capacity) and 8 miles of force mains that convey wastewater to the Municipal Wastewater Treatment Plant located at 2020 Wake Avenue in Oakland. The City's collection system connects with EBMUD's sewer interceptor system that transports sewage to the EBMUD Municipal Wastewater Treatment Plant. The Municipal Wastewater Treatment Plant provides both primary and secondary treatment of wastewater.

The Municipal Wastewater Treatment Plant provides primary treatment for up to a peak flow of 320 mgd and secondary treatment for a maximum flow of 168 mgd. Storage basins provide plant capacity for a short-term hydraulic peak of 415 mgd. The average dry weather flow into the treatment plant from 2010-2019 was approximately 54 mgd.

EBMUD recycles water at its main wastewater treatment facility and has done so since the early 1970s. Recycled water is suitable for land uses that do not require potable water sources, such as industrial uses and certain landscaped areas. According to the Urban Water Management Plan, EBMUD provided approximately 8.3 mgd of recycled water to customers in 2020 and aims to meet the 2040 projected demand of 20 mgd.

STORMWATER

Stormwater systems within Oakland are comprised of an assortment of creeks, ditches, culverts, and pipelines. The ownership and maintenance of the systems varies based on right of way and easement. While the City maintains local drainage facilities, Alameda County Flood Control & Water Conservation District is responsible for the overall and regional flood control provision in major creeks and channels.

The Alameda County Flood Control & Water Conservation District was created in 1949 by the State Legislature to provide flood control and conservation services to Alameda County. The District's flood control infrastructure includes hundreds of miles of pipelines, channels, creeks, erosion control measures, and pump stations. Oakland is located within Zone 12, which also includes the City of Emeryville, and is the largest of the Alameda County Flood Control & Water Conservation District's zones. Zone 12 has approximately 50 miles of closed conduit, approximately 12 miles of earthen and concrete channels, as well as 18 miles of existing natural waterways.

The Plan Area spans across three watersheds: Glen Echo Creek Watershed in the north, West Oakland Watershed in the western central portion of the Plan Area, and Oakland Estuary Watershed covering a majority of the central and southern portion of the Plan Area. Most of the stormwater runoff collected within the area flows through underground pipes and culverts to creeks that eventually drain into the San Francisco Bay. Five Pump stations, within Zone 12 (Lake Merritt, Ettie, McKillop, Hardy, and Temescal) lift stormwater to enable it to drain to the Bay.

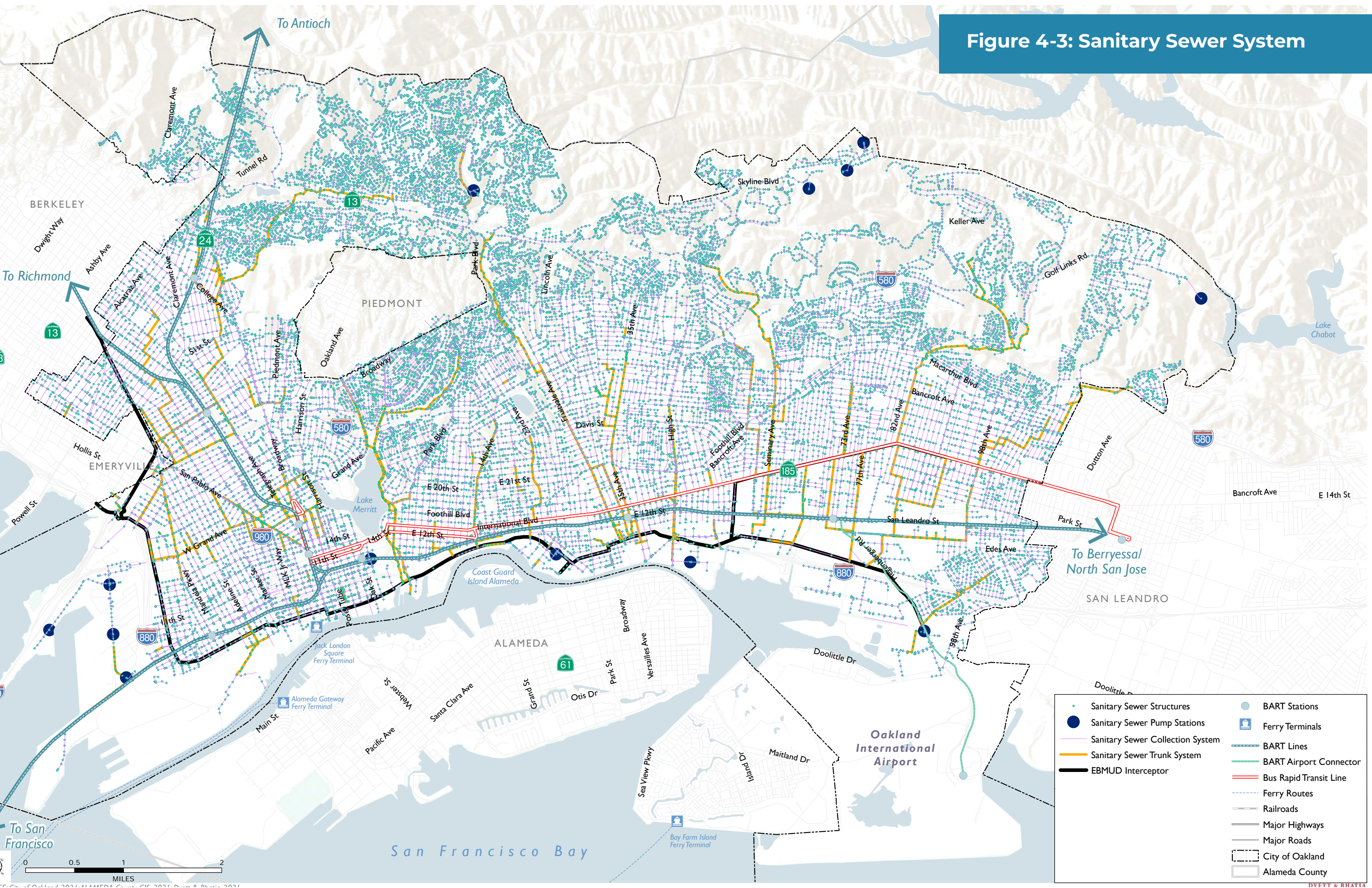
Oakland is responsible for the operation and maintenance of the local storm drainage system in the Plan Area. The City's storm drainage system consists of more than 300 miles of storm drain pipes, over 100 miles of open creeks, and 15,000 structures (including inlets, manholes, and catch basins). These facilities are both publicly and privately owned. City-owned drainage systems are typically located within easements and rights-of-way. In 2019, the City of Oakland developed a Green Stormwater



Infrastructure Plan to comply with the California Regional Water Quality Control Board's Municipal Regional Stormwater Permit (MRP), work within the local Alameda County Clean Water Program, and to protect and restore watersheds within the City. "Green Stormwater Infrastructure" refers to a variety of practices and engineered facilities designed to detain and clean, capture and reuse, or infiltrate stormwater runoff to reduce the volume of runoff and improve water quality. In accordance with the City's Resilient Oakland Playbook, Oakland will use green infrastructure to manage stormwater and reduce flooding risks, as well as provide urban greening benefits, such as improved air quality and reduced urban heat island effects, especially for neighborhoods that have limited access to parks and green space. Completed green stormwater infrastructure projects are shown in Figure 4-4; planned and potential green stormwater infrastructure projects are shown in **Figure 4-5**.

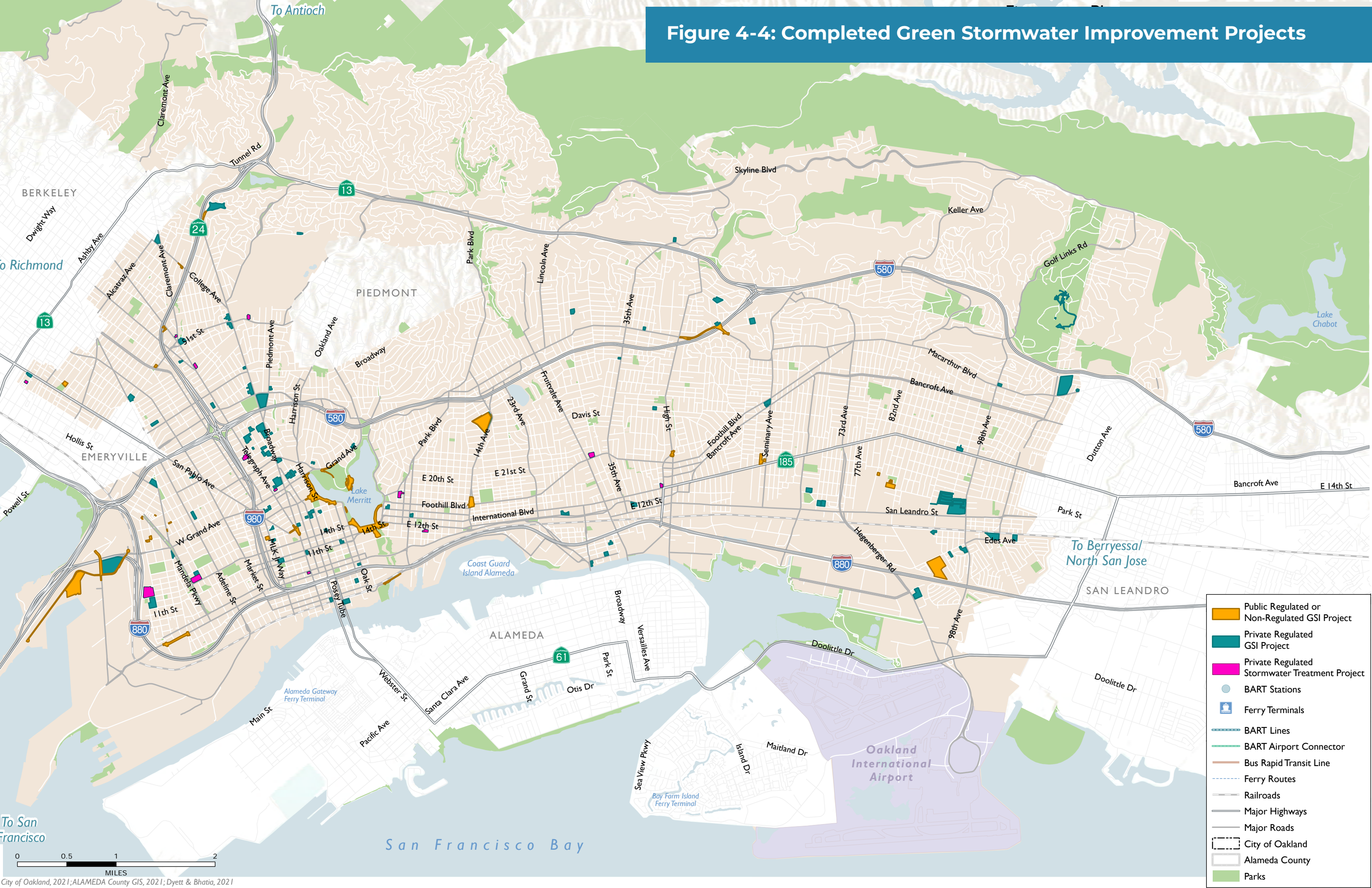
In 2021, the City began developing an updated Storm Drainage Master Plan that will provide recommendations for the rehabilitation of the existing storm drainage system, construction of new improvements, and the maintenance and care of the City's existing drainage assets. The City intends to use this study to establish and prioritize storm drainage capital improvement projects, identify permitting requirements, and develop improved maintenance and management practices and standards that address water quality issues consistent with the MRP and other associated stormwater management guidelines and regulations.

Figure 4-3: Sanitary Sewer System



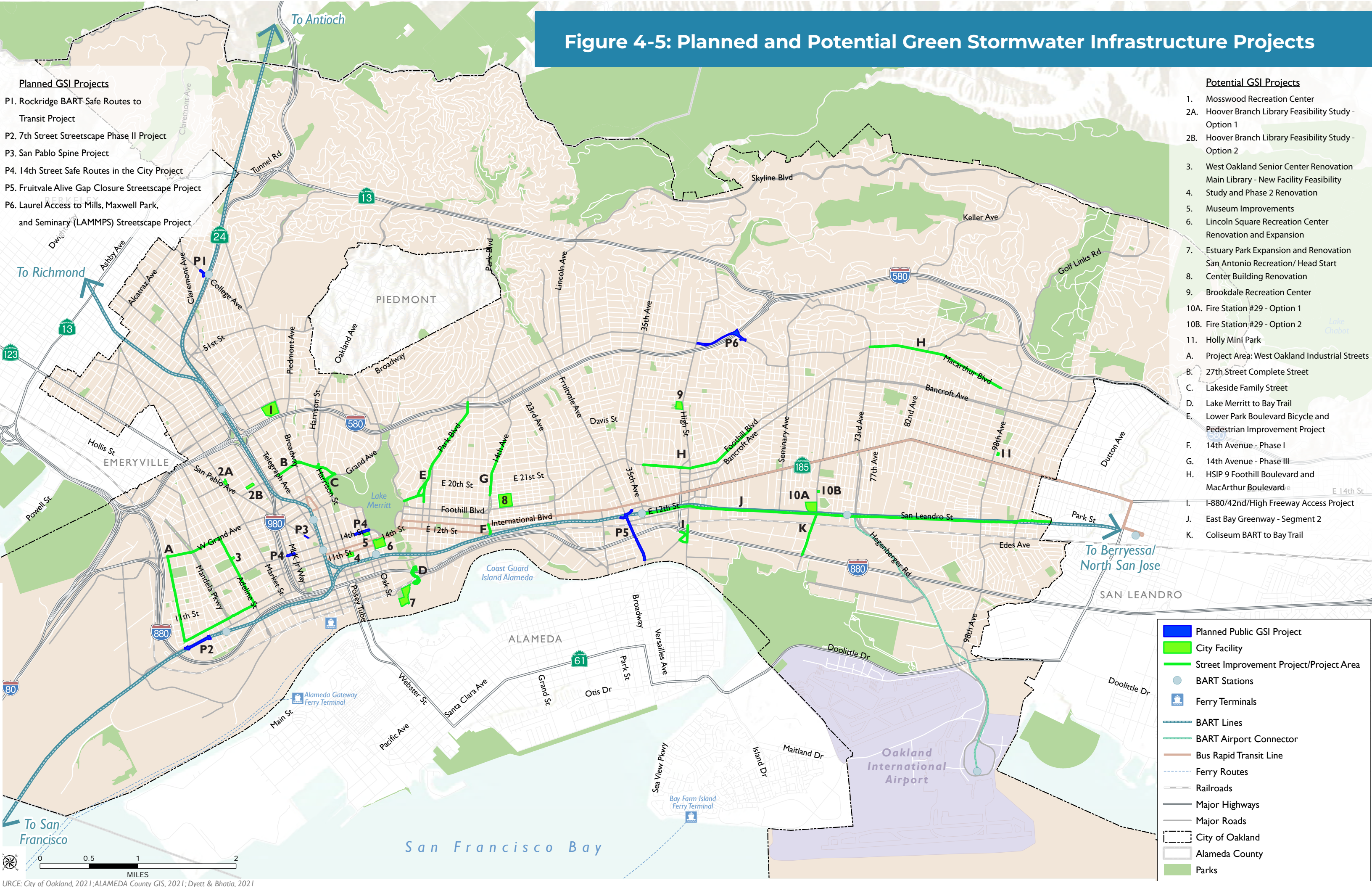
- Sanitary Sewer Structures
- Sanitary Sewer Pump Stations
- Sanitary Sewer Collection System
- Sanitary Sewer Trunk System
- EBMUD Interceptor
- BART Stations
- Ferry Terminals
- BART Lines
- BART Airport Connector
- Bus Rapid Transit Line
- Ferry Routes
- Railroads
- Major Highways
- Major Roads
- City of Oakland
- Alameda County

Figure 4-4: Completed Green Stormwater Improvement Projects



- Public Regulated or Non-Regulated GSI Project
- Private Regulated GSI Project
- Private Regulated Stormwater Treatment Project
- BART Stations
- Ferry Terminals
- BART Lines
- BART Airport Connector
- Bus Rapid Transit Line
- Ferry Routes
- Railroads
- Major Highways
- Major Roads
- City of Oakland
- Alameda County
- Parks

Figure 4-5: Planned and Potential Green Stormwater Infrastructure Projects



- Planned GSI Projects**
- P1. Rockridge BART Safe Routes to Transit Project
 - P2. 7th Street Streetscape Phase II Project
 - P3. San Pablo Spine Project
 - P4. 14th Street Safe Routes in the City Project
 - P5. Fruitvale Alive Gap Closure Streetscape Project
 - P6. Laurel Access to Mills, Maxwell Park, and Seminary (LAMMPS) Streetscape Project

- Potential GSI Projects**
- 1. Mosswood Recreation Center
 - 2A. Hoover Branch Library Feasibility Study - Option 1
 - 2B. Hoover Branch Library Feasibility Study - Option 2
 - 3. West Oakland Senior Center Renovation Main Library - New Facility Feasibility Study and Phase 2 Renovation
 - 4. Museum Improvements
 - 5. Lincoln Square Recreation Center Renovation and Expansion
 - 6. Estuary Park Expansion and Renovation San Antonio Recreation/ Head Start Center Building Renovation
 - 7. Brookdale Recreation Center
 - 10A. Fire Station #29 - Option 1
 - 10B. Fire Station #29 - Option 2
 - 11. Holly Mini Park
 - A. Project Area: West Oakland Industrial Streets
 - B. 27th Street Complete Street
 - C. Lakeside Family Street
 - D. Lake Merritt to Bay Trail
 - E. Lower Park Boulevard Bicycle and Pedestrian Improvement Project
 - F. 14th Avenue - Phase I
 - G. 14th Avenue - Phase III
 - H. HSIP 9 Foothill Boulevard and MacArthur Boulevard
 - I. I-880/42nd/High Freeway Access Project
 - J. East Bay Greenway - Segment 2
 - K. Coliseum BART to Bay Trail

Legend

- Planned Public GSI Project
- City Facility
- Street Improvement Project/Project Area
- BART Stations
- Ferry Terminals
- BART Lines
- BART Airport Connector
- Bus Rapid Transit Line
- Ferry Routes
- Railroads
- Major Highways
- Major Roads
- City of Oakland
- Alameda County
- Parks

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05

NATURAL SETTING AND OPEN SPACE

- 5.1 Topography and Slope
- 5.2 Biological Resources
- 5.3 Watersheds
- 5.4 Urban Forest
- 5.5 Open Space and Recreation

5. Natural Setting and Open Space

5.1 Topography and Slope

Oakland’s topography is shown in **Figure 5-1**. The City rises from an elevation of sea level at its western edge to approximately 1,760 feet in the northeast Oakland Hills. Slopes are generally steeper in the hills and gradually decrease toward the flatlands, with slopes in the Oakland Hills, especially areas east of Highway 13/I-580, exceeding 30 percent. Significant portions of neighborhoods northeast of Lake Merritt, such as Grand Lake, as well as Hills-adjacent parts of East Oakland have slopes exceeding 15 percent. The terrain flattens out toward the western and southwestern parts of the City as well as north of I-980; these relatively flat areas include Downtown, West Oakland, most of North Oakland, the Port and Airport, and most of East Oakland.

5.2 Biological Resources

REGIONAL AND LOCAL SETTING

Oakland is in the San Francisco Bay Bioregion, which has a mild Mediterranean climate with generally warm, dry summers and cool, wet winters. This region includes marine, freshwater, and terrestrial resources from Point Arena to the Santa Cruz Mountains and extends from the continental shelf to the delta of the Sacramento and San Joaquin Rivers.^{1,2} Oakland is bordered to the west by the San Francisco Bay and to the east by the San Pablo Ridge Range, one of the Southern Coast Ranges running from the East San Francisco Bay Area south to Santa Barbara County.

1 U.S. Geological Survey (USGS). 2017. Western Ecological Research Center (WERC). Bioregions of the Pacific U.S. Available at <https://www.usgs.gov/centers/werc/science/bioregions-pacific-us>. Accessed December 22, 2021.

2 There are numerous sources for bioregions. The USGS Western Ecological Research Center defined their Bioregions of the Pacific U.S. by adopting a slightly modified version of the Forest Service’s National Hierarchical Framework of Ecological Units.

Table 5-1: Terrestrial Vegetation Communities and Aquatic Features

CATEGORY	ACREAGE	PERCENTAGE OF CITY OF OAKLAND
TERRESTRIAL		
Annual Grassland	1,182	2
Blue Oak Forest / Woodland	102	<1
California Bay Forest	32	<1
Central Coast Riparian Forests	17	<1
Chamise Chaparral	50	<1
Coast Live Oak Forest / Woodland	2,314	5
Coastal Salt Marsh / Coastal Brackish Marsh	220	<1
Coastal Scrub	559	1
Eucalyptus	913	2
Mixed Chaparral	25	<1
Montane Hardwoods	5	<1
Monterey Pine Forest	33	<1
Non-native / Ornamental Conifer	73	<1
Non-native / Ornamental Grass	479	1
Non-native / Ornamental Hardwood	129	<1
Non-native / Ornamental Conifer / Hardwood Mixture	354	1
Redwood Forest	310	1
Semi-Desert Scrub / Desert Scrub	284	1
Serpentine Conifer	23	<1
Serpentine Grassland	6	<1
Serpentine Hardwoods	34	<1
Serpentine Scrub	3	<1
Valley Oak Forest / Woodland	82	<1

AQUATIC		
Estuarine Marine Wetland	329	1
Freshwater Forested / Shrub Wetland	2	<1
Freshwater Pond	152	<1
Lake	365	1
Permanent Freshwater Marsh	128	<1
Riverine	200	<1
Water	192	<1
OTHER		
Developed / Disturbed	41,310	83

Sources: City of Oakland, 2021; Alameda County GIS, 2021; Dyett & Bhatia, 2021; Conservation Lands Network, 2021; US Fish and Wildlife Service National Wetlands Inventory, 2021.

VEGETATION AND AQUATIC HABITAT

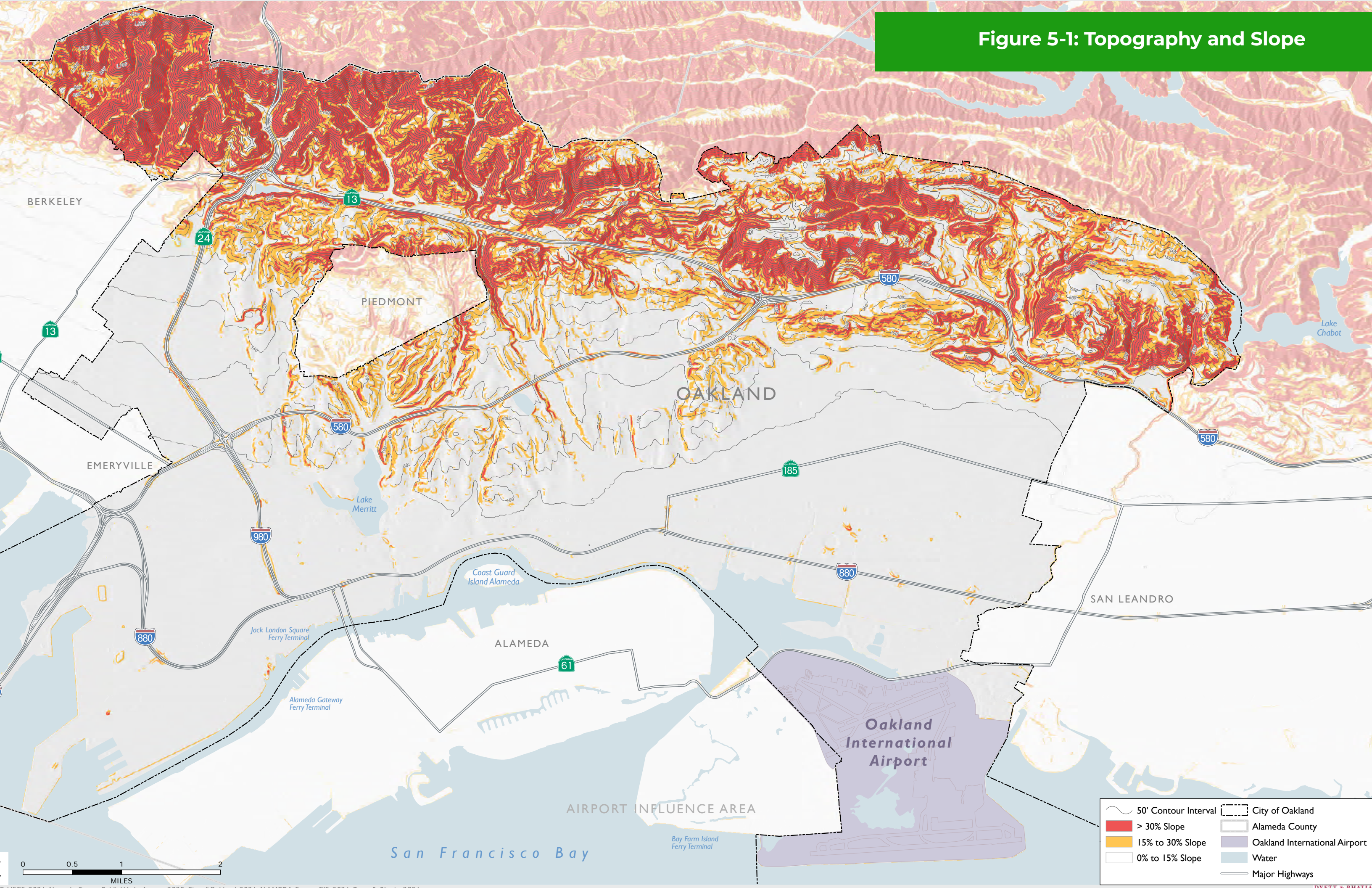
Oakland is a highly urbanized environment and most of its lands are disturbed or developed areas, which are the areas not designated as a vegetation community or aquatic feature (Figure 5-2A). However, Oakland has 19 miles of shoreline, 13 creeks, a muted tidal lake, and over 100,000 acres of parks and trails (City of Oakland, 2022; NWI, 2022).^{3,4} These natural areas include coastal salt marsh along the San Francisco Bay shoreline, riparian forest along the City’s many creeks, extensive grassland, oak woodland, coastal scrub in the Oakland hills, and many other vegetation communities as shown in **Figure 5-2A** and **Table 5-1**.



3 City of Oakland. 2022. City of Oakland website. <https://www.visitoakland.com/things-to-do/sports-and-outdoors/parks-open-spaces/>. Accessed in January, 2022.

4 National Wetlands Institute. 2022. NWI Wetland Mapper. <https://www.fws.gov/wetlands/data/mapper.html>. Accessed in January 2022.

Figure 5-1: Topography and Slope



BERKELEY

PIEDMONT

OAKLAND

EMERYVILLE

SAN LEANDRO

ALAMEDA

Oakland International Airport

AIRPORT INFLUENCE AREA

San Francisco Bay

0 0.5 1 2
MILES

- 50' Contour Interval
- > 30% Slope
- 15% to 30% Slope
- 0% to 15% Slope
- City of Oakland
- Alameda County
- Oakland International Airport
- Water
- Major Highways

SPECIAL STATUS SPECIES

The term special-status species refers to plant and wildlife species that are considered sufficiently rare that they require special consideration and/or protection and should be, or currently are, listed as rare, threatened, or endangered by the federal and/or state governments. Such species are legally protected under the federal and/or state Endangered Species Acts or other regulations. According to records maintained by the California Natural Diversity Database (CNDDDB), there are observations of the following federal and/or state listed wildlife and plant species, as well as non-listed rare plant species, occurring in the City of Oakland within the last 50 years: Alameda whipsnake, California Ridgway's rail, California black rail, western snowy plover, least tern, salt marsh harvest mouse, tidewater goby, longfin smelt, pallid manzanita, Presidio clarkia, most beautiful jewelflower, and Tiburon buckwheat (**Table 5-2**). **Figures 5-2B** and **5.2C** illustrate all special-status species observations within Oakland that have been submitted to the CNDDDB, as well as critical habitat for Alameda whipsnake, which is present in the scrub and grassland habitat in the hills at the eastern edge of Oakland.



Table 5-2: Wildlife and Plant Species and Rare Plants Observed in Oakland^a

COMMON NAME	FEDERAL LISTING	STATE LISTING	CNPS CRPR RANK ^b
WILDLIFE			
Alameda whipsnake	Threatened	Threatened	n/a
California Ridgway's rail	Endangered	Endangered	n/a
California black rail	None	Threatened	n/a
Western snowy plover	Threatened	None	n/a
California least tern	Endangered	Endangered	n/a
Salt marsh harvest mouse	Endangered	Endangered	n/a
Tidewater goby	Endangered	None	n/a
Longfin smelt	Candidate	Threatened	n/a
PLANTS			
Pallid manzanita	Threatened	Endangered	1B.1
Presidio clarkia	Endangered	Endangered	1B.1
Most beautiful jewelflower	None	Rare	1B.2
Tiburon buckwheat	None	None	1B.2
Western leatherwood	None	None	1B.2

Notes:

- a Observations submitted to the CNDDDB within the past 50 years.
- b California Native Plant Society (CNPS) California Rare Plant Rank (CRPR)
 1A = Presumed extirpated in California; Rare or extinct in other parts of its range.
 1B = Rare, threatened, or endangered throughout range; Most species in this rank are endemic to California.

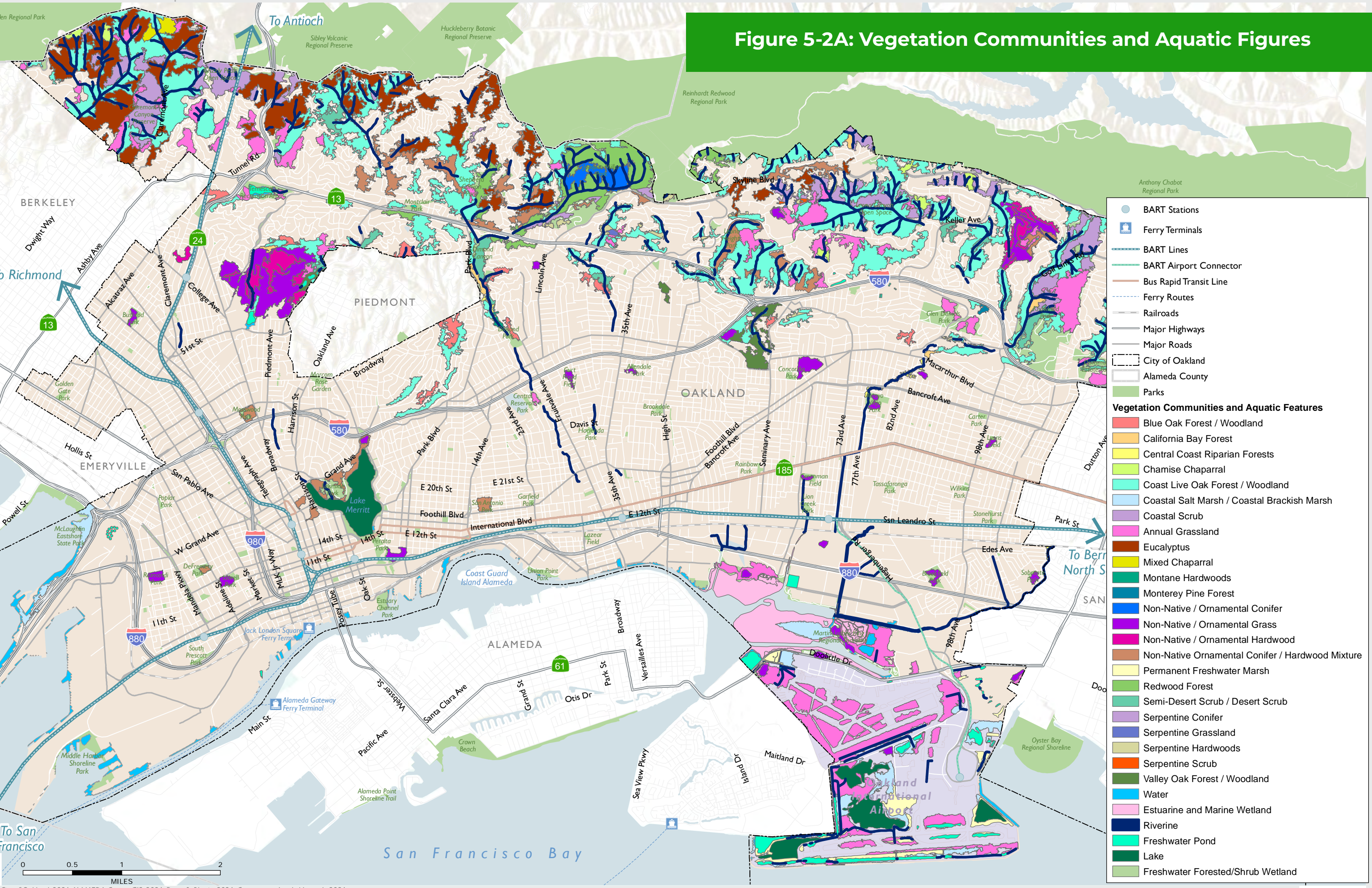
- 2A = Extirpated in California, but common in other parts of its range.
- 2B = Rare, threatened, or endangered in California but common in other parts of its range.

An extension reflecting the level of threat to each species is appended to each rarity category as follows:

- .1 = Seriously endangered in California
- .2 = Fairly endangered in California

Sources: City of Oakland, 2021; Alameda County GIS, 2021; Dyett & Bhatia, 2021; CDFW, 2021; USFWS, 2021.

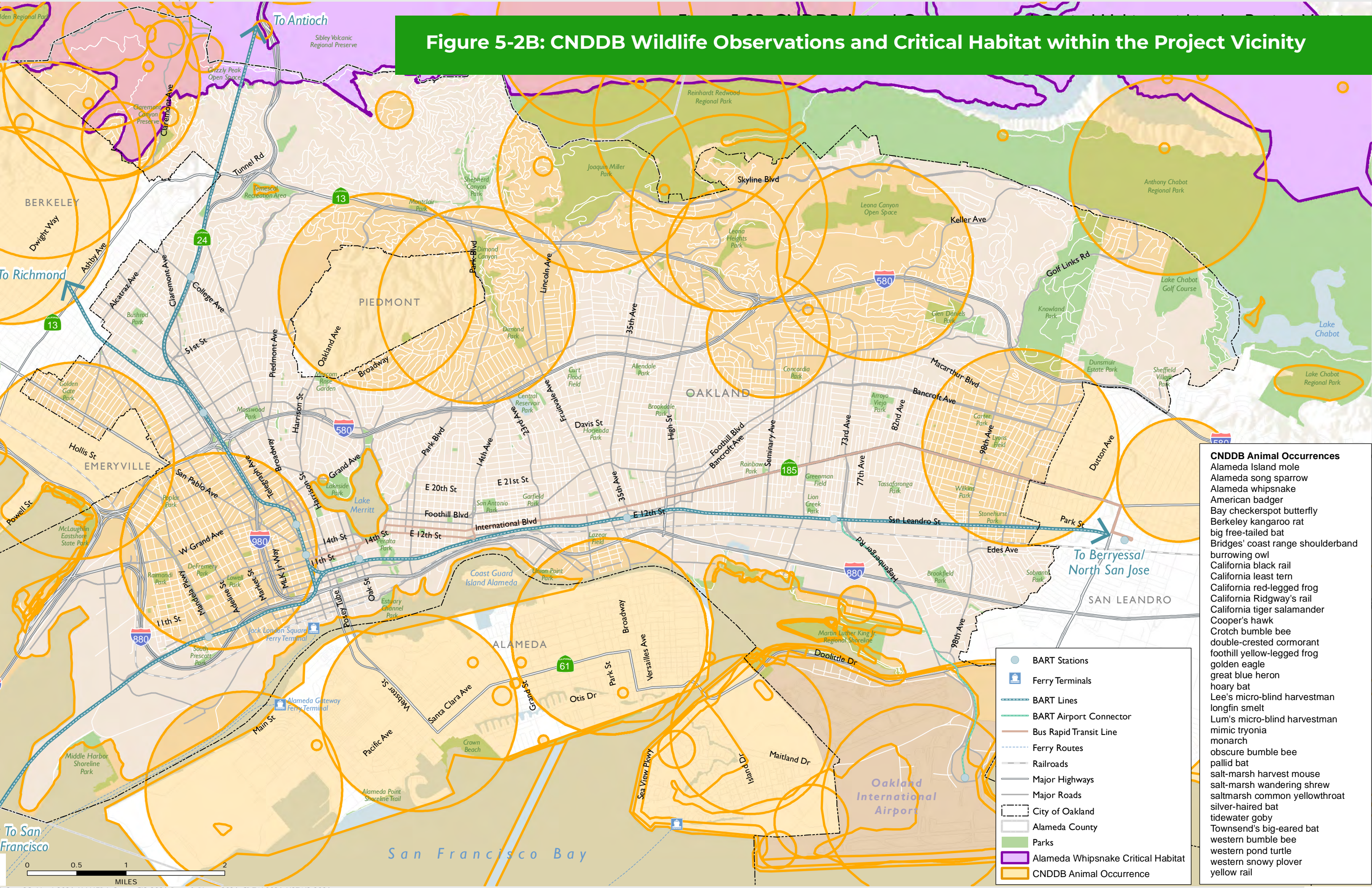
Figure 5-2A: Vegetation Communities and Aquatic Figures



- BART Stations
 - Ferry Terminals
 - BART Lines
 - BART Airport Connector
 - Bus Rapid Transit Line
 - - - Ferry Routes
 - Railroads
 - Major Highways
 - Major Roads
 - City of Oakland
 - Alameda County
 - Parks
- Vegetation Communities and Aquatic Features**
- Blue Oak Forest / Woodland
 - California Bay Forest
 - Central Coast Riparian Forests
 - Chamise Chaparral
 - Coast Live Oak Forest / Woodland
 - Coastal Salt Marsh / Coastal Brackish Marsh
 - Coastal Scrub
 - Annual Grassland
 - Eucalyptus
 - Mixed Chaparral
 - Montane Hardwoods
 - Monterey Pine Forest
 - Non-Native / Ornamental Conifer
 - Non-Native / Ornamental Grass
 - Non-Native / Ornamental Hardwood
 - Non-Native Ornamental Conifer / Hardwood Mixture
 - Permanent Freshwater Marsh
 - Redwood Forest
 - Semi-Desert Scrub / Desert Scrub
 - Serpentine Conifer
 - Serpentine Grassland
 - Serpentine Hardwoods
 - Serpentine Scrub
 - Valley Oak Forest / Woodland
 - Water
 - Estuarine and Marine Wetland
 - Riverine
 - Freshwater Pond
 - Lake
 - Freshwater Forested/Shrub Wetland

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MILES

Figure 5-2B: CNDDB Wildlife Observations and Critical Habitat within the Project Vicinity

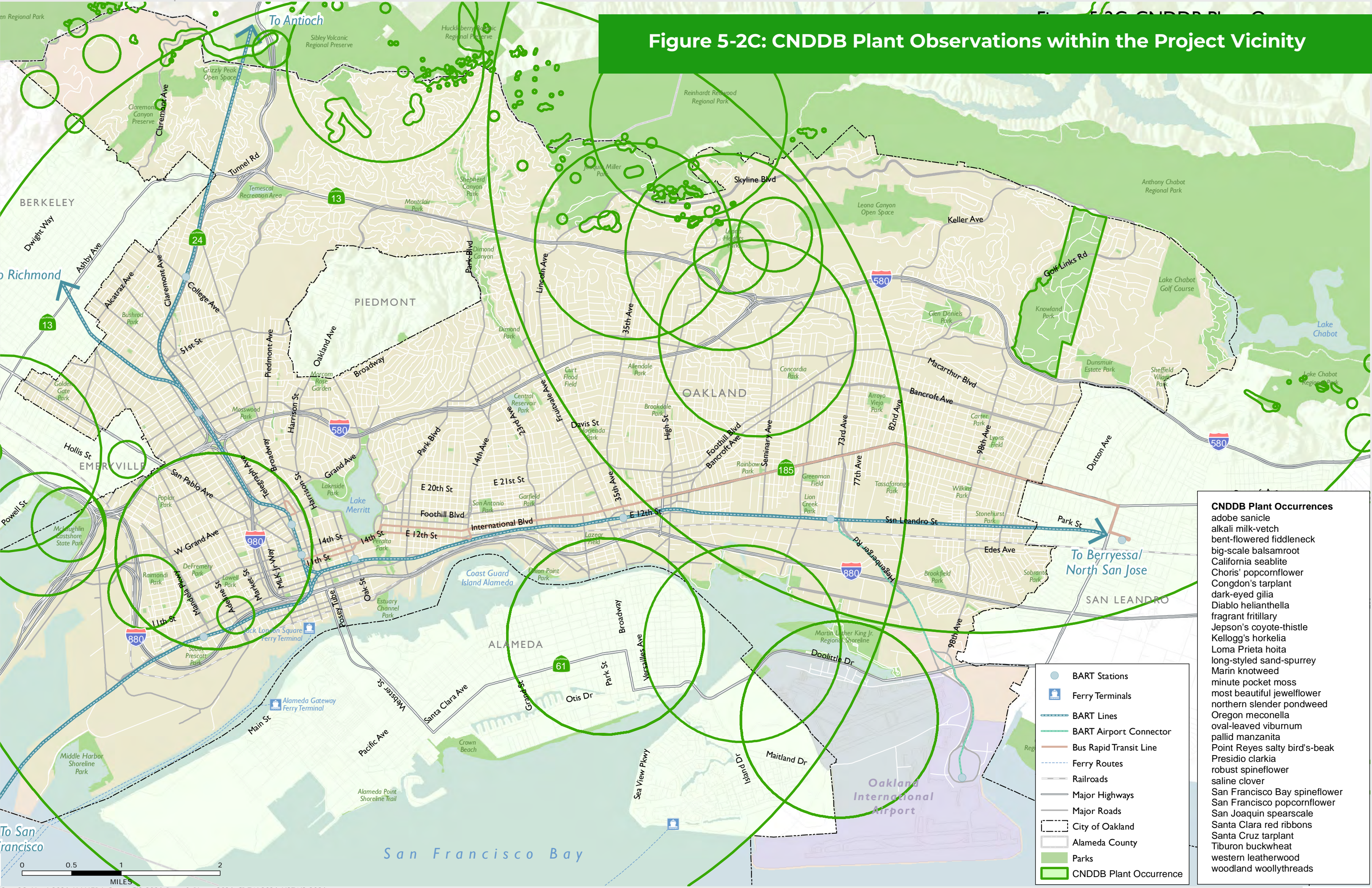


- CNDDB Animal Occurrences**
- Alameda Island mole
 - Alameda song sparrow
 - Alameda whipsnake
 - American badger
 - Bay checkerspot butterfly
 - Berkeley kangaroo rat
 - big free-tailed bat
 - Bridges' coast range shoulderband
 - burrowing owl
 - California black rail
 - California least tern
 - California red-legged frog
 - California Ridgway's rail
 - California tiger salamander
 - Cooper's hawk
 - Crotch bumble bee
 - double-crested cormorant
 - foothill yellow-legged frog
 - golden eagle
 - great blue heron
 - hoary bat
 - Lee's micro-blind harvestman
 - longfin smelt
 - Lum's micro-blind harvestman
 - mimic tryonia
 - monarch
 - obscure bumble bee
 - pallid bat
 - salt-marsh harvest mouse
 - salt-marsh wandering shrew
 - saltmarsh common yellowthroat
 - silver-haired bat
 - tidewater goby
 - Townsend's big-eared bat
 - western bumble bee
 - western pond turtle
 - western snowy plover
 - yellow rail

- BART Stations
- Ferry Terminals
- BART Lines
- BART Airport Connector
- Bus Rapid Transit Line
- Ferry Routes
- Railroads
- Major Highways
- Major Roads
- City of Oakland
- Alameda County
- Parks
- Alameda Whipsnake Critical Habitat
- CNDDB Animal Occurrence

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Figure 5-2C: CNDDB Plant Observations within the Project Vicinity



- CNDDB Plant Occurrences**
- adobe sanicle
 - alkali milk-vetch
 - bent-flowered fiddleneck
 - big-scale balsamroot
 - California seablite
 - Choris' popcornflower
 - Congdon's tarplant
 - dark-eyed gilia
 - Diablo helianthella
 - fragrant fritillary
 - Jepson's coyote-thistle
 - Kellogg's horkelia
 - Loma Prieta hoita
 - long-styled sand-spurrey
 - Marin knotweed
 - minute pocket moss
 - most beautiful jewelflower
 - northern slender pondweed
 - Oregon meconella
 - oval-leaved viburnum
 - pallid manzanita
 - Point Reyes salty bird's-beak
 - Presidio clarkia
 - robust spineflower
 - saline clover
 - San Francisco Bay spineflower
 - San Francisco popcornflower
 - San Joaquin spearscale
 - Santa Clara red ribbons
 - Santa Cruz tarplant
 - Tiburon buckwheat
 - western leatherwood
 - woodland woollythreads

- BART Stations
- Ferry Terminals
- BART Lines
- BART Airport Connector
- Bus Rapid Transit Line
- Ferry Routes
- Railroads
- Major Highways
- Major Roads
- City of Oakland
- Alameda County
- Parks
- CNDDB Plant Occurrence

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5.3 Watersheds

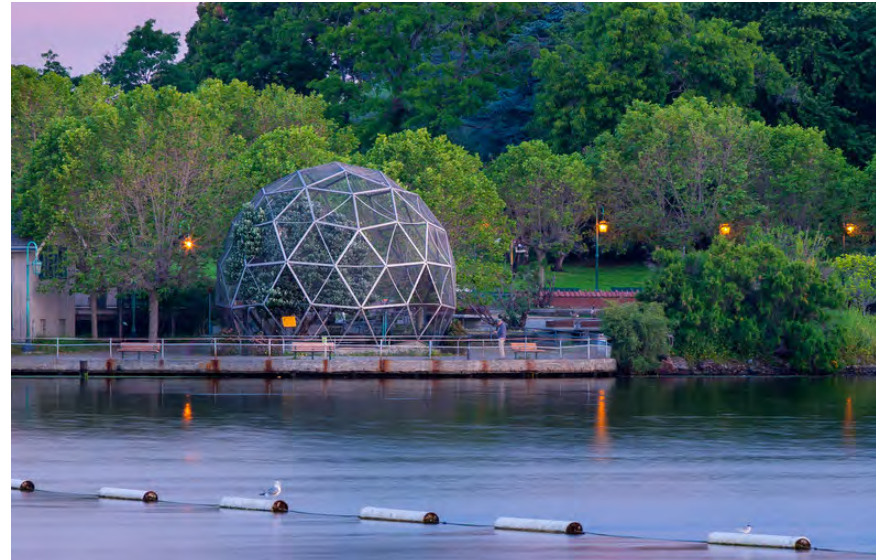
Oakland is bordered to the west by the San Francisco Bay, the Oakland Estuary, and the San Leandro Bay. There are 26 individual watersheds within the City, as shown and labeled on Figure 5-3A. Surface water bodies within the City include: Lakes Merritt and Temescal; and Arroyo Viejo, Courtland, Elmhurst, Glen Echo, Lion, Indian Gulch, Palo Seco, Peralta, Pleasant Valley, San Antonio, San Leandro, Sausal, Temescal, and Wildwood creeks (Figure 5-3B).

5.4 Urban Forest

Urban trees balance the natural with the built environment and provide both shade and beauty. Trees play a key role in the climate as they absorb carbon dioxide and help manage stormwater runoff. They also help fight pollution by improving air quality. Oakland's commitment to maintaining a substantial tree canopy is recognized by its Tree City USA status, which it has held for over 34 years. The City has its own Tree Services unit that maintains over 200,000 trees, but in 2008 it lost funding for its tree planting, pruning, and watering services.

In 2019, the City commissioned Davey Resource Group to study Oakland's existing urban forest resources. The first step was to use aerial imagery to understand the City's primary land cover and its relationship with the existing tree canopy. Based on the Tree Canopy and Land Cover Assessment (2020), Oakland's tree canopy coverage is 21.5 percent (about 7,800 acres), including trees and woody shrubs on both public and privately owned land. Most of the tree canopy is on privately owned property, though the highest canopy cover occurs in areas zoned for open space, while industrial zones have the lowest average canopy cover.

The second step was to conduct an inventory of community trees in parks, along City streets with sidewalks, and at City facilities. Although the community tree inventory includes



almost 69,000 trees along streets with sidewalks, medians, and landscaped parks, the Urban Forest Resource Analysis (2021) is not a conclusive inventory of every tree in Oakland such as those in open space parks (e.g., Joaquin Miller Park), trees in undeveloped rights-of-way without sidewalks (i.e., in the Oakland hills), and trees on private properties or properties outside the City of Oakland's jurisdiction. The report analyzes the benefits of Oakland's community trees, which have a quantifiable effect on air quality, stormwater runoff reduction, and carbon sequestration. Because Oakland has a mild climate with reduced need for air conditioning in the summer months, annual energy reductions from community trees were not calculated; nevertheless, trees in Oakland contribute to electric and natural gas savings through shading and climate buffering effects. The report also identifies key recommendations regarding risk, maintenance, diversity, and overall management to maximize potential benefits of the City's trees over time.

As Figure 5-4 indicates, tree canopy coverage in the City varies with topography, elevation, and density of development. The greatest percent canopy coverage is found in the Oakland Hills, with most the area exceeding 25 percent and large sections exceeding 42 percent. Canopy coverage decreases towards the denser flatlands. North Oakland includes some neighborhoods with 15-24 percent coverage, including Rockridge and Grand



Lake, while the rest of North Oakland has 0-14 percent coverage. East Oakland includes some neighborhoods with 15-24 percent coverage, such as Bella Vista and Reservoir Hills, but the vast majority of East Oakland has 0-14 percent coverage. Nearly all of West Oakland has 0-14 percent coverage, except for a few blocks adjacent to Old Oakland with 15-24 percent coverage. Downtown, aside from a few blocks in Old Oakland with 15-24 percent coverage, and the Jack London District have 0-14 percent coverage. The industrial areas in the City have very sparse tree canopy coverage. These findings emphasize the inequitable distribution of tree canopy across Oakland neighborhoods. Recommendations from the assessment include targeted zoning and city investment strategies to increase tree canopy cover.

The Tree Canopy and Land Cover Assessment and the community tree inventory will inform development of the City's upcoming Urban Forest Master Plan, which has just begun its planning process in December 2021. The master plan will be an equity-focused guide on how the urban forest will be planned, managed, and protected for the next generation of Oaklanders over the next 50 years. The planning process will also include a forthcoming Socioeconomic and Public Health Analysis.

Figure 5-3B: Creeks

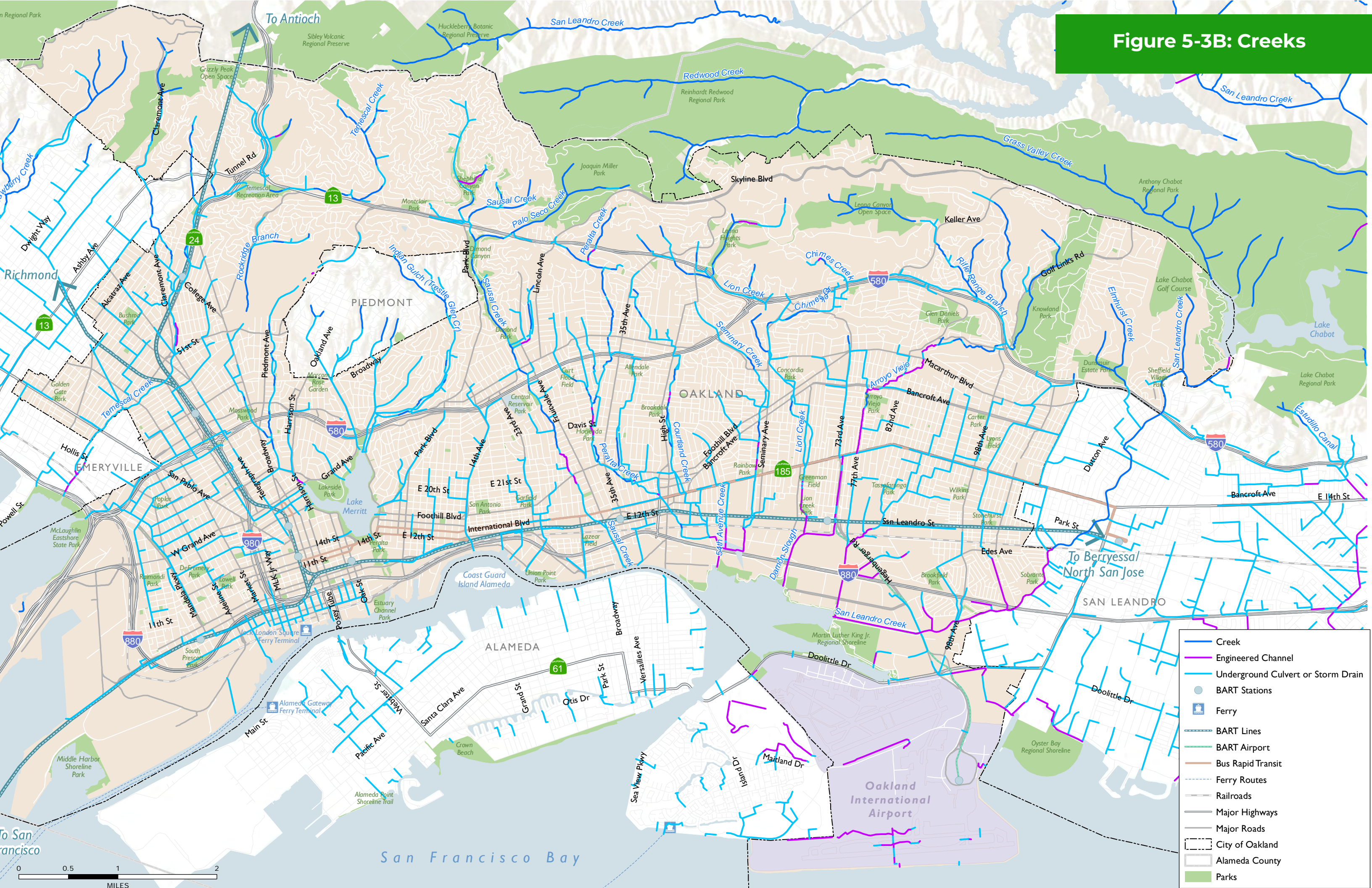
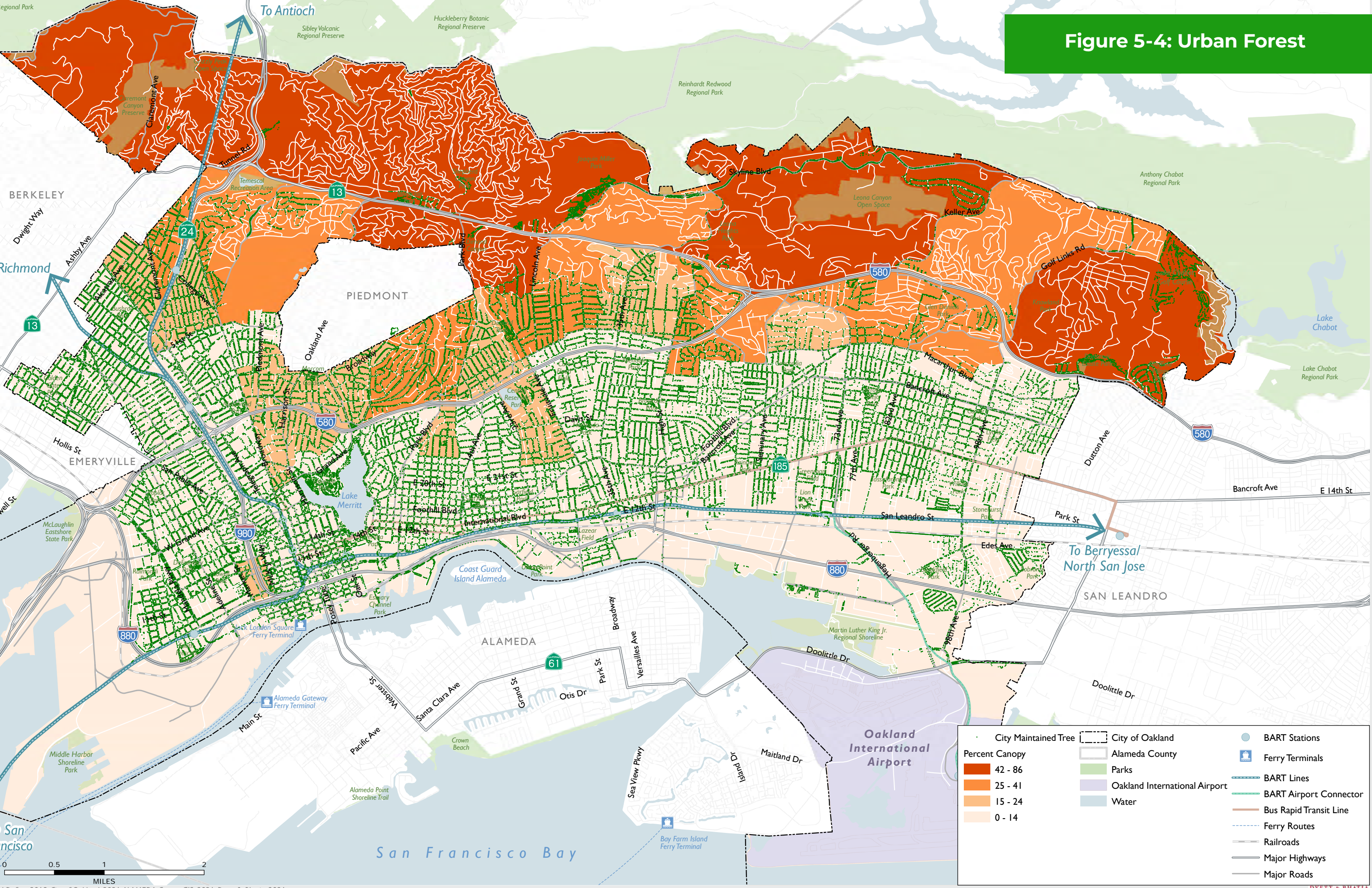


Figure 5-4: Urban Forest



5.5 Open Space and Recreation

Green spaces in parks and natural areas are valuable public assets that can greatly improve community livability, support healthy and active lifestyles, and provide ecological benefits. Oakland features over 3,865 acres of parkland but most of it is not easily accessible to residents without cars. **Figure 5-5** shows that the Oakland Hills are almost entirely bordered by and includes some regional parks. The Hills also include some large resource conservation areas and open spaces. The Oakland flatlands contain a much smaller total area of the City's parkland, with most parks being small neighborhood parks. Lake Merritt is the exception as it is surrounded by substantial community parkland; however, a significant share of the City population lives within close proximity, resulting in heavy use of these spaces. Recreation centers are distributed throughout the City, with the greatest concentration around densely populated Downtown and Lake Merritt. Section 4.3 of the companion Environmental and Racial Equity Baseline report explores issues around park equity in more detail.

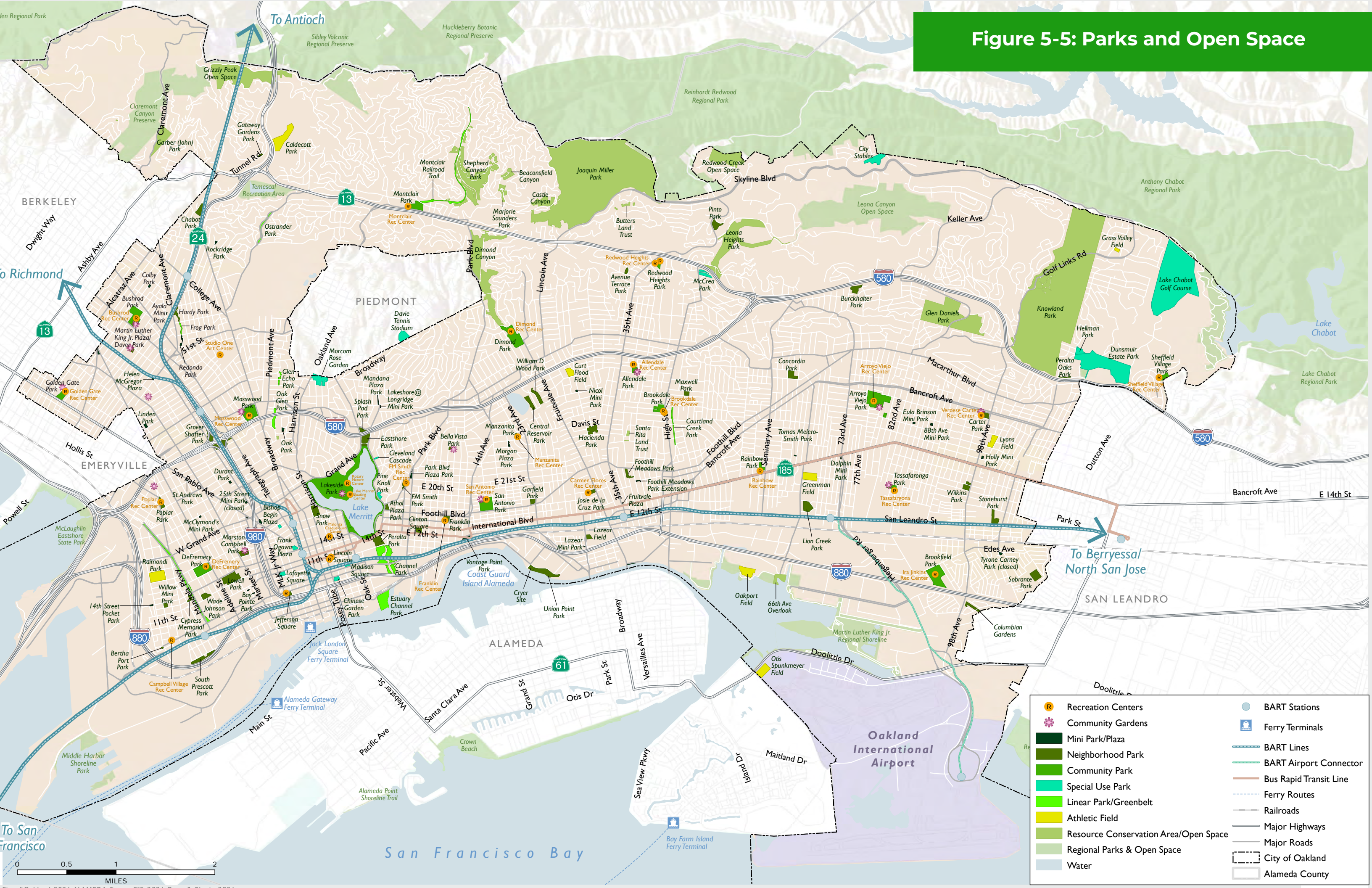
Community gardens and urban farms can help address limited access to healthy food in some communities, as well as provide opportunities to get outdoors and help fight climate change by increasing local food production. A study conducted by Urban Institute for the Alameda County Community Food Bank showed that the most food insecure census tracts in Oakland are concentrated in West Oakland, Downtown, and the East Peralta neighborhood, with up to 40 percent of the population in these census tracts experiencing food insecurity; marginal food security, where households sometimes experience anxiety around accessing adequate food, occurs in up to 18 percent of a census tract's population in West Oakland, and up to 16 percent of a census tract's population in Downtown and East Oakland.⁵

⁵ Elaine Waxman, et. al. Unmet Charitable Food Need in Alameda County: A Report to the Alameda County Community Food Bank. December 16, 2019. Urban Institute. https://www.urban.org/sites/default/files/publication/101443/unmet_charitable_food_need_report_in_alameda_county_1.pdf. Accessed February 2022.

Oakland updated its zoning regulations for urban agriculture in 2014 to reduce barriers to opening community gardens and urban farms in the City. Community gardens and limited agriculture (i.e. agriculture that does not include keeping animals aside from bees) is permitted outright in many zones, while extensive agriculture (involving animals other than bees) requires a conditional use permit. Starting a community garden or farm outside of the permitted zones requires a permit. As shown in Figure 5-5, community gardens, including urban farms, can be found in West Oakland, North Oakland, East Oakland and one at Lake Merritt. Section 4.2 of the companion Environmental and Racial Equity Baseline report explores healthy food access in more detail.



Figure 5-5: Parks and Open Space



- | | |
|---------------------------------------|------------------------|
| Recreation Centers | BART Stations |
| Community Gardens | Ferry Terminals |
| Mini Park/Plaza | BART Lines |
| Neighborhood Park | BART Airport Connector |
| Community Park | Bus Rapid Transit Line |
| Special Use Park | Ferry Routes |
| Linear Park/Greenbelt | Railroads |
| Athletic Field | Major Highways |
| Resource Conservation Area/Open Space | Major Roads |
| Regional Parks & Open Space | City of Oakland |
| Water | Alameda County |

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06

ENVIRONMENTAL HAZARDS

- 6.1 Geology**
- 6.2 Flooding, Dam Inundation, and Sea Level Rise**
- 6.3 Air Quality**
- 6.4 Wildfires**
- 6.5 Airport Hazards**
- 6.6 Noise**
- 6.7 Hazards and Hazardous Materials**

6. Environmental Hazards

6.1 Geology

Oakland is located between two known active fault zones – Hayward and San Andreas. The Hayward Fault Zone extends north-northwest to south-southeast approximately 55 miles from San Jose to Point Pinole along the eastern side of Oakland, as shown on Figure 6-1A. The fault is active, producing large historic earthquakes, and is designated as an Alquist-Priolo Earthquake Fault Zone (EFZ).^{1,2} The San Andreas Fault Zone is a system of faults trending northwest for approximately 600 miles, from the Gulf of Mexico to Cape Mendocino. It also has been designated an EFZ. There have been numerous large and destructive earthquakes generated from the San Andreas Fault Zone, including the 1906 San Francisco earthquake and the 1989 Loma Prieta earthquake. The Working Group on California Earthquake Probabilities has estimated that the entire San Francisco Bay Area has a 72 percent chance of experiencing an earthquake of magnitude 6.7 or higher over the next 30 years, with the Hayward and San Andreas Faults being the most likely to cause such an event.

- 1 In accordance with the Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) of 1972, the State Geologist established regulatory zones, called "Earthquake Fault Zones," around the surface traces of active faults and published maps showing the earthquake fault zones. Within the fault zones, buildings for human occupancy cannot be constructed across the surface trace of active faults.
- 2 Working Group on California Earthquake Probabilities, 2015a. Long-Term Time-Dependent Probabilities for the Third Uniform California Earthquake Rupture Forecast (UCERF3). Bulletin of the Seismological Society of America, Vol. 105, No. 2A. pp. 511-543. April 2015. doi: 10.1785/0120140093

Strong seismic ground shaking, due to Oakland's proximity to the Hayward and San Andreas fault zones, and earthquake-induced liquefaction and/or landslides are the primary geologic hazards of concern in Oakland in the event of an earthquake. The Probabilistic Seismic Hazard Assessment reveals that most of Oakland is at risk for violent shaking, while part of the port, including Oakland International Airport, is at risk for severe shaking (Figure 6-1A). Liquefaction is the rapid loss of shear strength experienced in saturated soils below groundwater level during strong earthquake shaking. Liquefaction can move blocks of soil, placing strain on buried pipelines that can lead to leaks or pipe failure. Liquefaction susceptibility is generally highest in the low-lying coastal areas of Oakland, and around Lake Merritt and the channel that connects it to the Estuary (Figure 6-1A). Earthquake-induced landslides are a particular type of landslide in which rocks and soil are displaced due to strong ground shaking. Figure 6-1B shows that landslides are most likely in the hillier parts of Oakland.



Photo: Greg Linhares, City of Oakland

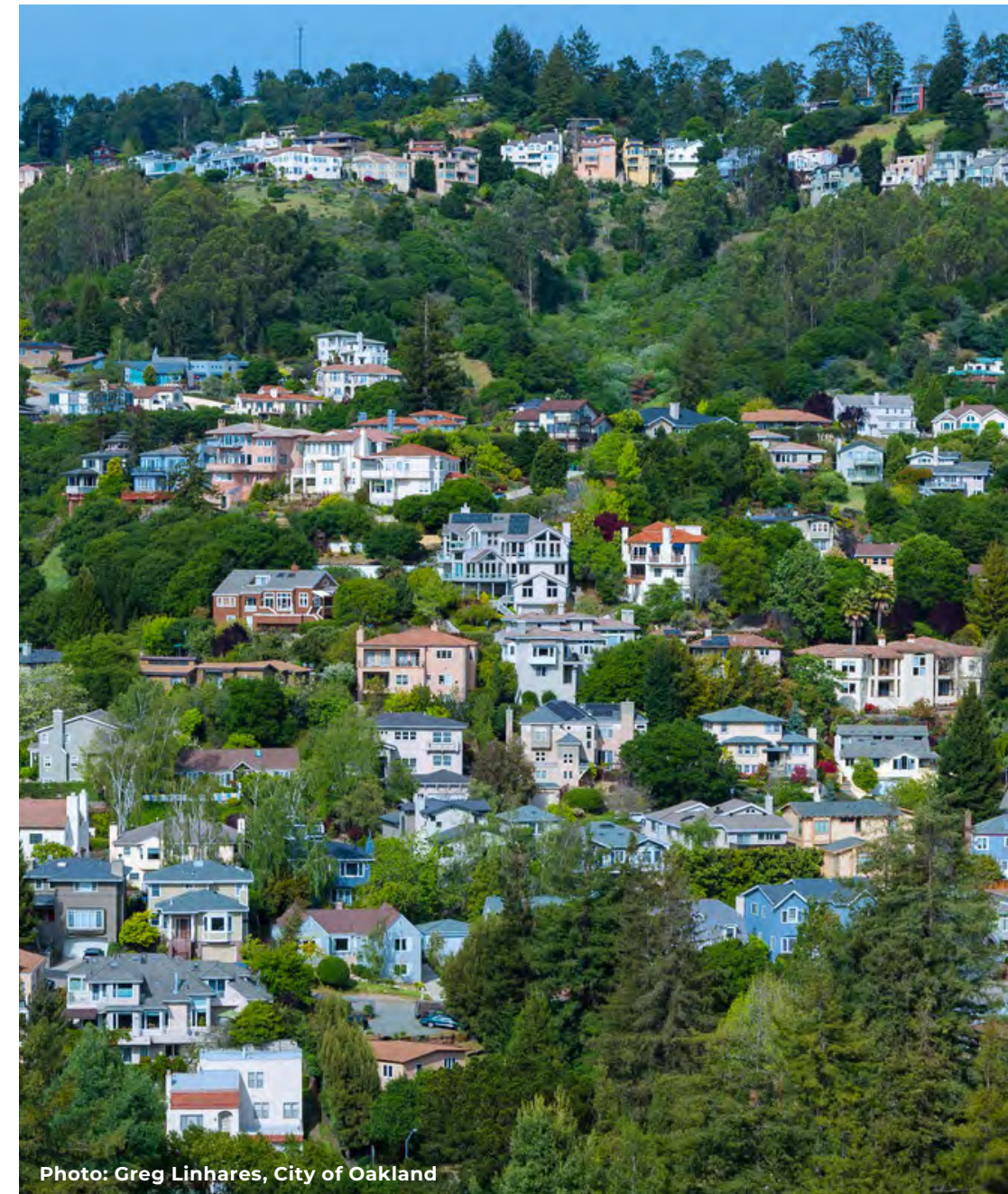


Photo: Greg Linhares, City of Oakland

Figure 6-1A: Seismic Hazards

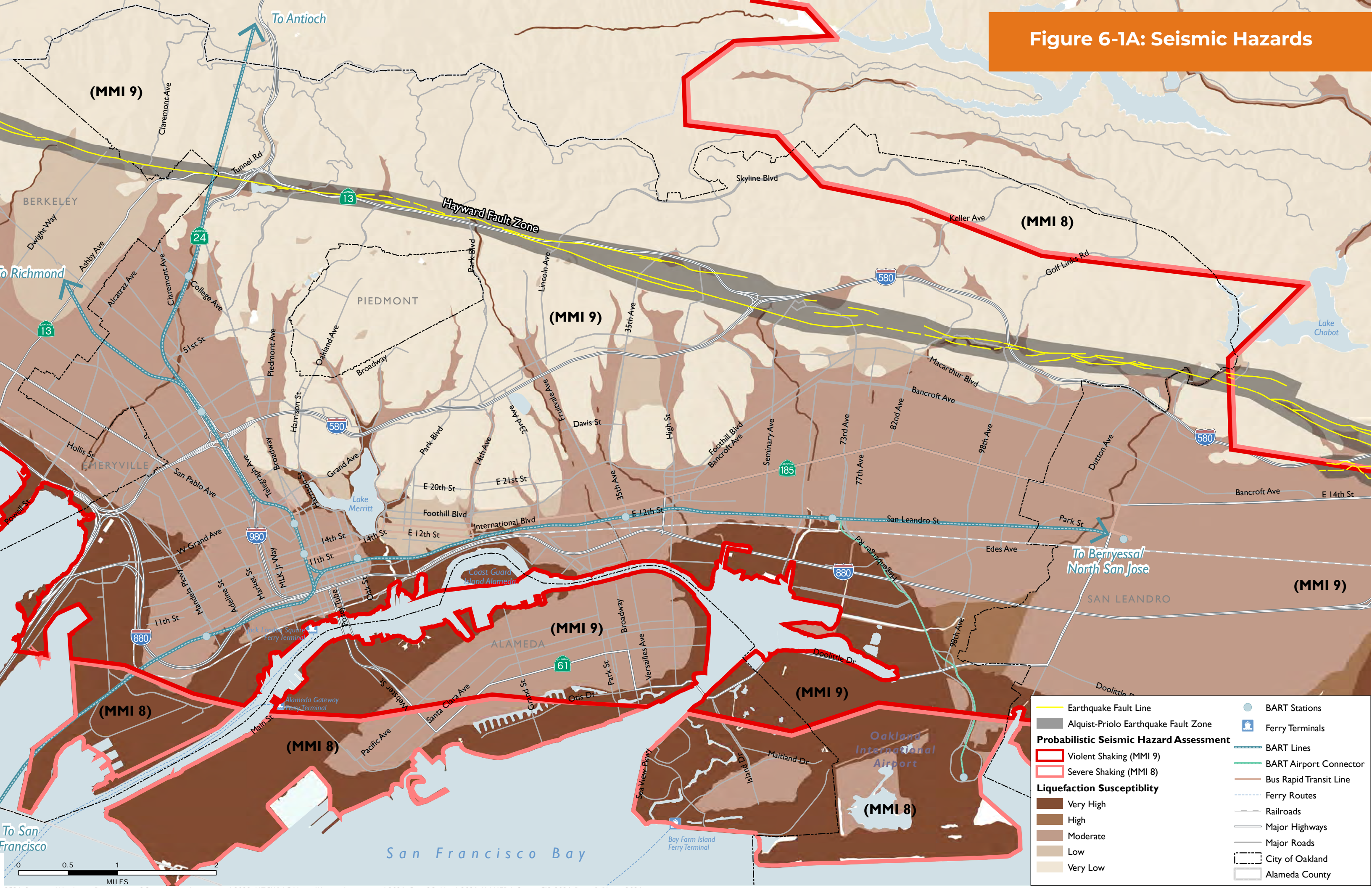


Figure 6-1B: Landslide Hazards

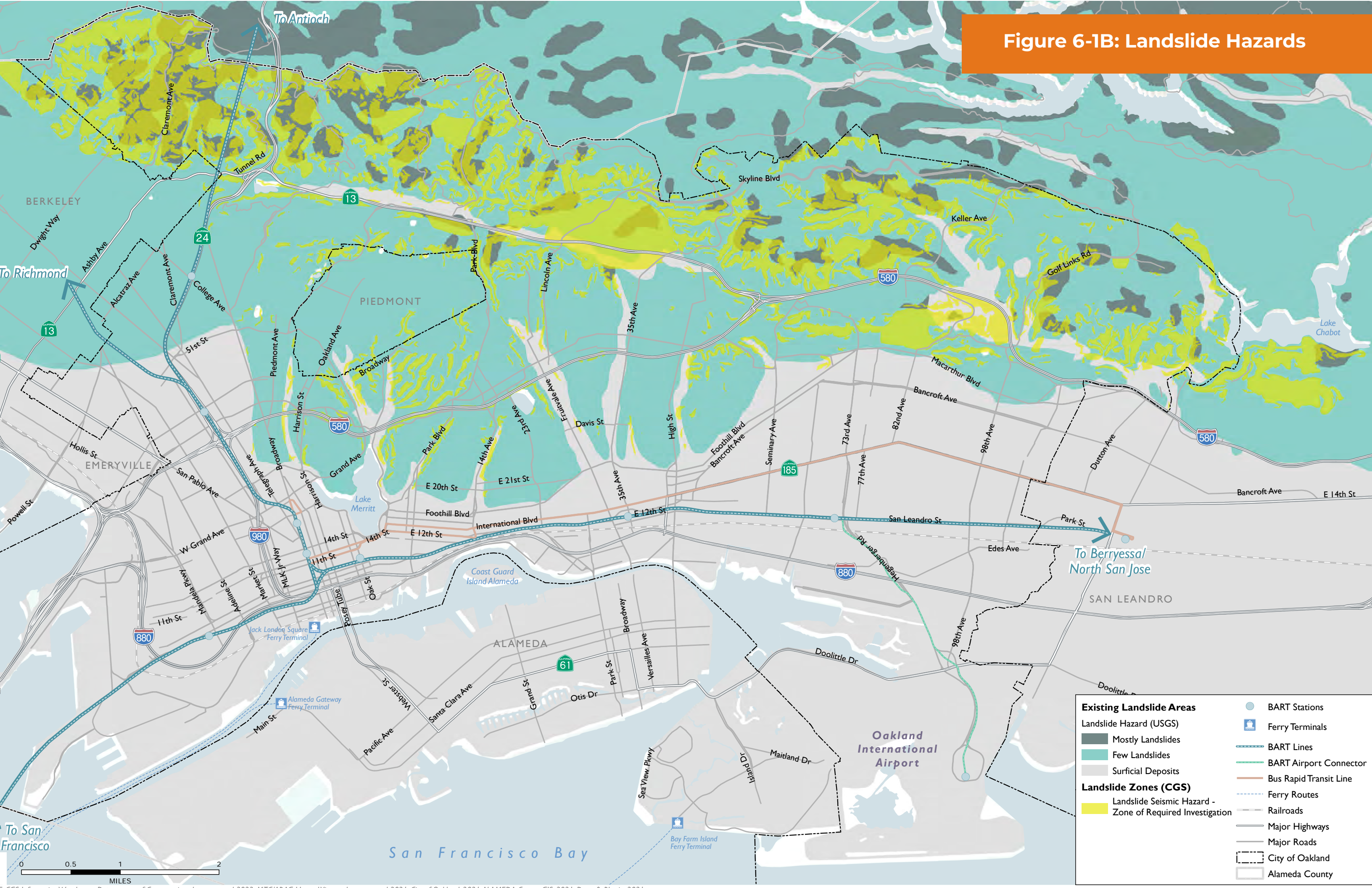




Photo: Greg Linhares, City of Oakland

6.2 Flooding, Dam Inundation, and Sea Level Rise

Flood hazards are mapped by the Federal Emergency Management Agency (FEMA) as part of the National Flood Insurance Program. The 100-year Flood Zone, which has a 1 percent annual chance flood risk, and 500-year Flood Zone, which has a 0.2 percent annual chance flood risk, are depicted in Figure 6-2A. The primary areas of flooding in Oakland are along the shoreline of the San Francisco Bay, Oakland Estuary, and San Leandro Bay. There is also flooding associated with Lake Merritt and Glen Echo Creek, as well as Arroyo Viejo, Lion, Sausal, and Peralta creeks. The areas near these bodies of water are at the most risk of being impacted during flood events. Most of the City's developed shoreline is not within the current 100-year Flood Zone, except the north part of the Oakland International Airport.³

The California Department of Water Resources' Division of Safety

³ The portion of the airport designated by FEMA as Zone X indicates an area that is determined to be outside the 500-year flood and is protected by levee from 100-year flood.

of Dams reviews and approves inundation maps for extremely high, high, and significant hazard dams. There are four dams in Oakland that are considered extremely high hazard dams: Lake Temescal, Central, Dunsmuir Reservoir, and Chabot. Piedmont and Seneca dams are also in the vicinity, but they are considered a low hazard and do not have associated inundation maps. Figure 6-2B depicts the inundation areas for Lake Temescal, Central, Dunsmuir Reservoir, and Chabot dams.

A rise in average global temperatures due to an increase in human-induced greenhouse gas (GHG) emissions has led to rising global sea level. In the last century, San Francisco Bay water levels have risen nearly eight inches.⁴ Following from the sea-level rise (SLR) projections used in the City's 2021-2026 Local Hazard Mitigation Plan, the 100-year coastal flood with 0.5 foot

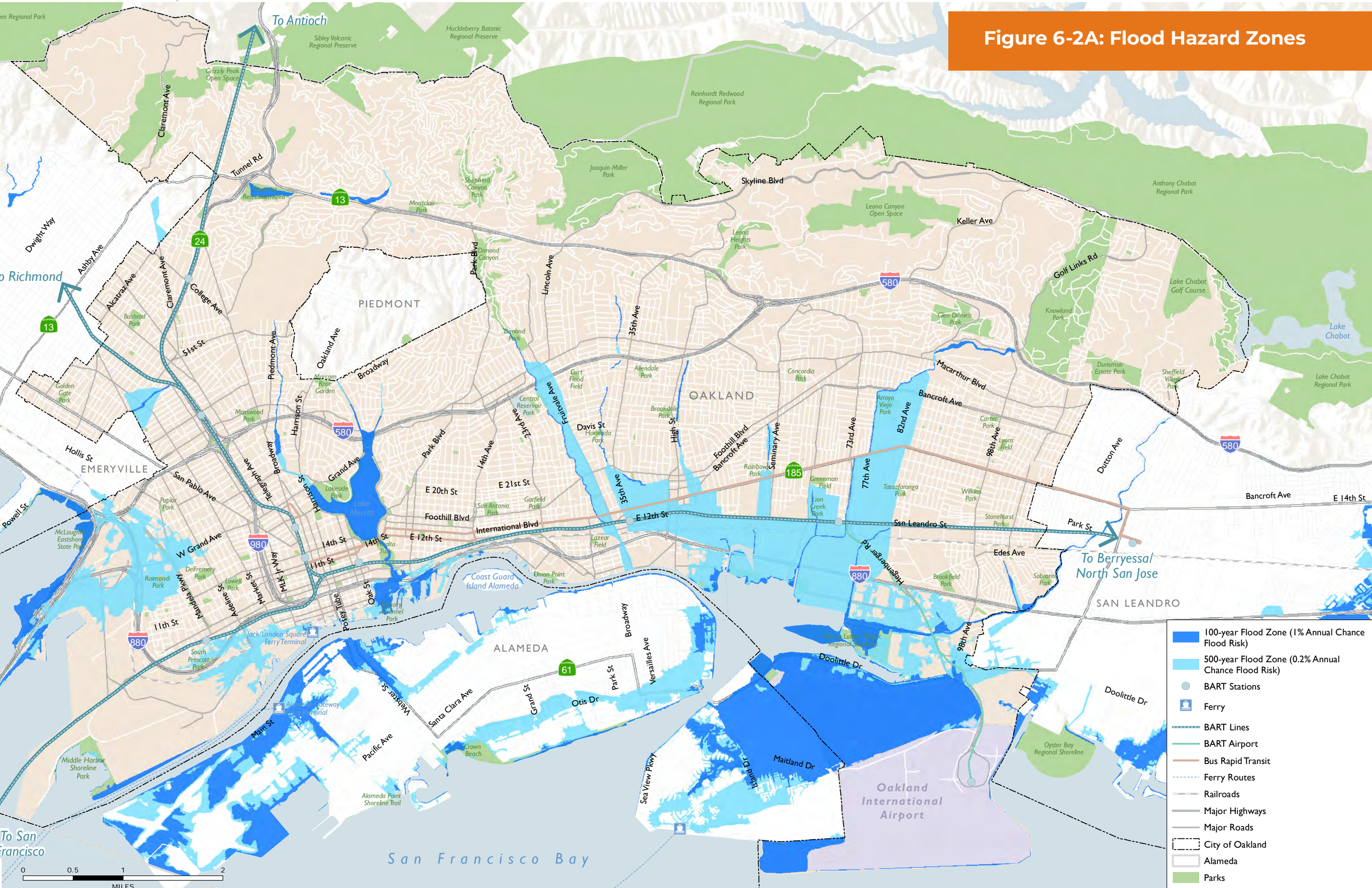
⁴ National Oceanic and Atmospheric Administration (NOAA), 2018. Center for Operational Oceanographic Products and Services (CO-OPS), NOAA Sea-Level Trends 1987-2018, 2018. tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?stnid=9414290.

of SLR and 5.5 feet of SLR, respectively, provide a near-term and long-term indication of future flood hazards. For 0.5 foot of SLR (Figure 6-2C), the City's exposure to 100-year coastal flooding remains similar to present day, with Oakland International Airport being most at risk. A few other small sections of the City shoreline are also exposed to 100-year flood hazards. For 5.5 ft of SLR (Figure 6-2D), which is estimated to have a 1-in-200 chance of occurring by 2090, the City's entire shoreline is threatened by coastal flooding during a 100-year event.

This understanding of future sea-level rise hazards will be used for adaptation planning to increase the City's resilience. Current state guidance calls for preparing for at least 3.5 feet of sea-level rise.⁵ These adaptation strategies will be incorporated into the General Plan update. Should in the long-term future a regional SLR adaption solution, such as water lock near the Golden Gate Bridge, be pursued, this would affect Oakland as well.

⁵ California Ocean Protection Council, 2020. Strategic Plan to Protect California's Coast and Ocean 2020-2025

Figure 6-2A: Flood Hazard Zones



- 100-year Flood Zone (1% Annual Chance Flood Risk)
- 500-year Flood Zone (0.2% Annual Chance Flood Risk)
- BART Stations
- Ferry
- BART Lines
- BART Airport
- Bus Rapid Transit
- Ferry Routes
- Railroads
- Major Highways
- Major Roads
- City of Oakland
- Alameda
- Parks

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Figure 6-2B: Dam Breach Inundation Area

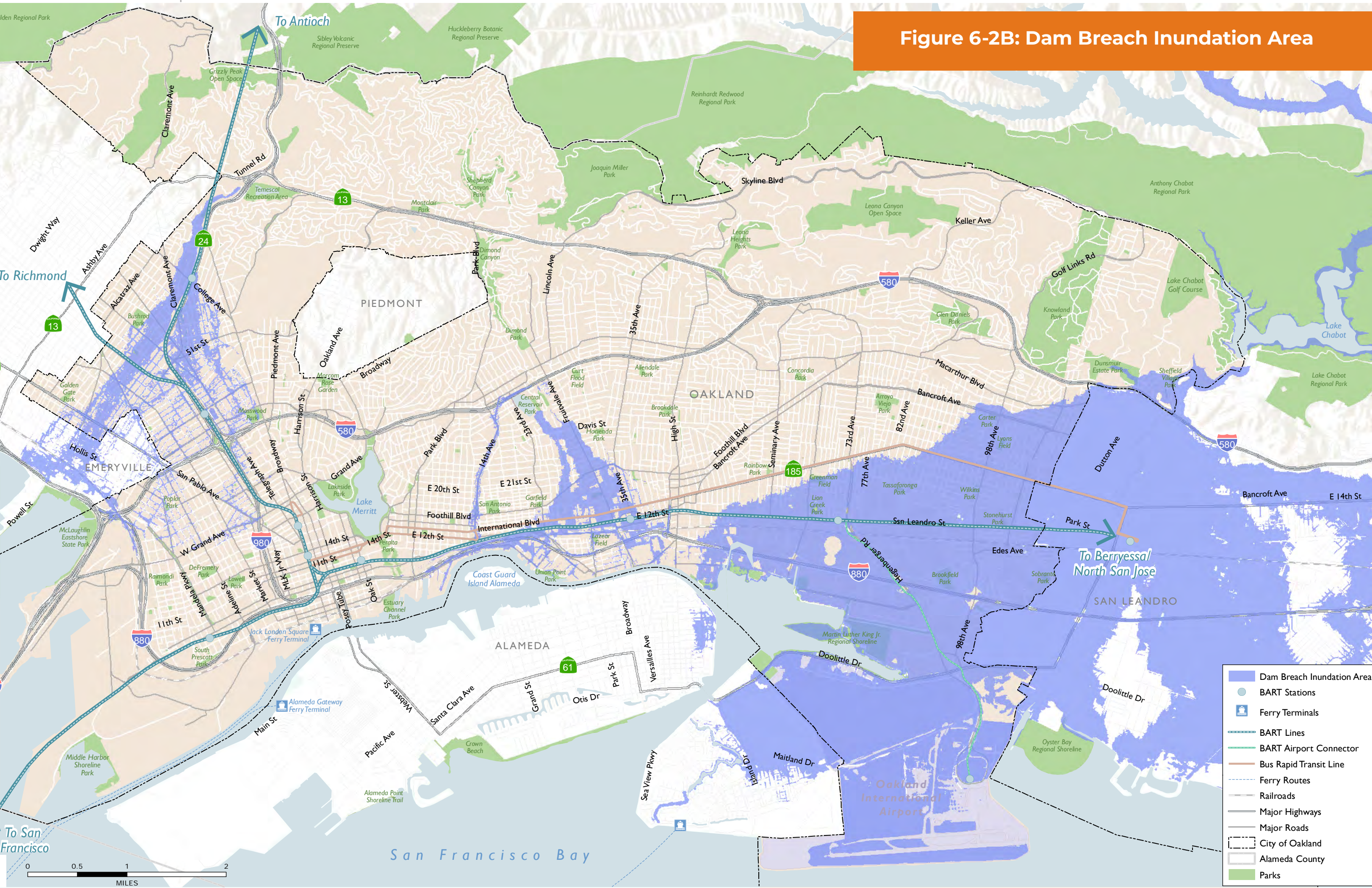
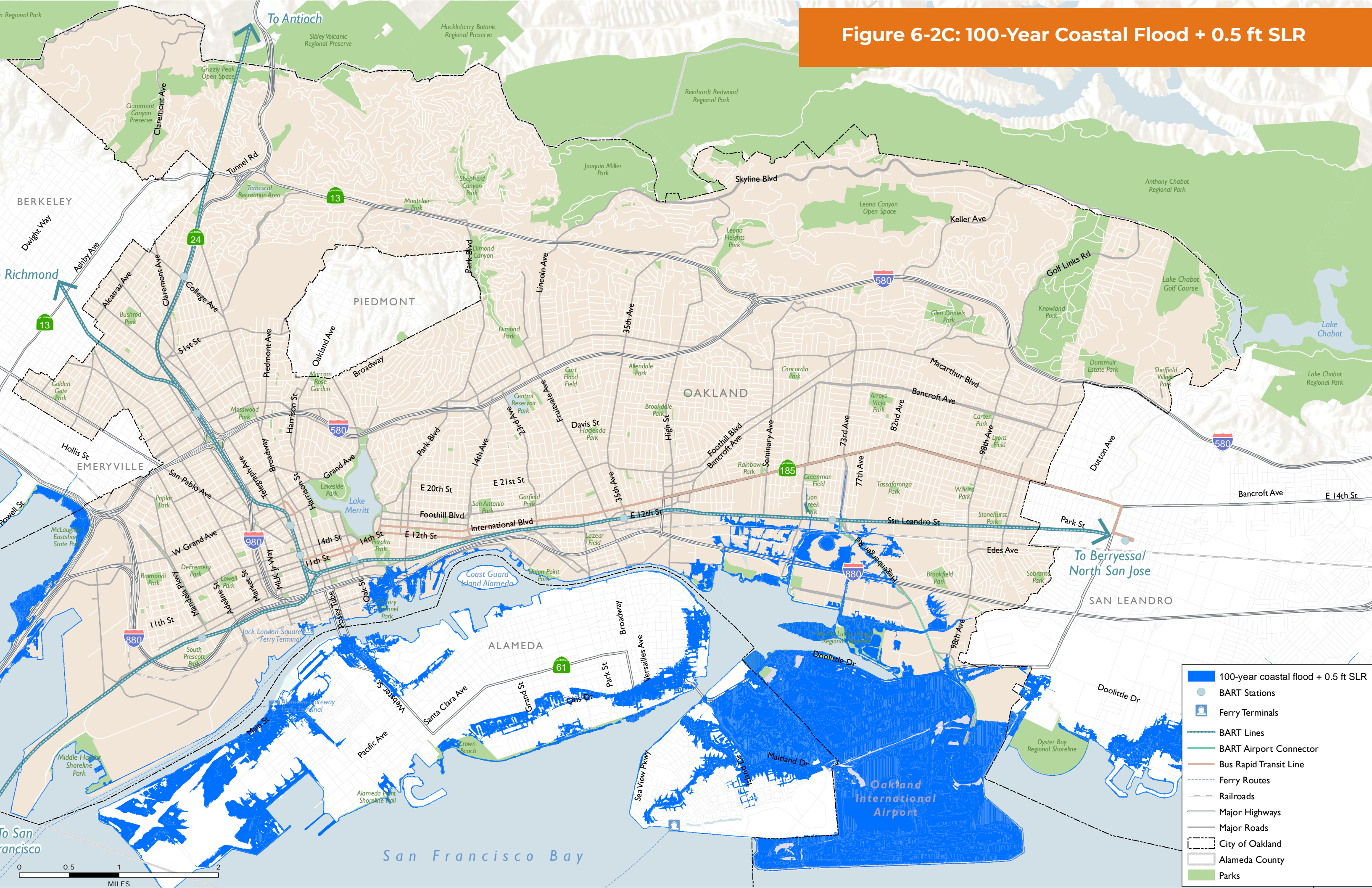


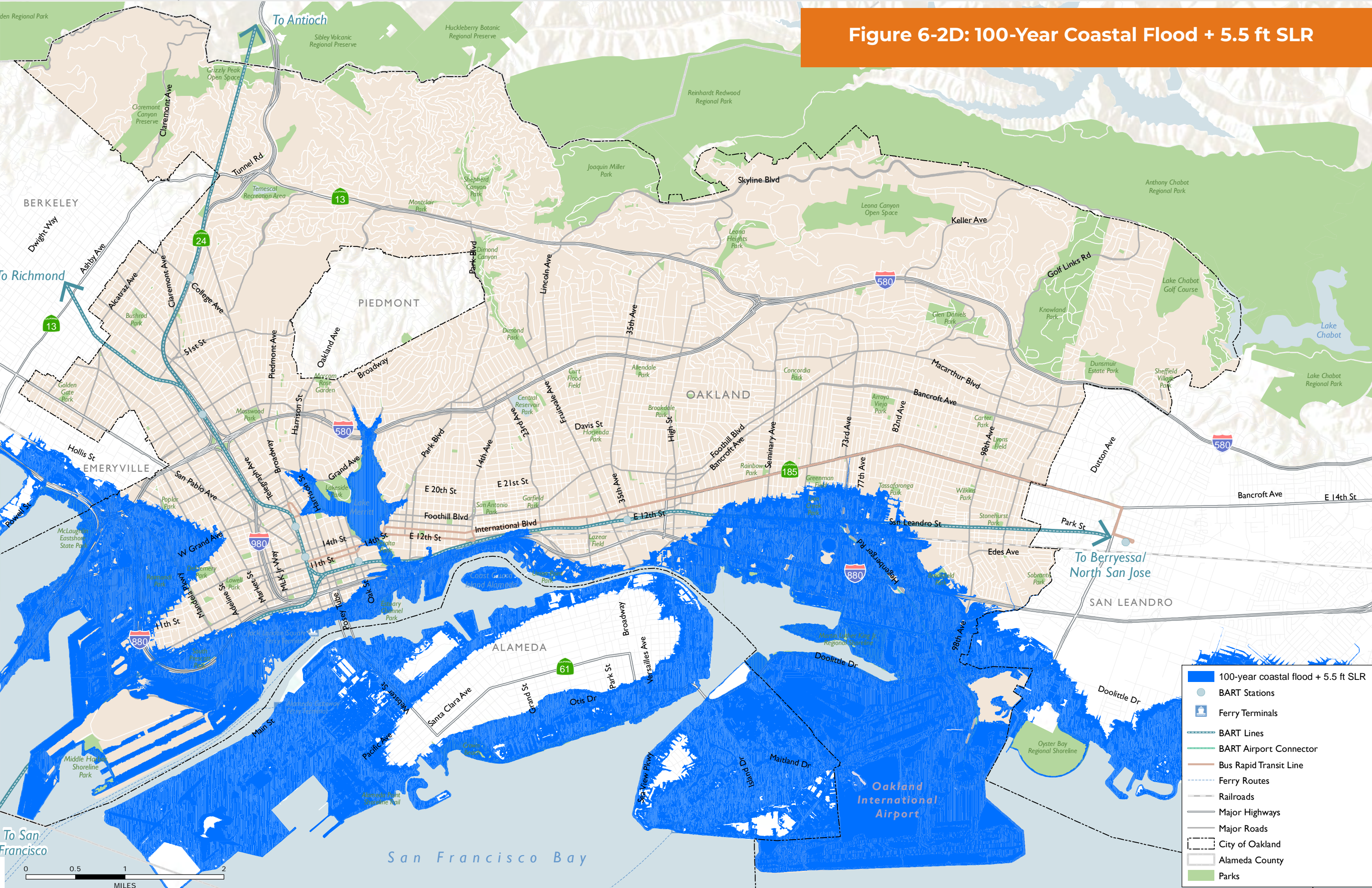
Figure 6-2C: 100-Year Coastal Flood + 0.5 ft SLR



- 100-year coastal flood + 0.5 ft SLR
- BART Stations
- Ferry Terminals
- BART Lines
- BART Airport Connector
- Bus Rapid Transit Line
- Ferry Routes
- Railroads
- Major Highways
- Major Roads
- City of Oakland
- Alameda County
- Parks

0 0.5 1 2
MILES

Figure 6-2D: 100-Year Coastal Flood + 5.5 ft SLR



- 100-year coastal flood + 5.5 ft SLR
- BART Stations
- Ferry Terminals
- BART Lines
- BART Airport Connector
- Bus Rapid Transit Line
- Ferry Routes
- Railroads
- Major Highways
- Major Roads
- City of Oakland
- Alameda County
- Parks

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6.3 Air Quality

Air pollution adversely affects human health, reduces visibility, and damages the natural environment. Exposure to poor air quality can contribute to school absences, medication use, visits to doctors, emergency room visits, and the number of hospital admissions. This is the result of the proximity of people to polluting facilities, heavily traveled roads, and other sources of air pollution. Understanding the risks of air pollution will help identify and reduce impacts to the existing and future population. This section summarizes existing air quality in Oakland and includes air quality regulations, sources of air pollution, current conditions, and adopted improvement strategies.

Climate and meteorological 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. Exposure to air pollution occurs daily in virtually every community, and Oakland is no exception. However, health outcomes related to poor air quality are unequally distributed throughout the City and are likely related to the proximity to sources of air pollution. Air pollution, health, and equity issues are explored in greater detail in the Environmental and Racial Equity Baseline.

AIR POLLUTION CATEGORIES AND STANDARDS

Oakland is within the boundaries of the San Francisco Bay Area Air Basin (“air basin”), which 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. There are national and state standards for “criteria air pollutants” to protect public health and

welfare.⁶ The federal standards, identified by the United States Environmental Protection Agency (U.S. EPA), are called the National Ambient Air Quality Standards (NAAQS or “national standards”); the state standards are called the California Ambient Air Quality Standards (CAAQS).

For each criteria air pollutant, air basins are classified as in “attainment” when the federal and state standards have been achieved, or “nonattainment” when the pollutant exceed permissible levels and does not meet standards. As described below, criteria air pollutants of concern in the Bay Area include ozone and particulate matter; the air basin is in non-attainment status with respect to the federal and state standards for these pollutants. The air basin is in attainment for all other pollutants. The BAAQMD has a plan, called the 2017 Clean Air Plan, to bring the air basin into attainment for ozone and particulate matter.⁷ The 2017 Clean Air Plan is a regional strategy to protect public health and protect the climate, and eliminate health risk disparities from exposure to air pollution among Bay Area communities.⁸

In addition to criteria air pollutants, air pollution includes Toxic Air Contaminants (TACs). TACs are air pollutants that may lead to serious illness or increased mortality, even when present in

relatively low concentrations.⁹ The main TACs of concern are diesel particulate matter (DPM) and fine particulate matter (PM_{2.5}). Particulate matter is a complex mixture of solids and aerosols composed of small droplets of liquid, dry solid fragments, and solid cores with liquid coatings.¹⁰ DPM is exhaust particulate emissions from diesel fuel combustion. PM_{2.5} is fine particulate matter from combustion sources of all fuel types, including diesel, along with particulates such as from road dust. PM_{2.5} is considered by far to be the most harmful air pollutant in the air basin in terms of the associated impact on public health and can result in a wide range of health effects.¹¹

The BAAQMD regulates TACs by using a risk-based approach as opposed to establishing a concentrations standard. This risk-based approach utilizes a health risk assessment to determine the specific sources and TACs to control as well as the level of control necessary to reduce risk to acceptable levels. A health risk assessment analyzes exposure to toxic substances and human health risks based on the dose and potency of the toxic substances.¹² In 2000,

6 Criteria air pollutants include ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), respirable particulate matter (PM₁₀ and PM_{2.5}), and lead. The U.S. EPA and the state call these pollutants “criteria air pollutants” because the agencies have regulated them by developing specific public health- and welfare-based criteria as the basis for setting permissible levels. Reactive organic gases (ROG) and nitrogen oxides (NO_x) are considered ozone precursors.

7 Bay Area Air Quality Management District, 2017. *2017 Clean Air Plan: Spare the Air, Cool the Climate*. <https://www.baaqmd.gov/plans-and-climate/air-quality-plans/current-plans>, accessed March 2022

8 Federal clean air laws require areas with unhealthy levels of ozone, inhalable particulate matter, carbon monoxide, nitrogen dioxide, and sulfur dioxide to develop plans, known as State Implementation Plans (SIPs). SIPs are comprehensive plans that describe how an area will attain the NAAQS.

9 Air pollution is measured as concentrations, which are expressed as mass per unit volume of atmospheric air, or the density of each pollutant (e.g., micrograms per cubic meter of air or parts per million mg/m³, µg/m³, etc.).

10 Particles vary widely in size, shape and chemical composition, and may contain inorganic ions, metallic compounds, elemental carbon, organic compounds, and compounds from the earth’s crust. Particles are defined by their diameter for air quality regulatory purposes. Those with a diameter of 10 microns or less (PM₁₀) are inhalable into the lungs and can induce adverse health effects. Fine particulate matter is defined as particles that are 2.5 microns or less in diameter (PM_{2.5}). Therefore, PM_{2.5} is a subset of PM₁₀.

11 Bay Area Air Quality Management District (BAAQMD), 2017. *California Environmental Quality Act Air Quality Guidelines*, May. https://www.baaqmd.gov/~media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en, accessed January 2021.

12 A health risk assessment is required for stationary source 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 acute (short-term) effects, chronic (long-term) effects, and the increased risk of cancer as a result of exposure to one or more TACs.

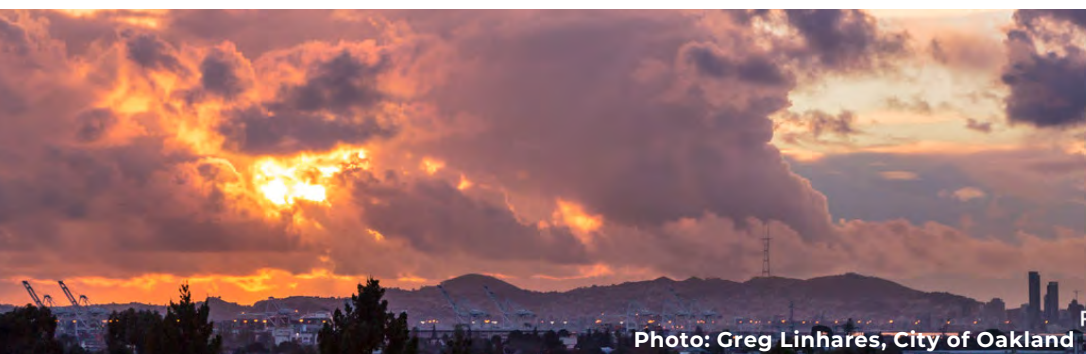


Photo: Greg Linhares, City of Oakland



CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines (CARB, 2000). Subsequent regulations apply to new trucks and diesel fuel.

HEALTH RISKS

Potential human health effects of criteria pollutants include aggravation of existing respiratory diseases such as asthma, bronchitis, and emphysema, and can contribute to premature death, premature birth, cardiopulmonary effects, decreased lung function growth in children, acute and chronic bronchitis, asthma, cancer, respiratory symptoms, and intensified allergic responses.¹³ Potential human health effects of TACs include birth defects, neurological damage, cancer, and death. As noted above, the main TACs of concern are DPM and PM_{2.5}. A large body of scientific evidence indicates that both long-term and short-term exposure to PM_{2.5} can cause a wide range of health effects, including aggravating asthma and bronchitis, causing visits to the hospital for respiratory and cardiovascular symptoms, and contributing to heart attacks and deaths.^{14,15} Air pollution, health, and equity issues are explored in greater detail in the Environmental and Racial Equity Baseline.

AIR POLLUTION SOURCES

Sources of air pollution in the City are generally categorized as mobile sources, stationary sources, and area sources. Mobile sources of air pollution include on-road motor vehicles (cars and trucks) and off-road vehicles and equipment (such as aircraft, trains, and ocean-going vessels) and are Oakland's leading

source of air pollution. Mobile sources are responsible for nearly 90 percent of the City's total nitrogen oxide emissions in 2018 and over 98 percent of the city's total DPM emissions.¹⁶ Emission standards for mobile sources are established by state and federal agencies, such as the California Air Resources Board (CARB) and the U.S. EPA. The State of California has developed statewide programs to encourage cleaner cars and cleaner fuels.

In addition to mobile sources, stationary sources also contribute to air pollution in the air basin. Stationary sources include industrial facilities, gasoline stations, power plants, dry cleaners, waste disposal, and other commercial and industrial processes. Stationary sources resulted in 26 percent of the City's total PM_{2.5} emissions in 2018.¹⁷ The Bay Area Air Quality Management District (BAAQMD or "air district"), which is the local air pollution control district for the air basin and the City of Oakland, regulates stationary sources of air pollution.

Area sources are also a major contributor to air pollution in the City. Area sources include solvent evaporation (such as from aerosol consumer products and paints), residential fuel combustion (such as natural gas heating and cooking), road dust from on-road and off-road vehicles and equipment, and fires. In 2018, area sources produced nearly 40 percent of the City's ROG emissions, over half of the City's PM_{2.5} emissions, and over 70 percent of the City's PM₁₀ emissions.¹⁸

The main sources of DPM emissions in the City are heavy-duty truck activity along Interstates 80, 580, 880, and 980 (42%); ocean-going vessels and commercial harbor craft at the Port of Oakland (26%); off-road equipment (25%); and diesel locomotives (3%). The main sources of PM_{2.5} in the City are residential fuel

¹³ Ibid.

¹⁴ California Air Resources Board, n.d. Inhalable Particulate Matter and Health (PM_{2.5} and PM₁₀). <https://ww2.arb.ca.gov/resources/inhalable-particulate-matter-and-health>, accessed March 2022.

¹⁵ United States Environmental Protection Agency, 2021. Health and Environmental Effects of Particulate Matter (PM). <https://www.epa.gov/pm-pollution/health-and-environmental-effects-particulate-matter-pm>, accessed March 2022.

¹⁶ Reid, Stephen, 2021. Bay Area Air Quality Management District, Senior Advanced Projects Advisor, email correspondence with Brian Schuster, ESA. December 10, 2021.

¹⁷ Ibid.

¹⁸ Ibid.

Table 6-1: Air Quality Statistics for Alameda County

STATISTICS FOR ALAMEDA COUNTY	NUMBER OF DAYS BY YEAR					
	2016	2017	2018	2019	2020	2021
Unhealthy for Sensitive Groups (Orange)	13	9	5	8	8	9
Unhealthy (Red)	2	4	10	0	11	1
Very Unhealthy (Purple)	0	1	2	0	1	0

Source: United States Environmental Protection Agency, 2021. Outdoor Air Quality Data: Air Quality Index Report. <https://www.epa.gov/outdoor-air-quality-data/air-quality-index-report>, accessed January 2021.

combustion (24%), industrial processes (22%), road dust from on-road vehicle travel (11%), on-road vehicle exhaust (11%), and cooking (9%). Permitted stationary sources of TACs within the City include industrial facilities, gasoline stations, power plants, dry cleaners, waste disposal facilities (such as landfills and wastewater treatment plants), and other commercial and industrial processes (such as metal processing and chemical manufacturing).

CURRENT CONDITIONS

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 historical ambient air quality data based on measurements conducted by BAAQMD at its nearby monitoring stations. There are two monitoring stations in the City: the Oakland West station at 1100 21st Street and the Oakland-9925 station at 9925 International Blvd. In recent years, the following standards were exceeded at these monitoring stations:

- Ozone. The national eight-hour standard was exceeded on one day in 2019. The stricter state standard was also exceeded on one day in 2019, as was the state one-hour standard.
- PM_{2.5}. The national 24-hour standard was exceeded on 14 days in 2018 and nine days in 2020. The state annual average standard was exceeded in 2018. There is no separate 24-hour state standard.

The U.S. EPA also developed the Air Quality Index scale to make the public health impacts of air pollution concentrations easily understandable.¹⁹ The Air Quality Index, much like an air quality “thermometer,” translates daily air pollution concentrations into a number on a scale between 0 and 500. The scale is based on the federal air quality standards for ozone, CO, NO₂, SO₂, PM₁₀, and PM_{2.5}. If the concentration of any of these pollutants rises above its respective standard, it can be unhealthy for the public. Readings below 100 on the Air Quality Index scale would not typically affect the health of the general public (although readings of 50 to 100 may affect unusually sensitive people). Table 6-1 presents historical U.S. EPA Air Quality Index data for Alameda County. Recent elevated Air Quality Index values, with specific exacerbation to PM_{2.5} and CO levels, are likely attributed to wildfires and their impact on regional air quality in California.^{20, 21}

Figure 6-3A shows total annual average PM_{2.5} concentrations throughout the City for the year 2018 in terms of micrograms

per cubic meter ($\mu\text{g}/\text{m}^3$).²² The grid squares shown in the map are 1-by-1-kilometer squares, which is the modeling resolution of BAAQMD’s regional pollutant transport model. Concentrations range from 6.2 $\mu\text{g}/\text{m}^3$ in the Oakland Hills east of Interstate 13 to 13.6 $\mu\text{g}/\text{m}^3$ near Interstate 880 at 29th Avenue. Concentrations of PM_{2.5} are generally correlated with emissions sources since direct PM_{2.5} disperses with distance from a source. However, it is important to understand that this figure shows total cumulative PM_{2.5} concentrations from *all emissions sources within the air basin*, not just sources located within the City. For example, emissions from San Francisco and Richmond contribute to these concentrations.

Figure 6-3B shows the total estimated cancer risk within Oakland from all TACs modeled and inventoried by BAAQMD.²³ Like for PM_{2.5} concentrations above, this figure shows total cumulative cancer risk from *all TAC emissions sources within the air basin*, not just sources located within the City. Cancer risk ranges from 133 per million in the Oakland Hills east of State Route 13 to 1,117 per million near Jack London Square, Howard Terminal, and the Port of Oakland. The cancer risk values in **Figure 6-3B** represent the chance of contracting cancer per million individuals. For example, a cancer risk value of 1,000 per million (such as near Jack London District) means exposure to TACs at this location increases an individual’s risk of contracting cancer by 1 in 1,000 (or 0.1 percent). These numbers can be compared to the rate of new cancer cases per year from all causes in the air basin of 4,280 per million for men and 3,820 per million for women, and the lifetime risks of contracting cancer in the United States of 387,000 per

19 United States Environmental Protection Agency (USEPA), 2014. *Air Quality Index, A Guide to Air Quality and Your Health*, February 2014. www.epa.gov/airnow/aqi_brochure_02_14.pdf, accessed April 2019.

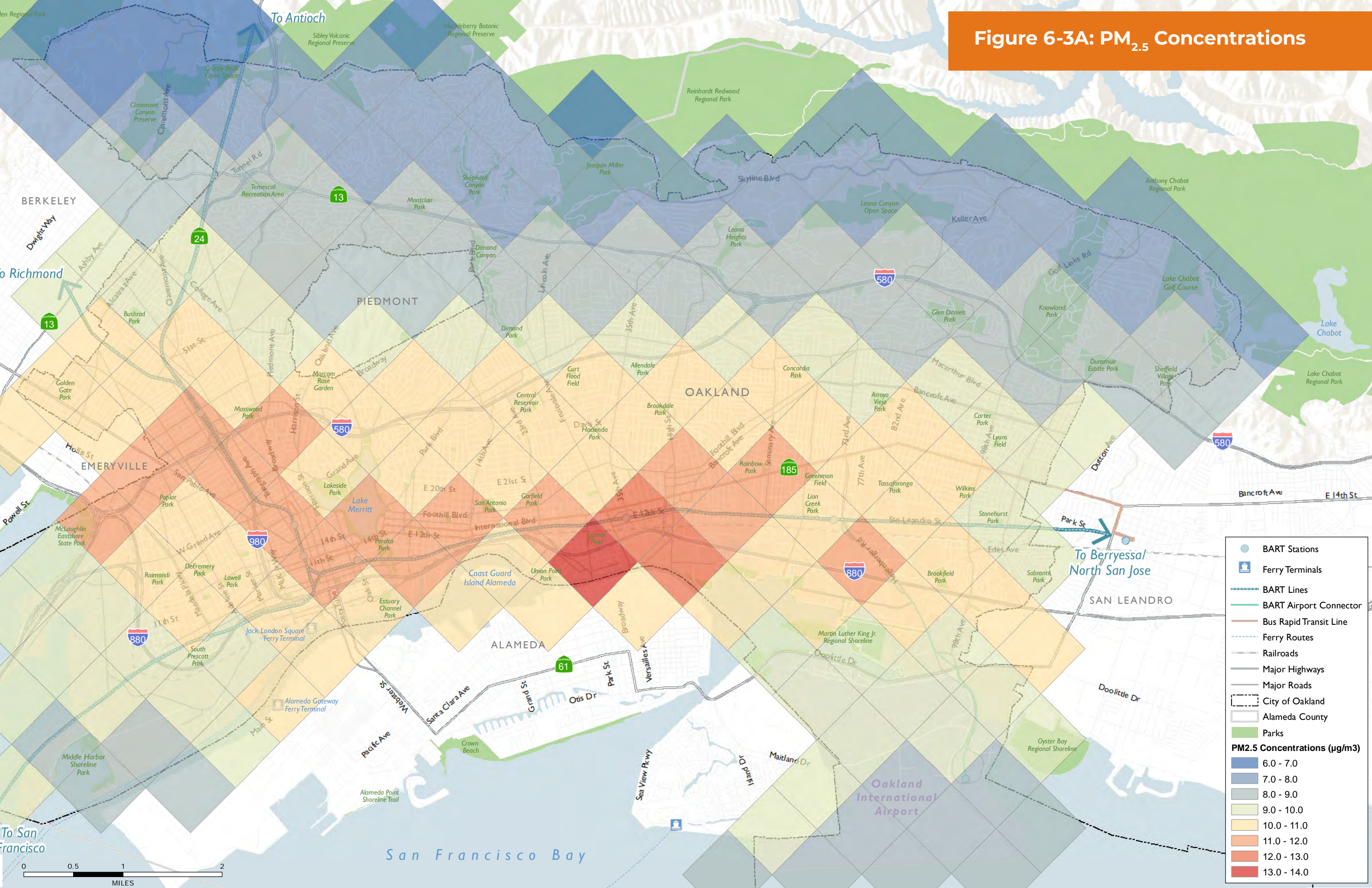
20 Bay Area Air Quality Management District (BAAQMD), 2017. *Extremely High Levels of PM_{2.5}: Steps to Reduce Your Exposure*. <http://www.baaqmd.gov/about-air-quality/current-air-quality/extreme-pm2-5>, Accessed May 2019.

21 California Air Resources Board (CARB), 2019. *Wildfire Smoke and Health*, 2019. <https://ww2.arb.ca.gov/index.php/wildfire-smoke-health>, accessed May 2019.

22 PM_{2.5} is shown in the figure because it is considered by far to be the most harmful air pollutant in the air basin.

23 Total cancer risk is shown in the figure because it represents the major negative health effect of exposure to all TACs within the City of Oakland. Although other pollutants like ozone contribute to additional negative health effects, such as asthma and other respiratory illnesses, the BAAQMD was unable to provide ozone mapping data or related health outcome data for the City of Oakland.

Figure 6-3A: PM_{2.5} Concentrations



Legend

- BART Stations
- Ferry Terminals
- BART Lines
- BART Airport Connector
- Bus Rapid Transit Line
- Ferry Routes
- Railroads
- Major Highways
- Major Roads
- City of Oakland
- Alameda County
- Parks

PM_{2.5} Concentrations (µg/m³)

- 6.0 - 7.0
- 7.0 - 8.0
- 8.0 - 9.0
- 9.0 - 10.0
- 10.0 - 11.0
- 11.0 - 12.0
- 12.0 - 13.0
- 13.0 - 14.0

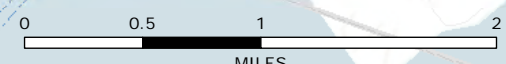
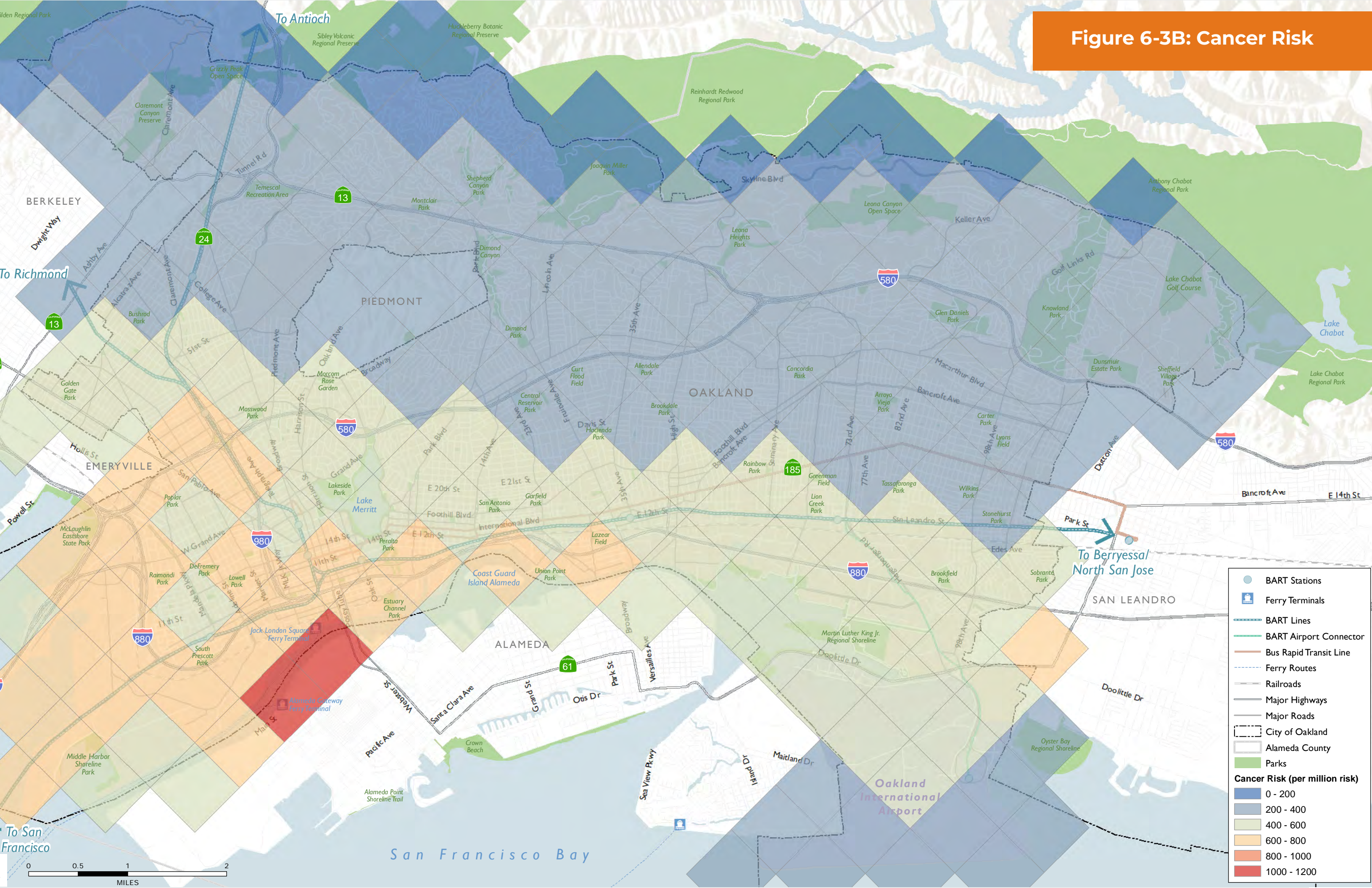


Figure 6-3B: Cancer Risk



- BART Stations
- Ferry Terminals
- BART Lines
- BART Airport Connector
- Bus Rapid Transit Line
- Ferry Routes
- Railroads
- Major Highways
- Major Roads
- City of Oakland
- Alameda County
- Parks

Cancer Risk (per million risk)

- 0 - 200
- 200 - 400
- 400 - 600
- 600 - 800
- 800 - 1000
- 1000 - 1200

0 0.5 1 2
MILES

million for women and 401,400 per million for men.^{24, 25, 26, 27}

IMPROVEMENT STRATEGIES

There are numerous federal, state, and regional regulations that have been implemented over the past 50 years to reduce air pollution in California and the Bay Area. For example, California's cleaner-burning gasoline regulation has reduced smog-forming emissions from motor vehicles by 15 percent and cancer risk from exposure to motor vehicle toxics by about 40 percent since the regulation was implemented in 1996.²⁸ The Bay Area has also benefited from dramatic reductions in public exposure to TACs. The estimated lifetime cancer risk from all TACs for Bay Area residents declined 83 percent from 4,100 cases per million in 1990 to 690 cases per million people in 2014. This reduction is due in part to CARB regulations and air district programs to reduce emissions from diesel engines.

Both East and West Oakland are areas with high air pollution

²⁴ This is the rate of new cancer cases per year per million individuals, not the lifetime risk of an individual to develop cancer

²⁵ These numbers are average lifetime risks for the overall U.S. population. An individual's risk may be higher or lower than these numbers, depending on particular risk factors. In addition to exposure to ambient airborne sources of carcinogenic substances, individuals' lifetime risks of contracting cancer vary based on a wide number of factors, such as genetics, sex, age, diet, lifestyle (e.g., obesity, tobacco use, alcohol use), exposure to carcinogens, and pre-existing conditions.

²⁶ Cancer Prevention Institute of California, 2019. The Greater Bay Area Cancer Registry Annual Report: Incidence and Mortality Review, 1988–2016. Available at https://cancerregistry.ucsf.edu/sites/g/files/tkssra1781/f/wysiwyg/Cancer%20Incidence%20and%20Mortality%20in%20the%20Greater%20Bay%20Area%202019_v6.21.2019.pdf. Accessed March 2020.

²⁷ American Cancer Society, 2020. Lifetime Risk of Developing or Dying from Cancer, last updated January 13, 2020. Available at <https://www.cancer.org/cancer/cancer-basics/lifetime-probability-of-developing-or-dying-from-cancer.html>. Accessed March 2020.

²⁸ California Air Resources Board (CARB), 2019. *Cleaner Burning Gasoline: An Update*, 2019. Available at <https://ww2.arb.ca.gov/resources/fact-sheets/cleaner-burning-gasoline-update/printable/print>. Accessed January 2022.

burdens due to numerous existing sources of air pollution in the community. West Oakland is identified as an area with disproportionate impacts from air quality under the Community Air Protection Program (Assembly Bill [AB] 617). Pursuant to AB 617, CARB adopted the West Oakland Community Action Plan (WOCAP) action plan on December 5, 2019. The WOCAP identifies 89 potential community-level strategies and control measures intended to reduce criteria pollutant and TAC



Photo: Greg Linhares, City of Oakland

emissions and decrease West Oakland residents' exposure to these TAC emissions, with the goal of improving community health by eliminating disparities in exposure to local air pollution. Specifically, the plan sets forth equity-based targets for cancer risk, and DPM and PM_{2.5} concentrations in seven "impact zones" with the highest pollution levels in the City.²⁹

On February 10, 2022, the California Air Resources Board designated East Oakland for the development of an AB 617 Community Emission Reduction Plan which will begin in Spring/Summer 2022 and continue for a year-long planning process followed by implementation. Community leaders in East Oakland had been bringing attention to air pollution issues in the community for decades prior to this designation.

6.4 Wildfires

A wildfire is any uncontrolled fire on undeveloped land that requires fire suppression. The wildland-urban interface (WUI) is a zone where structures and other human development meets or intermingles with undeveloped wildlands. The Oakland Hills area is largely defined as part of the WUI. Additionally, the area is designated by CALFIRE as a Very High Fire Hazard Severity Zones (VHFHSZ). This designation is based on the fuel load, weather and terrain factors that influence fire likelihood and fire behavior. While many of these fires are small and can be controlled, the proximity of dense residential communities to areas that are fire prone increases the hazard of wildfire in Oakland. Larger fires in this ecosystem should be anticipated every 10-20 years.³⁰ Wildfire in the urban interface is a growing concern in the Bay Area. In the past 60 years, the region has

²⁹ Bay Area Air Quality Management District and West Oakland Environmental Indicators Project, 2019. *Owning Our Air: The West Oakland Community Action Plan – Volume 1: The Plan*, October. Available at <http://www.baaqmd.gov/community-health/community-health-protection-program/west-oakland-community-action-plan>, accessed January 2021.

³⁰ City of Oakland, 2017. City of Oakland General Plan Update, Safety Element. Available online: <https://www.oaklandca.gov/resources/safety-element>

experienced over 500 wildfires which have threatened public safety, property, infrastructure, air quality, water quality, and natural environments.³¹

REGULATIONS

State Responsibility Areas (SRAs) are lands which, based on land ownership, population density, and land use, CALFIRE has legal responsibility for fire protection. California Public Resources Code, Section 4201-4204 requires that CALFIRE classify areas within SRAs into fire hazard severity zones including Moderate, High, and Very High Fire Hazard Severity Zones based on factors such as fuel, terrain, and weather.³² This mapping provides the basis for the application of fire mitigation strategies. CALFIRE has created maps for Local Responsibility Areas (LRAs) with recommended designations of Very High Fire Hazard Severity Zones (VHFHSZ).

Title 24 of the California Code of Regulations is the California Fire Code which establishes regulations to protect life and property from the hazards of fires in new and existing buildings and structures. The provisions of the Fire Code apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building or structure throughout the State of California. Public Resources Code 4291 includes regulations and defensible space requirements for areas located in SRAs. The City adopted and amended the 2019 California Fire Code and regulates fire safety in Chapter 15 of its Municipal Code. Additionally, the Oakland Municipal Code includes a vegetation management inspection program to inspect properties in VHFHSZs for proper vegetation management and includes a chapter of special construction requirements in fire hazard areas in the areas damaged by the 1991 Tunnel Fire.

³¹ Association of Bay Area Governments (ABAG), 2021. Wildfires. Available online: <https://abag.ca.gov/our-work/resilience/data-re-search/wildfire#:~:text=Wildfire%20Risk%20and%20Resources,destroyed%20more%20than%208%2C000%20structures>.

³² CAL FIRE, 2021. Fire Hazard Severity Zones. Available online at <https://osfm.fire.ca.gov/divisions/wildfire-planning-engineering/wildfire-prevention-engineering/fire-hazard-severity-zones/>. Accessed December 27, 2021.

CURRENT CONDITIONS

As described above, much of the fire hazard that the City faces is due to the proximity of dense, residential communities and urban areas to areas with high fire risk due to steep slopes, vegetation that can act as fuel for fires, and seasonal winds which can spread fire. As shown in **Figure 6-4A**, the eastern portion of the City in the Oakland Hills is an LRA designated as a VHFHSZ. This portion of the City is adjacent to SRAs also designated as VHFHSZ. Approximately 10,800 acres of land in Oakland are designated as VHFHSZ, representing approximately 22 percent of land area in City limits. This is the largest VHFHSZ by acreage within a Bay Area city boundary. The mapped Wildland Urban Interface includes these areas mapped as VHFHSZ and includes additional land area further west in the more developed areas of the City. Tree mortality increases the level of dead wood that can act as fuel. Increased fuel loading due to tree mortality increases the level of fire hazard for adjacent communities.³³ As shown on **Figure 6-4B**, tree die-back in East Bay Regional Parks (e.g., Reinhardt, Anthony Chabot) puts adjacent areas of Oakland at risk for wildfire impacts, including secondary impacts of air and water pollution, erosion, and landslides.

The California Department of Forestry and Fire Protection last updated its fire hazard severity zone maps in 2007, well before recent record-breaking megafires swept across California. Past mapping focused on geographic hazards such as forests and canyons where fire spreads. New mapping is underway and is expected to be released by summer of 2022. In these updated maps, “climate hazards are front and center”³⁴ with greater attention to extreme wind events, which carry embers into areas that historically were not designated with a fire hazard level. The fire severity hazard zones are likely to be larger in the updated maps.

³³ CAL FIRE, 2022. Tree Mortality. Available online at <https://frap.fire.ca.gov/frap-projects/tree-mortality/>. Accessed January 10, 2022.

³⁴ <https://www.cpradio.org/articles/2021/12/20/after-years-of-delays-calfire-says-updated-and-expanded-wildfire-hazard-maps-are-on-their-way/>. Accessed February 18, 2022.



Photo: Greg Linhares, City of Oakland

EVACUATION ROUTES

State law requires California communities with general plans to address evacuation routes in the safety element of the general plan, including identification of residential developments in hazard areas that do not have at least two routes. Information on evacuation routes and their capacity, safety and viability under a range of emergency scenarios also must be provided. Hazard areas, their overlap with residential development, and current evacuation routes are shown in **Figure 6-4C**. Detailed analysis of evacuation route capacity will come as the Safety Element

Figure 6-4A: Fire Threat and Historic Fire Boundaries

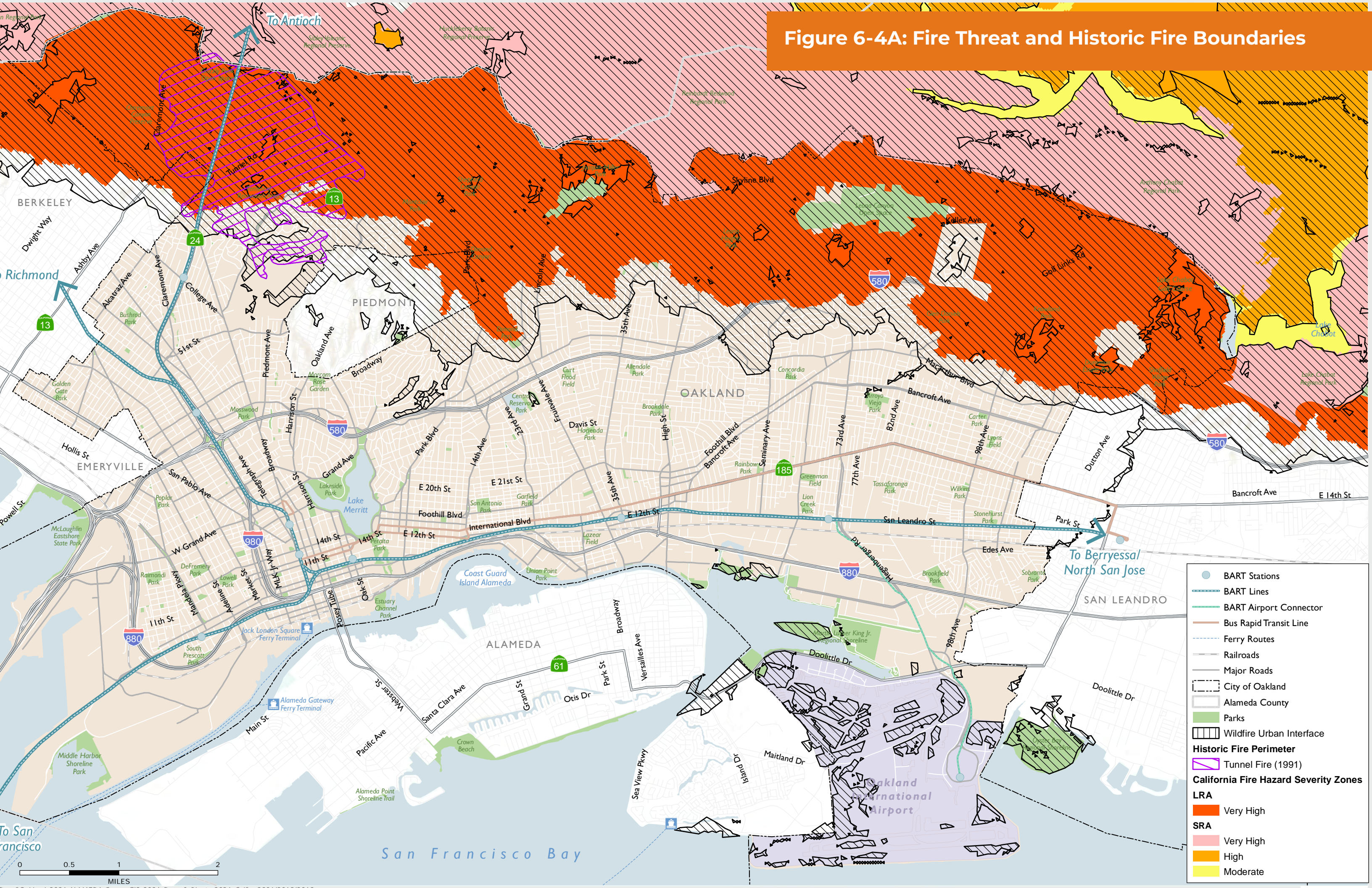
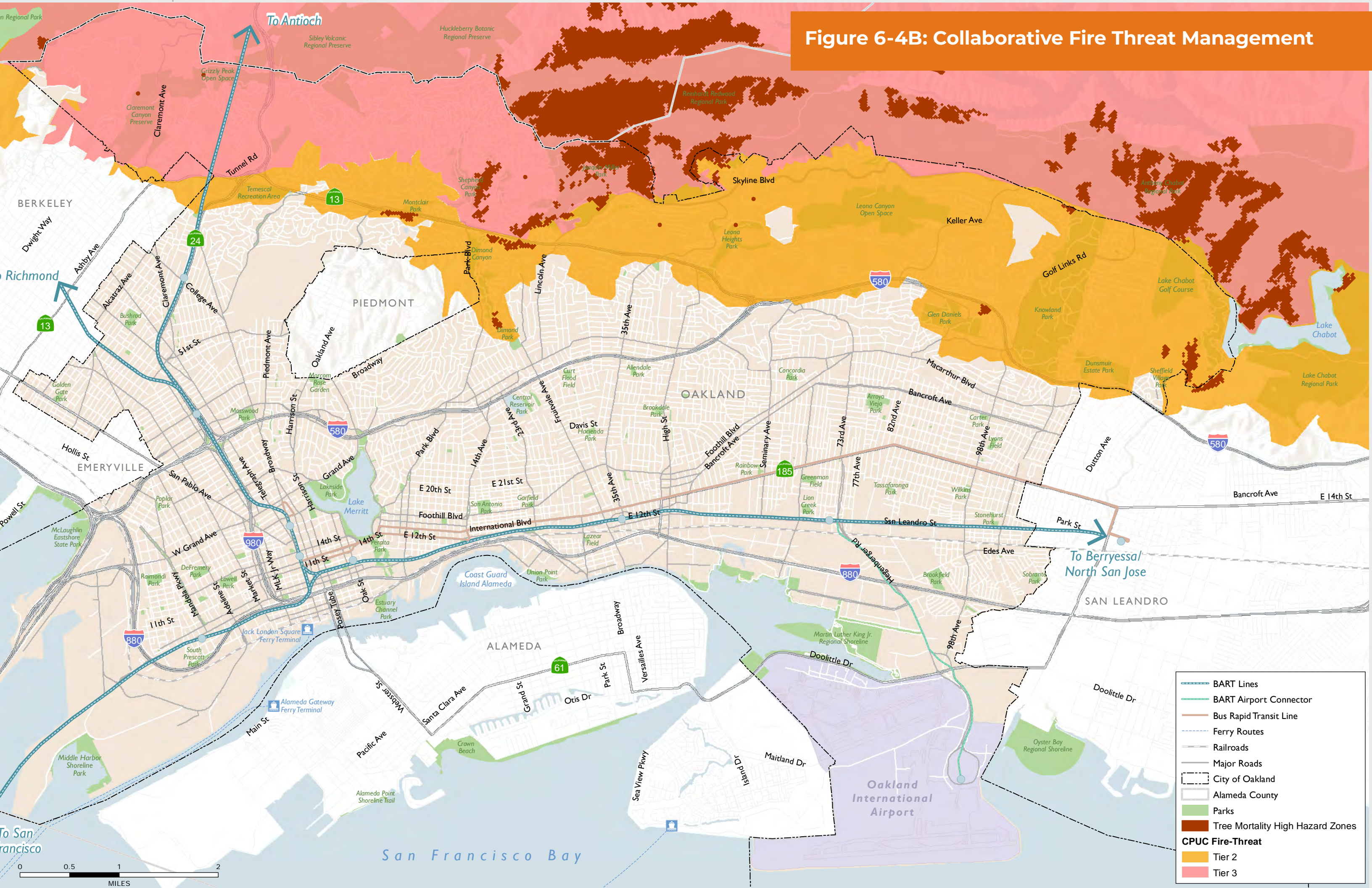


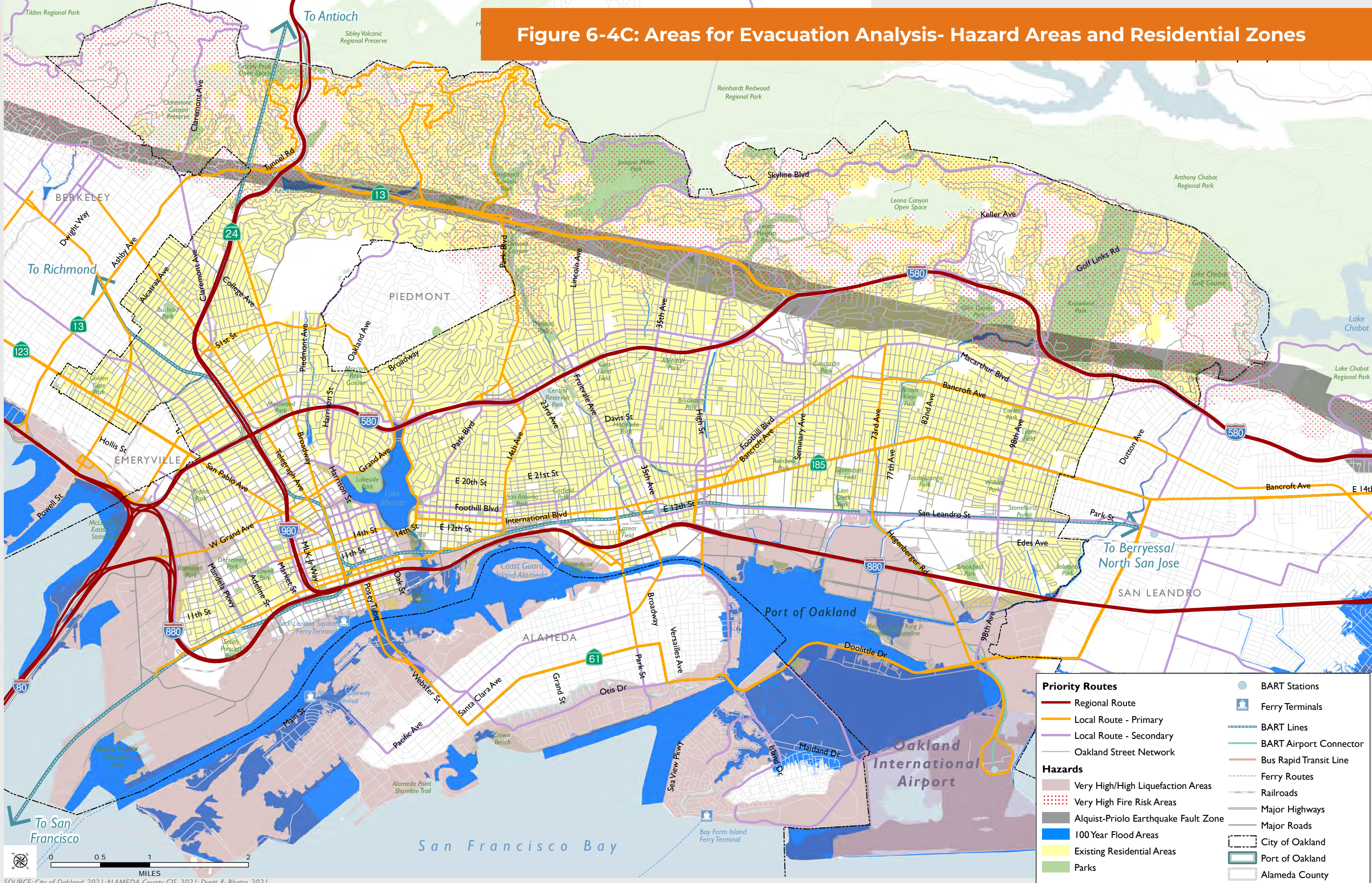
Figure 6-4B: Collaborative Fire Threat Management



- BART Lines
- BART Airport Connector
- Bus Rapid Transit Line
- Ferry Routes
- Railroads
- Major Roads
- City of Oakland
- Alameda County
- Parks
- Tree Mortality High Hazard Zones
- CPUC Fire-Threat**
- Tier 2
- Tier 3

0 0.5 1 2
MILES

Figure 6-4C: Areas for Evacuation Analysis- Hazard Areas and Residential Zones



SOURCE: City of Oakland, 2021; ALAMEDA County GIS, 2021; Dyett & Bhatia, 2021

is developed. Recent investigations utilizing modeling software have shown that current road and intersection capacity is not adequate for the existing population in the event of a mass evacuation. Additionally, city infrastructure surveys have shown that many streets in VHFHSZs are not built to current Municipal Code Standards, have narrow streets with dead ends that only allow for one route of escape.

Many streets in the hills are in steep areas without off-street parking; therefore, residents park on the street making the streets even narrower and less accessible for emergency responders.³⁵ Considering these factors, conditions related to emergency response and evacuation are currently not adequate to serve the population living in the VHFHSZ.

6.5 Airport Hazards

To depict the relative risks of aircraft accidents, the California Airport Land Use Planning Handbook (Caltrans, 2002) provides a set of safety zones, and the risk contours upon which they

³⁵ City of Oakland Planning Commission, 2021. Case File Number ZA21006 Staff Report. June 2, 2021. Available online: <https://oaklandside.org/wp-content/uploads/2021/06/02-Staff-Report-020621-CPC-Staff-Report-Updated-signed.pdf>



Photo: Wikimedia Commons

are based. The risk contours are derived from the accident location database described in the Handbook and show the relative concentrations of accidents near the ends of runways of different lengths. The safety zones are developed upon this data and are created for varying runway lengths and operational characteristics, while accounting for aeronautical factors that affect where aircraft accidents are most likely to occur. (For ease of application to land use compatibility planning, safety zones are depicted in regular geometric shapes, as opposed to the risk contours, and assume an equal distribution of arrivals and departures at each runway end.) A total of seven different safety zones are shown in **Figure 6-5**. The choice of safety zone criteria appropriate for a particular zone is largely a function of risk acceptability. For example, some land uses represent unacceptable risks when located near aircraft operation areas and are prohibited (e.g., schools and hospitals). Where the risks associated with a particular land use are considered significant but tolerable, restrictions may be established to reduce the risk to an acceptable level.

6.6 Noise

Noises are undesirable sounds that vary widely in their scope, source, duration, and volume. Within Oakland, they range from individual occurrences, such as leaf blowers or sirens, to regular though intermittent disturbance by aircraft overflights and passenger and freight rail pass by events, to the fairly constant noise generated by traffic on freeways and roadways. Noise is primarily a concern for sensitive land uses. The California General Plan Guidelines identify noise-sensitive receptors as residential developments, schools, hospitals, and places of worship.

REGULATIONS AND SOURCES

Federal noise standards include transportation-related noise sources related to interstate commerce (i.e., aircraft, trains, and trucks) for which there are no more stringent state standards. State noise standards are set for automobiles, light trucks, and motorcycles.

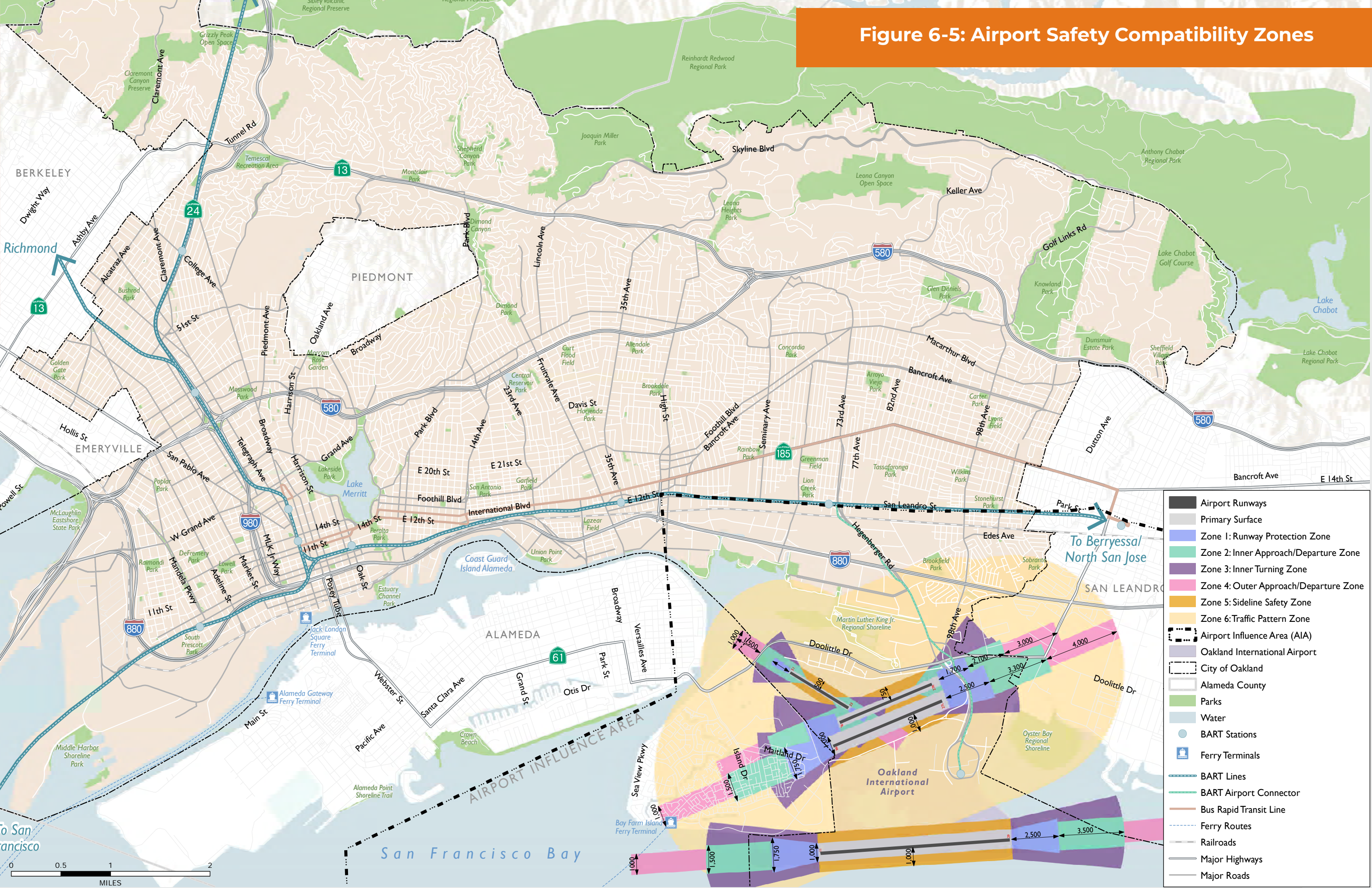


The existing Oakland General Plan Noise Element contains guidelines for determining the compatibility of various land uses with different outdoor noise environments (City of Oakland, 2005). The Noise Element recognizes that some land uses are more sensitive to ambient noise levels than others, due to the amount of noise exposure (in terms of both exposure duration and insulation from noise) and the types of typical activities. The City uses State noise guidelines to judge the compatibility of various land uses and their noise environments. The Oakland Noise Element identifies maximum interior noise levels generally considered acceptable for various common land uses (with windows closed). For example, an interior noise level of 45 dB is the maximum level acceptable for residential or classroom uses. Interior building noise is also regulated by the California Building Code, which states that interior noise levels should not exceed 45 dB in any habitable room. Noise level standards may be revised as part of the Noise Element update in Phase 2 of the project.

The City also regulates noise through enforcement of its noise ordinance, which can be found in Section 8.18.020 of the Health and Safety Code, Section 17.120 of the Planning Code, and Chapter 12.56 of the Municipal Code. The noise ordinance within the Planning Code regulates construction noise and only operational noise from stationary sources which are addressed at the federal and state level.

Noise sources are typically categorized as mobile or stationary. Most mobile sources are transportation-related from vehicles

Figure 6-5: Airport Safety Compatibility Zones



- Airport Runways
- Primary Surface
- Zone 1: Runway Protection Zone
- Zone 2: Inner Approach/Departure Zone
- Zone 3: Inner Turning Zone
- Zone 4: Outer Approach/Departure Zone
- Zone 5: Sideline Safety Zone
- Zone 6: Traffic Pattern Zone
- Airport Influence Area (AIA)
- Oakland International Airport
- City of Oakland
- Alameda County
- Parks
- Water
- BART Stations
- Ferry Terminals
- BART Lines
- BART Airport Connector
- Bus Rapid Transit Line
- Ferry Routes
- Railroads
- Major Highways
- Major Roads

operating on roadways, fixed railways, and aircraft and airport operations. Off-road construction equipment is also considered a mobile source. Stationary noise sources typically include machinery; fabrication; heating, ventilation, and air conditioning systems; compressors and generators; and landscape maintenance equipment. Stationary noise sources generated by light industrial and commercial activities can result in noise-related land use conflicts when these operations (e.g., loading docks or equipment operations) are adjacent to residential land uses (collocation).

CURRENT CONDITIONS

The dominant noise source within Oakland is vehicle traffic on its roadways, primarily freeways, highways, and arterial roadways. Noise contours for the freeways and major state routes within the City are presented in **Figure 6-6A**. The noise contours shown in **Figure 6-6A** represent the predicted noise level based on roadway volumes, the percent of trucks, speed, and other factors. Rail transit is also a major mobile noise source throughout the City with multiple above-ground BART lines and the Amtrak/freight rail corridor that runs through the southern extent of the City. Noise contours for railways within the City are presented in **Figure 6-6B**. The noise contours shown in **Figure 6-6B** represent the predicted noise level based on operational Amtrak/freight frequencies monitored for the Waterfront Ballpark District at Howard Terminal Draft EIR and account for the required sounding of horns at at-grade crossings. In this figure, the noise contours reflect the attenuating effects of structures for distances in excess of 300 feet from the tracks. The Oakland International Airport also generates noise that is demonstrated in the noise contours developed for its Airport Land Use Compatibility Plan and presented in **Figure 6-6C**. As shown in the figure, existing noise levels often exceed 65 CNEL/DNL within the City. This is considered a threshold for a generally acceptable level of noise when outdoors.

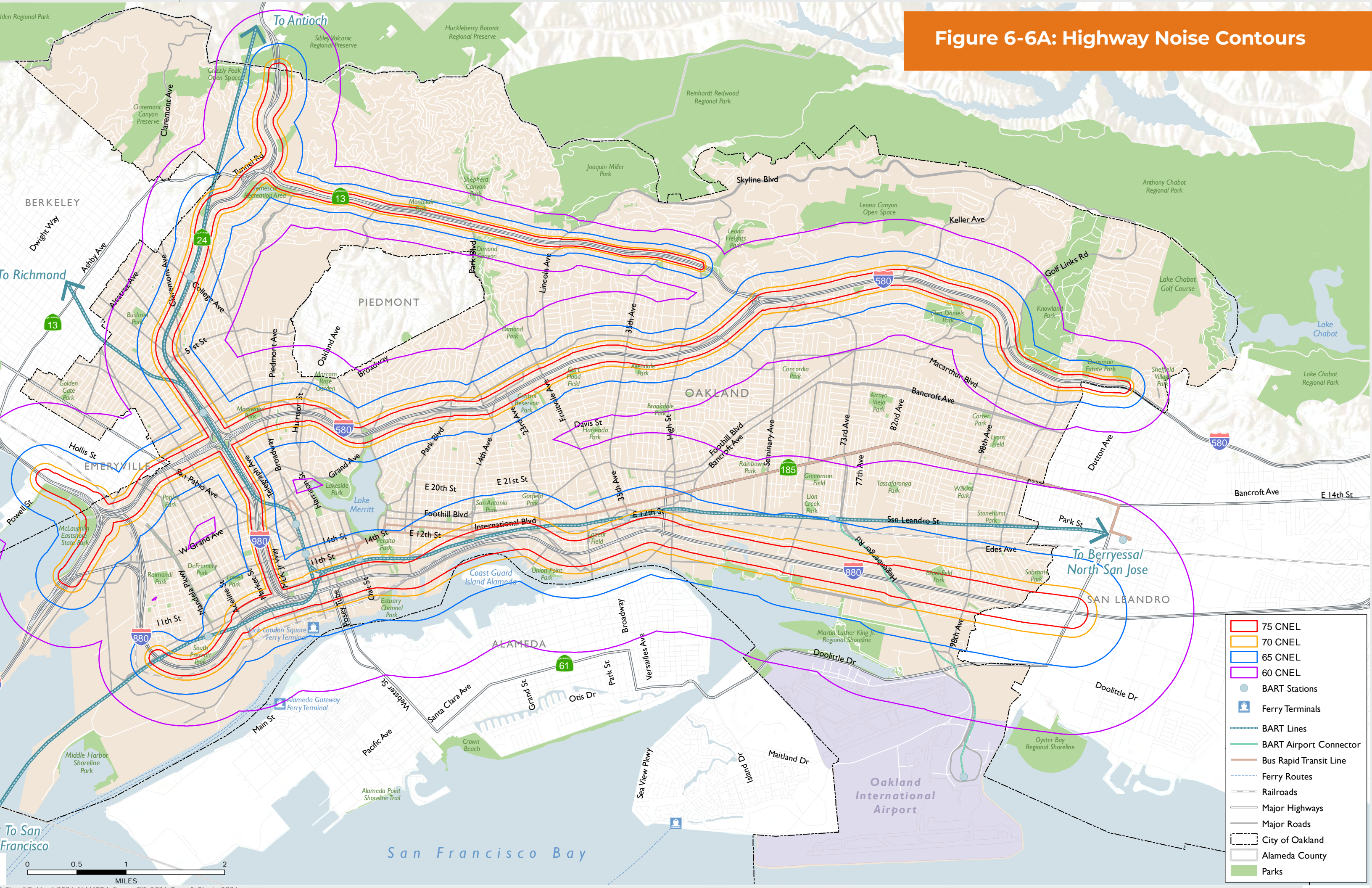
Ambient noise levels are frequently measured within the City to establish the existing environment for projects undergoing environmental review. **Table 6-2** presents the monitored DNL noise level (where available) and the daytime ambient equivalent noise level for a range of locations throughout the City. These monitoring locations are presented in **Figure 6-6D**.

Table 6-2: Monitored Noise Environments within the City of Oakland

NOISE MONITORING LOCATION	DAY-NIGHT NOISE LEVEL (DNL)	DAYTIME HOURLY AVERAGE (LEQ ¹)
OAK-1 Telegraph Avenue at 51st Street	N/A	60
OAK-2 Mandela Parkway adjacent and north of I-580	78	70
OAK-3 Martin Luther King Jr. Way adjacent to SR 24	68	62
OAK-4 Mosswood Recreation Center, Webster Street adjacent to I-580	69	67
OAK-5 2515 Adeline Street	72	71
OAK-6 Northgate Avenue at 25th Street	N/A	62
OAK-7 San Pablo Avenue at 18th Street	N/A	59
OAK-8 Webster Street at 15th Street	66	64
OAK-9 15th Street between Jackson and Madison	N/A	50
OAK-10 8th Street and Jefferson Street	N/A	63
OAK-11 North side of 737 2nd Street	72	68
OAK-12 Terminus of Clay Street adjacent to Port Offices	77	73
OAK-13 222 Broadway	N/A	67
OAK-14 3rd Street at Madison Street	N/A	56
OAK-15 Embarcadero and 9th Avenue	N/A	65
OAK-16 1321 Leimert Boulevard	N/A	63
OAK-17 2245 International Boulevard	76	71
OAK-18 1045 Derby Street	84	76
OAK-19 5441 International Boulevard	N/A	70
OAK-20 Mountain Boulevard at Sequoyah Road	75	71
OAK-21 701 105th Avenue	80	79
Notes:		
¹ The equivalent noise level (Leq), also referred to as the time-average sound level, is the equivalent steady state sound level over a stated period of time.		

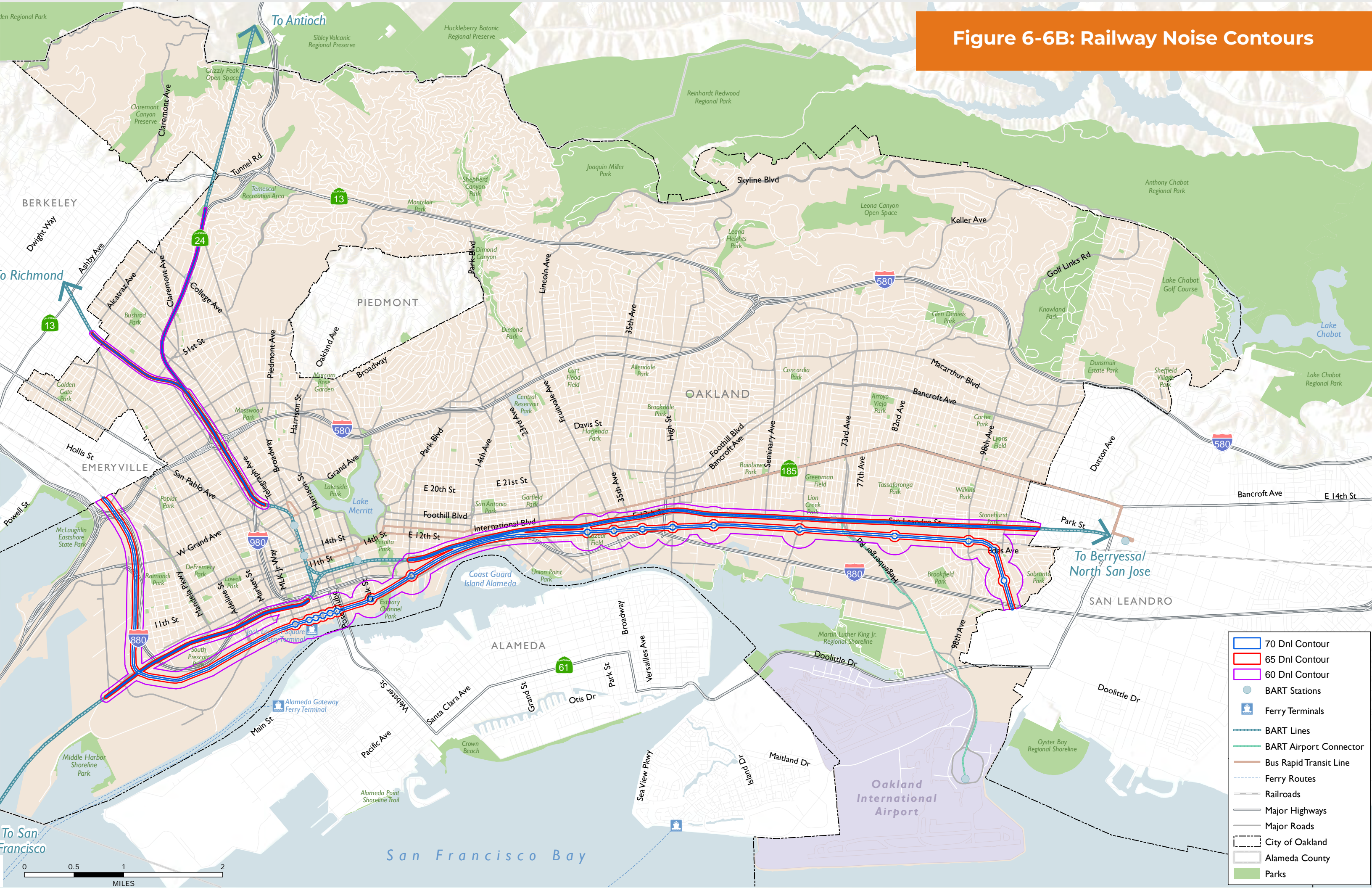
Source: Data compiled from CEQA documents within the city of Oakland, available at <https://www.oaklandca.gov/resources/current-environmental-review-ceqa-eir-documents-2011-2021>. All data was measured after 2016.

Figure 6-6A: Highway Noise Contours



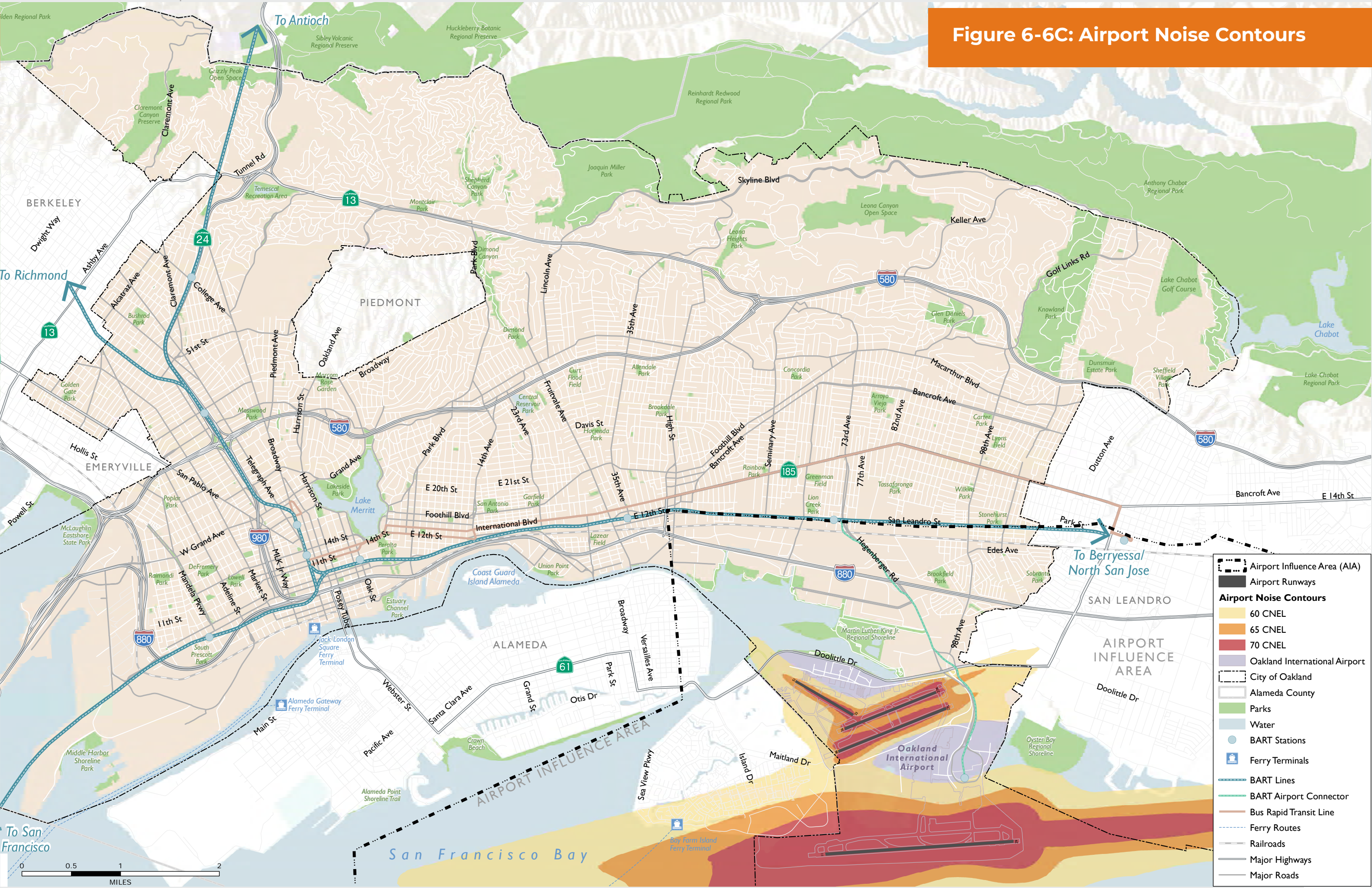
- 75 CNEL
- 70 CNEL
- 65 CNEL
- 60 CNEL
- BART Stations
- Ferry Terminals
- BART Lines
- BART Airport Connector
- Bus Rapid Transit Line
- Ferry Routes
- Railroads
- Major Highways
- Major Roads
- City of Oakland
- Alameda County
- Parks

Figure 6-6B: Railway Noise Contours



- ▬ 70 DnI Contour
- ▬ 65 DnI Contour
- ▬ 60 DnI Contour
- BART Stations
- Ferry Terminals
- ▬ BART Lines
- ▬ BART Airport Connector
- ▬ Bus Rapid Transit Line
- - - Ferry Routes
- ▬ Railroads
- ▬ Major Highways
- ▬ Major Roads
- City of Oakland
- Alameda County
- Parks

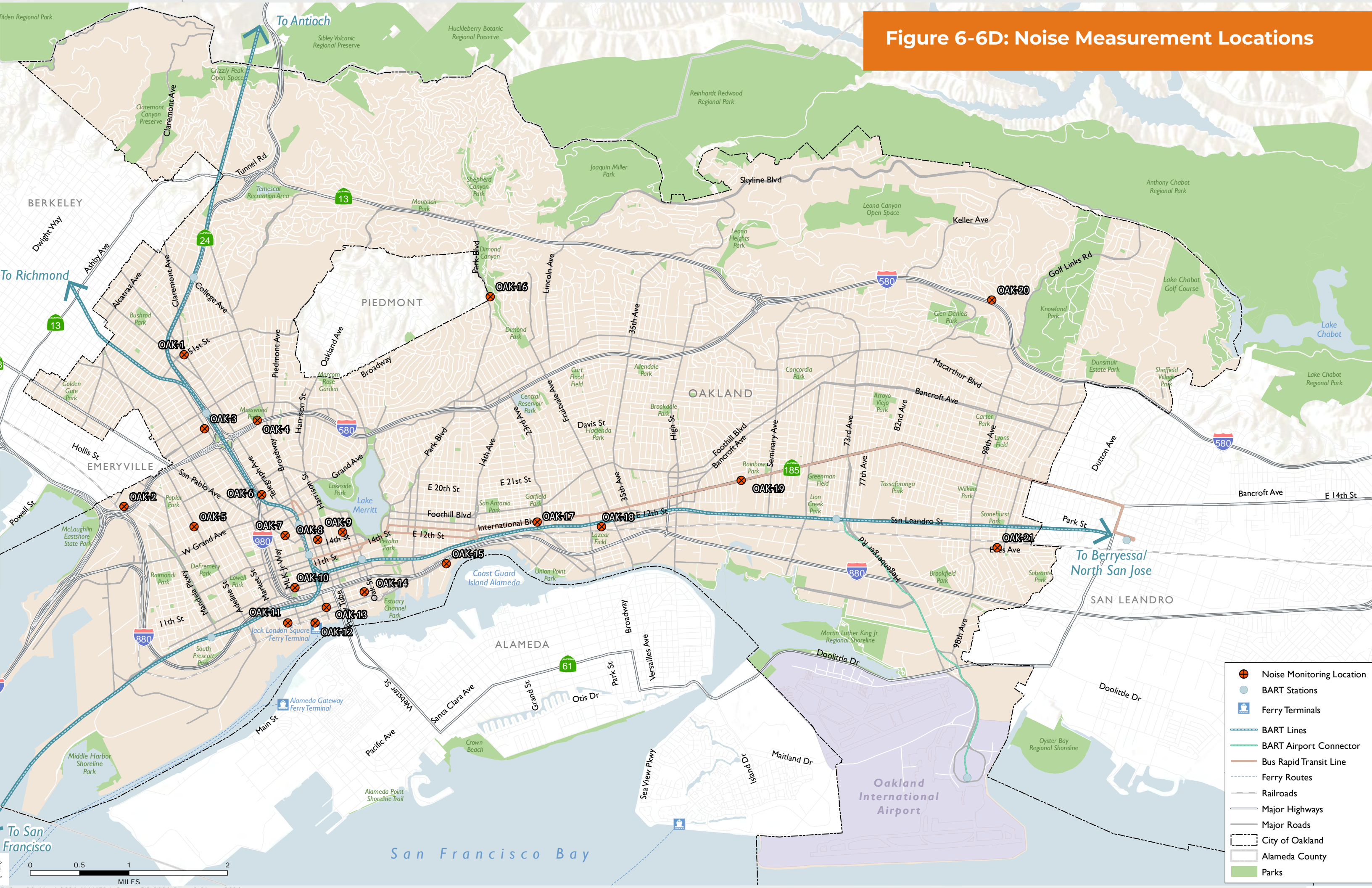
Figure 6-6C: Airport Noise Contours



- Airport Influence Area (AIA)
- Airport Runways
- Airport Noise Contours**
- 60 CNEL
- 65 CNEL
- 70 CNEL
- Oakland International Airport
- City of Oakland
- Alameda County
- Parks
- Water
- BART Stations
- Ferry Terminals
- BART Lines
- BART Airport Connector
- Bus Rapid Transit Line
- Ferry Routes
- Railroads
- Major Highways
- Major Roads

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MILES

Figure 6-6D: Noise Measurement Locations



- Noise Monitoring Location
- BART Stations
- Ferry Terminals
- BART Lines
- BART Airport Connector
- Bus Rapid Transit Line
- Ferry Routes
- Railroads
- Major Highways
- Major Roads
- City of Oakland
- Alameda County
- Parks

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6.7 Hazards and Hazardous Materials

Industrial or commercial operations can result in spills or leaks of hazardous materials and/or petroleum products into the environment, resulting in soil and groundwater contamination. Exposure to hazardous materials can result in lung damage, cancer, cardiovascular disease, low birth weight infants, and other negative health outcomes that reduce life expectancy. The Department of Toxic Substances Control (DTSC) EnviroStor online database keeps records of facilities that are authorized to treat, store, dispose, or transfer hazardous waste and includes the following site types: Federal Superfund sites (National Priority List); state response, including military facilities and State Superfund; voluntary cleanup; and school sites that are being evaluated by the DTSC for possible hazardous materials contamination. The EnviroStor database also contains current and historical information relating to permitted and corrective action facilities. The State Water Resources Control Board (SWRCB) GeoTracker online database contains regulatory data about leaking underground storage tanks (LUST), Department of Defense, Cleanup Program Sites, spills-leaks-investigations-cleanups, and landfill sites. The GeoTracker database also contains information about public drinking water wells.

A review of the online regulatory databases (EnviroStor and GeoTracker) reveals that there are approximately 1,686 documented hazardous materials sites currently identified within the City (shown in **Figure 6-7A**). The figure also shows hazardous materials sites beyond the City boundaries because they may have the potential to affect areas within the City if the contaminants associated with those sites migrate. These identified sites met at least one of the following criteria:

- Sites with known unauthorized releases of hazardous chemicals or petroleum under regulatory oversight.
- Sites with subsurface impacts and residual chemicals in the City.

- Sites outside of the City but where contamination had the potential to migrate and impact soil and/or groundwater in the City.
- Regulatory status.

Based on the evaluation of the above criteria, the sites were qualitatively ranked from 5 (very high hazard) to 1 (very low hazard). A brief description of these rankings is provided below in **Table 6-3**. Of the 1,686 identified sites, 361 are assigned a 5 ranking, 60 are assigned a 4 ranking; 14 are assigned a 3 ranking, 152 are assigned a 2 ranking, and 1,099 are assigned a 1 ranking. Figure 6-7B shows sites ranked 3, 4, and 5.

These results indicate that there are numerous hazardous materials sites that have resulted in soil and/or groundwater contamination. The reporting and status of hazardous materials sites change as identification, monitoring and clean-up of hazardous sites progress, and these databases are updated periodically.

Typically, after hazardous releases are cleaned up (remediated), it needs to be demonstrated to the regulatory agency (i.e., DTSC or SWRCB) that the contamination has been either completely removed or no longer poses a threat to the public or the environment.

Once it is demonstrated that there is no significant risk human health or the environment, the regulatory agency in charge (i.e., DTSC and/or SWRCB) will issue an official closure or no further action letter and the site is considered closed. It is important to note that a closed site may contain residual amounts of contamination, but the amounts are so small that they do not pose a threat to human health or the environment.

While many of these sites have completed remediation and are considered closed, there are still numerous sites that may pose a threat to the public and the environment if contamination is encountered during new development. Further studies and additional remediation may be required for sites that show evidence for contamination.

CalEnviroScreen is a mapping tool created to identify California communities that are vulnerable to environmental impacts due to environmental, health, and socioeconomic factors. CalEnviroScreen produces scores for each census tract based on these factors, which are compared to other census tracts in the state. An area with a high score is one that experiences a much higher pollution burden than one with a low score. Based on these scores, census tracts are ranked based on their demographic vulnerability and existing pollution burden.



Photo: Greg Linhares, City of Oakland

Figure 6-7C shows CalEnviroScreen data for DTSC Cleanup Sites within the City.³⁶ The data depicted in **Figure 6-7C** represents DTSC EnviroStor records of active hazardous materials sites (represented on the figure as yellow points). The list of the different types of sites that EnviroStor considers when creating these data are listed below:

- Evaluation
- Historical
- Military Evaluation
- Corrective Action
- School Cleanup
- Voluntary Cleanup
- Tiered Permit
- State Response
- Superfund

As depicted in **Figure 6-7C**, each census tract is assigned a “Cleanup Site Percentile” (a score) based on the amount and types of Cleanup Sites present; each score fits into a range of percentiles. Each range of percentiles is assigned a corresponding color (shade of red), the darkest red representing the highest score (and highest hazard). As discussed above, a high score indicates that a census tract is more vulnerable than one with a lower score. In the case of Cleanup Sites, a high score indicates a census tract is more vulnerable to exposure to hazardous materials that can affect human health and the environment.

³⁶ CalEnviroScreen 4.0 only takes into consideration hazardous materials sites that are listed in the EnviroStor database. This program does not account for active SWRCB regulated sites.

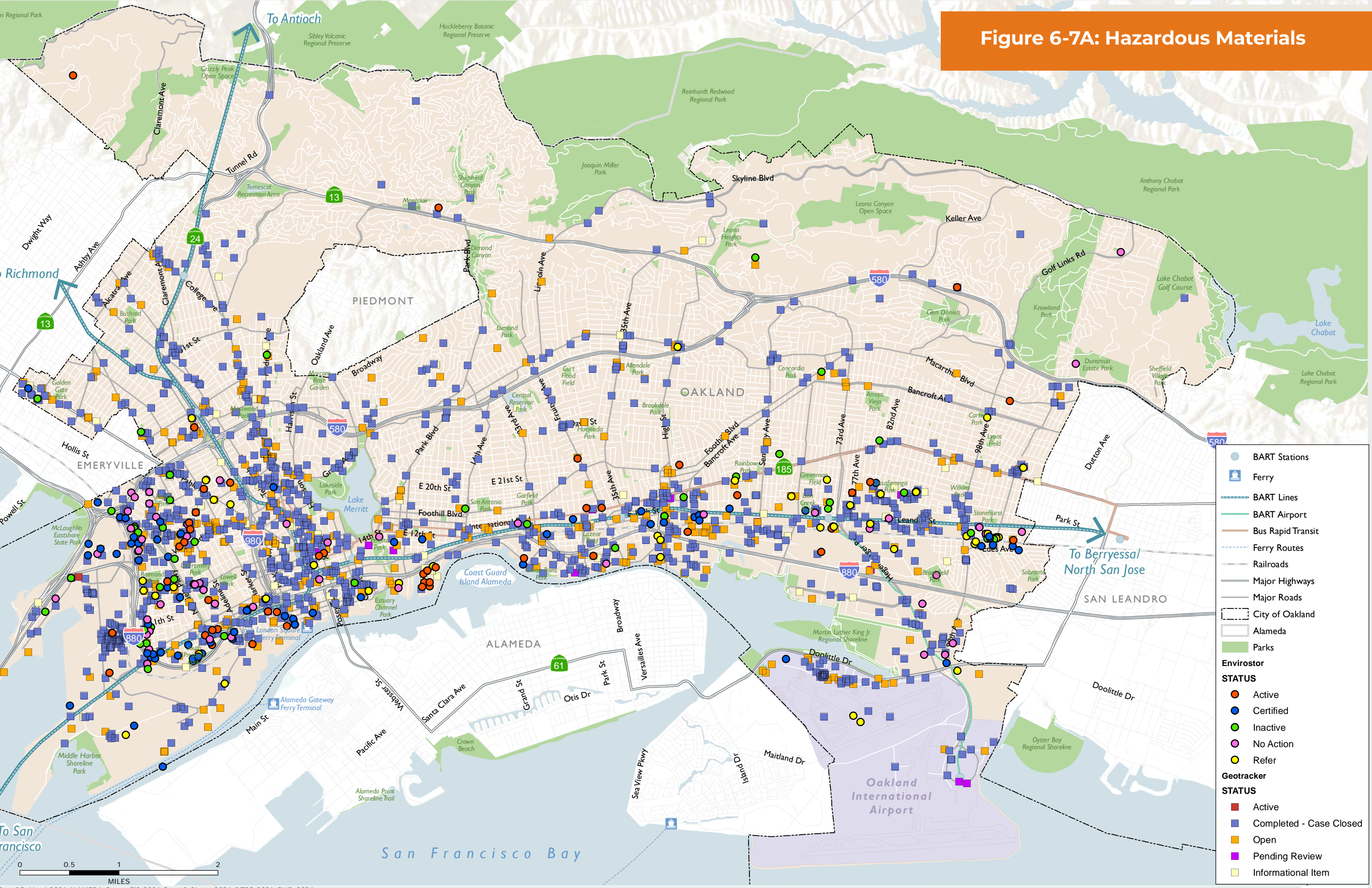
Table 6-3: Hazardous Materials Site Ranking

RANK	HAZARD	DESCRIPTION	CONSEQUENCES
5	Very High	Potentially acute threat to human health or environment.	Immediate action needed to mitigate existing threat.
4	High	Potentially significant risk to human health or environment	Investigation or remediation needed for existing risk. Or, new development will be subject to remedial measures.
3	Moderate	Potential threat/risk to human health or environment	Possible investigation needed for existing development. Residual contamination in soil and/or groundwater may necessitate re-opening of case based on human health (vapor intrusion pathway) or groundwater impacts and revised closure standards.
2	Low	Less than significant threat/risk to human health or environment.	Special management/notification in case of subsurface work. New development may necessitate verification of closure standards and possible vapor intrusion study.
1	Very Low	De minimis condition	No action or special management needed other than possible notification.



Photo: Greg Linhares, City of Oakland

Figure 6-7A: Hazardous Materials



	BART Stations
	Ferry
	BART Lines
	BART Airport
	Bus Rapid Transit
	Ferry Routes
	Railroads
	Major Highways
	Major Roads
	City of Oakland
	Alameda
	Parks
Envirostor STATUS	
	Active
	Certified
	Inactive
	No Action
	Refer
Geotracker STATUS	
	Active
	Completed - Case Closed
	Open
	Pending Review
	Informational Item

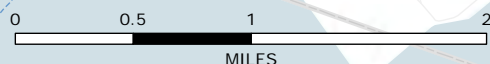
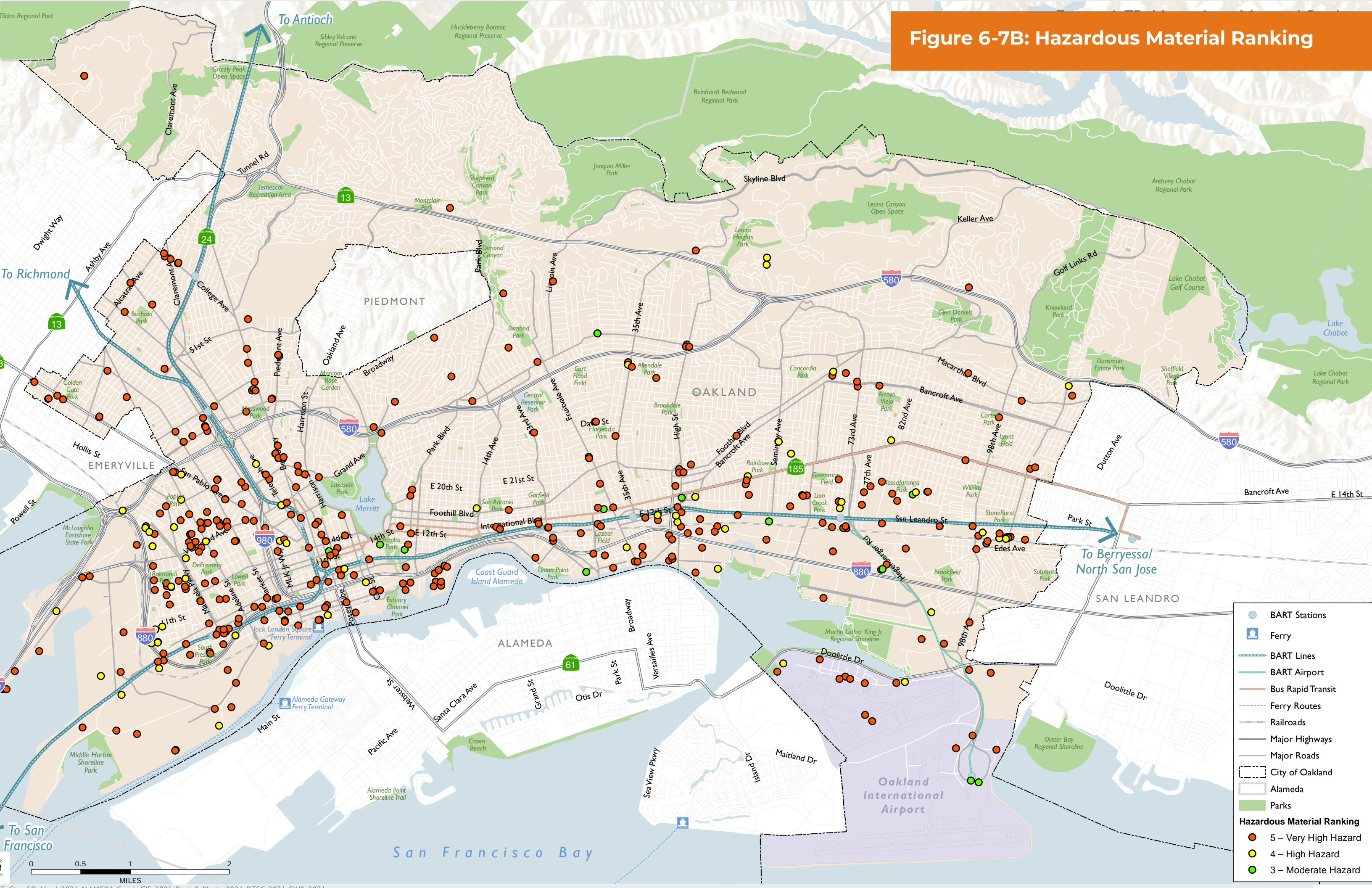
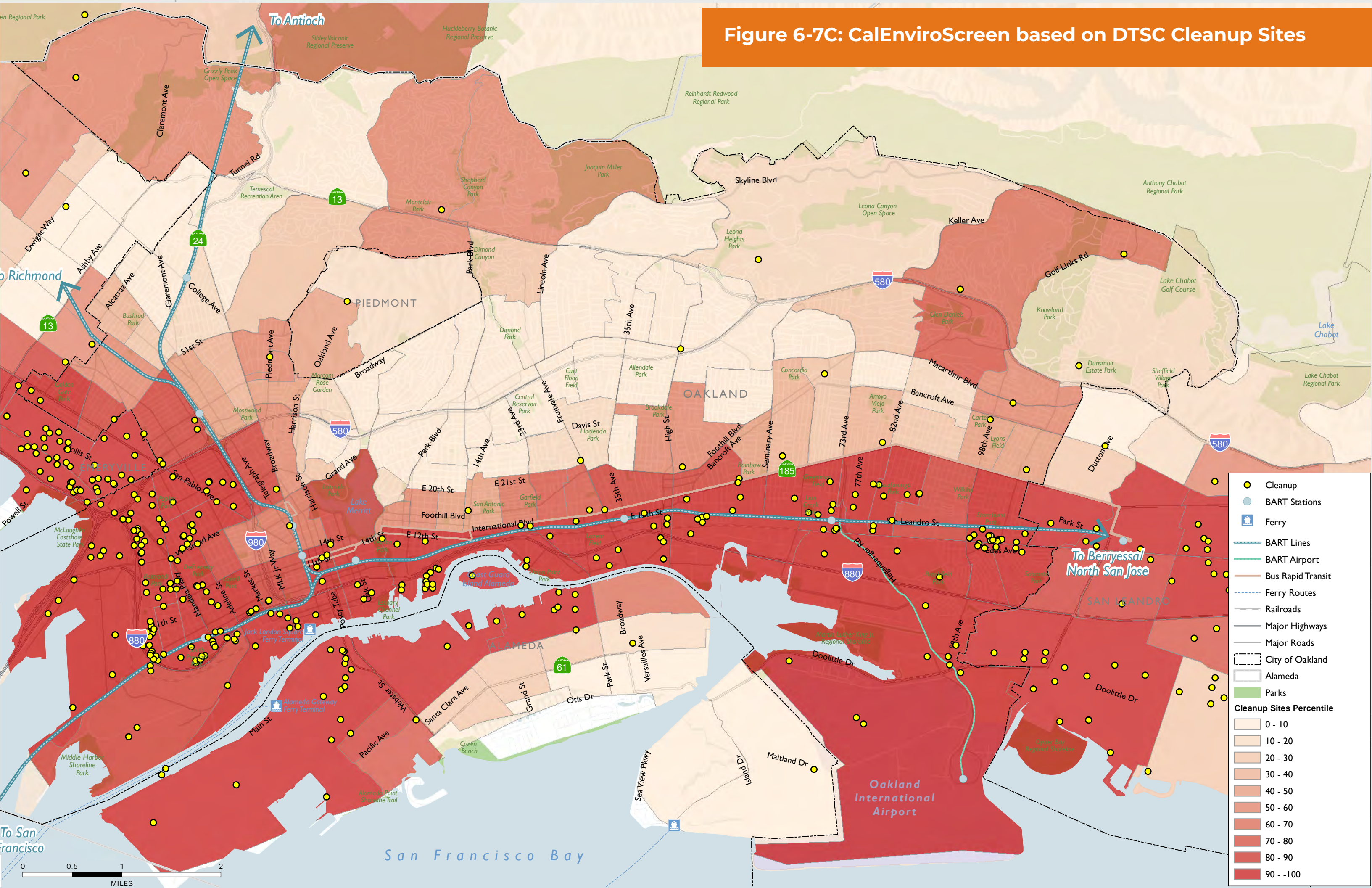


Figure 6-7B: Hazardous Material Ranking



- BART Stations
 - Ferry
 - BART Lines
 - BART Airport
 - Bus Rapid Transit
 - Ferry Routes
 - Railroads
 - Major Highways
 - Major Roads
 - City of Oakland
 - Alameda
 - Parks
- Hazardous Material Ranking**
- 5 – Very High Hazard
 - 4 – High Hazard
 - 3 – Moderate Hazard

Figure 6-7C: CalEnviroScreen based on DTSC Cleanup Sites



	Cleanup
	BART Stations
	Ferry
	BART Lines
	BART Airport
	Bus Rapid Transit
	Ferry Routes
	Railroads
	Major Highways
	Major Roads
	City of Oakland
	Alameda
	Parks
Cleanup Sites Percentile	
	0 - 10
	10 - 20
	20 - 30
	30 - 40
	40 - 50
	50 - 60
	60 - 70
	70 - 80
	80 - 90
	90 - 100

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HISTORIC RESOURCES

- 7.1 Introduction**
- 7.2 Oakland's Historic Properties**
- 7.3 Potential Designated Historic Properties**
- 7.4 The Moving 'Age-Eligibility' Threshold**
- 7.5 Neighborhood and Specific Plans**

7.1 Introduction

Historic resources create a distinct sense of place for Oakland's communities. While the city's most prominent landmarks are located in and around downtown, significant resources and districts across the city represent a breadth of themes and periods in Oakland's civic, residential, commercial, and industrial development. Oakland's significant historic properties include a variety of resource types, including public parks, multi- and single-family residential buildings, churches, civic properties, commercial, institutional, and industrial properties dating from the 1850s on.¹

7.2 Oakland's Historic Properties

The City of Oakland maintains robust historic preservation and designation programs which provide a framework for planning decisions regarding the city's historic properties. The Historic Preservation Element (HPE) of the Oakland General Plan, adopted March 8, 1994 (Oakland City Council Resolution No. 70807 C.M.S.) with some policies amended July 21, 1998, "sets forth goals, objectives, policies and actions that encourage preservation and enhancement of Oakland's older buildings, districts and other physical environmental features having special historic, cultural, educational, architectural or aesthetic interest or value."²

The HPE sets out a broad hierarchy of historic property statuses, from "minor" to "highest" importance, "determining the relative importance of [...] properties so that preservation efforts may be appropriately gauged," with the strongest protections and

¹ A summary of Oakland's historical development is provided in the Oakland General Plan: Historic Preservation Element (Oakland, October 1993), 1-2 through 1-9.

² City of Oakland, Oakland General Plan: Historic Preservation Element (Oakland, October 1993), 1-1.



incentives reserved for the most significant properties.³ Under the HPE, and as incorporated in the Oakland Planning Code, a property's level of designation, or eligibility for designation, often informs the type of review required for proposed projects that could alter its character. Designated properties are generally afforded the highest level of protection under local historic preservation regulations, and may be eligible for preservation incentives.

Figure 7-1 provides a visual summary of existing conditions at the time of its preparation. Designations and statuses change over time, however, as properties are demolished, lose integrity, become eligible and are nominated, or when new evaluations are conducted. Historic property lists are always works in progress, and always need to be checked against the physical resources on the ground.

³ Objective 1 of the City of Oakland, Oakland General Plan: Historic Preservation Element (Oakland, September 1993), 2-13.

LOCAL REGISTER OF HISTORIC RESOURCES

Approximately 3,400 historic properties are included in the City of Oakland's Local Register of Historic Resources (Local Register). Established through a 1998 amendment to the HPE to clarify the environmental review process, the Local Register includes all locally designated properties as well as the highest levels of Potential Designated Historic Properties (PDHPs) and some historic district contributors.

Properties designated as individual resources at the local level include Landmarks, Heritage Properties, Study List Properties, and the highest rated Potential Designated Historic Properties (PDHPs).⁴ City of Oakland Historic Landmarks (141 properties) are the most prominent designated historic properties in the city and may be designated by City Council for historical, cultural, educational, architectural, aesthetic, or environmental value.⁵ The category of Heritage Property (approximately 73 properties) is designated by the Landmarks Preservation Advisory Board (LPAB) and is typically less exclusive than the Landmark designation. It is most often used in conjunction with Mills Act contract applications. The Preservation Study List (approximately 335 properties) was initiated in the 1980s, and includes properties considered by the LPAB to be likely candidates for designation.⁶

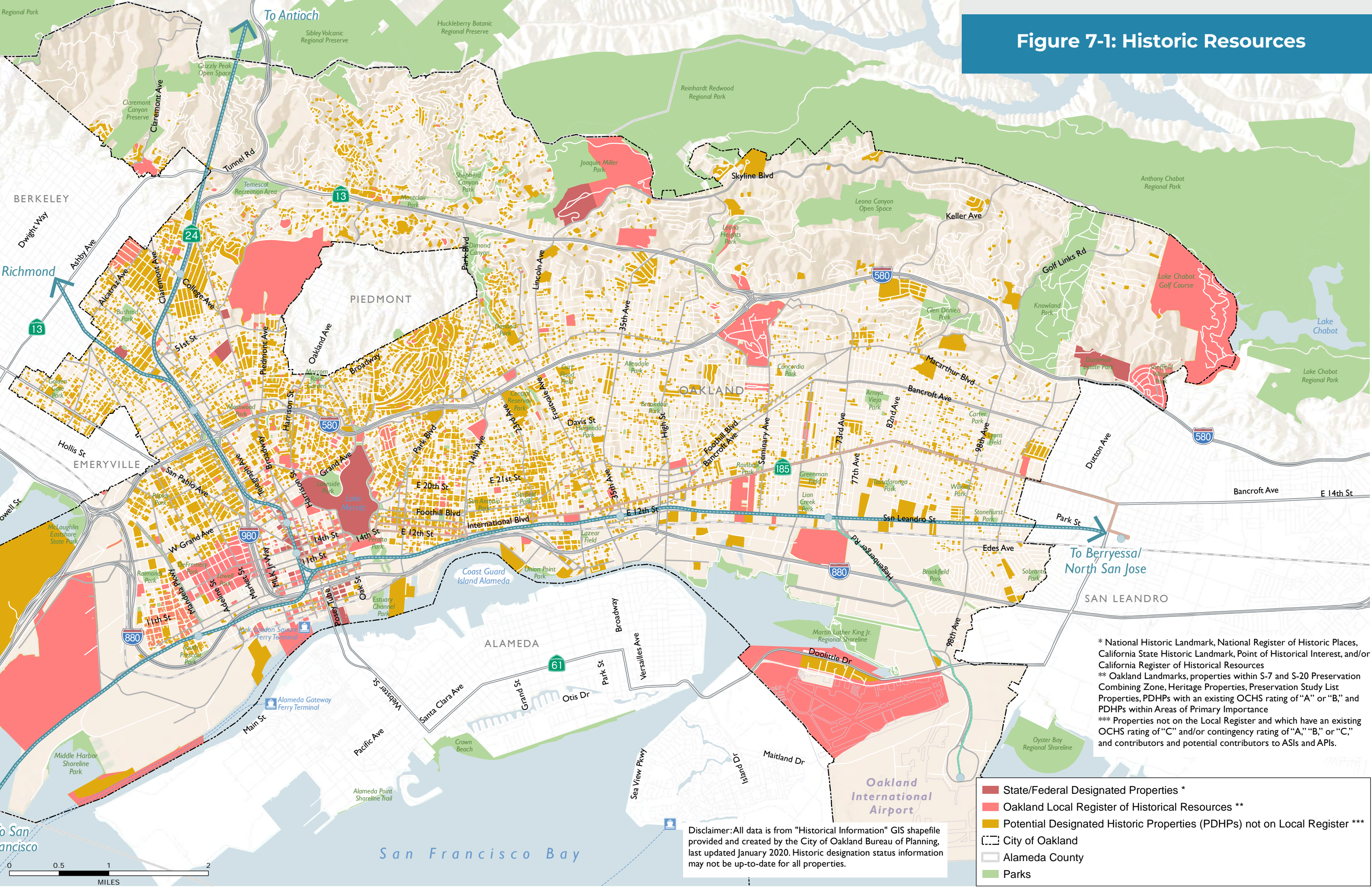
Properties included in the Local Register as district contributors include those located within S-7 and S-20 Preservation Districts or an Area of Primary Importance (API.) The City of Oakland's S-7 and S-20 Historic Preservation District Combining Zones comprise groupings of significant resources with similar designation

⁴ City of Oakland, California Planning Code Section 17.09.040 – Definitions. Electronic resource at https://library.municode.com/ca/oakland/codes/planning_code?nodet=17.09.040DE, accessed January 18, 2022.

⁵ City of Oakland, Oakland General Plan: Historic Preservation Element (Oakland, October 1993), Appendix D.

⁶ City of Oakland, Oakland General Plan: Historic Preservation Element (Oakland, September 1993), page 4-21. As part of its existing Historic Preservation Element, the City of Oakland established the goal of reviewing and reclassifying Preservation Study List properties as Heritage Properties.

Figure 7-1: Historic Resources



* National Historic Landmark, National Register of Historic Places, California State Historic Landmark, Point of Historical Interest, and/or California Register of Historical Resources
 ** Oakland Landmarks, properties within S-7 and S-20 Preservation Combining Zone, Heritage Properties, Preservation Study List Properties, PDHPs with an existing OCHS rating of "A" or "B," and PDHPs within Areas of Primary Importance
 *** Properties not on the Local Register and which have an existing OCHS rating of "C" and/or contingency rating of "A," "B," or "C," and contributors and potential contributors to ASIs and APis.

- State/Federal Designated Properties *
- Oakland Local Register of Historical Resources **
- Potential Designated Historic Properties (PDHPs) not on Local Register ***
- City of Oakland
- Alameda County
- Parks

Disclaimer: All data is from "Historical Information" GIS shapefile provided and created by the City of Oakland Bureau of Planning, last updated January 2020. Historic designation status information may not be up-to-date for all properties.





criteria and review procedures for Landmark properties.⁷ This category includes approximately 1,118 properties in eight districts. Areas of Primary Importance (APIs) are districts or groupings identified through survey and defined by the city's HPE as "historically or visually cohesive" areas that appear to meet eligibility requirements for listing as districts on the National Register.⁸ API contributors and potential contributors include approximately 1,660 properties in 57 districts.

The Local Register also includes properties which are not individually designated in the categories described above, but which have been assigned Oakland Cultural Heritage Survey (OCHS) Ratings of "A" or "B." This includes approximately 90 properties not designated in other categories.⁹ The five-tiered alphanumeric system rating system developed for OCHS denotes a property's significance at the local level in its existing condition, its potential significance if rehabilitated or studied further, and its

⁷ City of Oakland, Oakland California Planning Code Chapter 17.84, electronic resource at https://library.municode.com/ca/oakland/codes/planning_code?nodeId=TIT17PL_CH17.84PRCOZORE; and 17.100B, electronic resource at https://library.municode.com/ca/oakland/codes/planning_code?nodeId=TIT17PL_CH17.100BS-HIPRDICZORE, accessed December 17, 2021.

⁸ City of Oakland, Oakland General Plan: Historic Preservation Element (Oakland, August 1998), page A-3.

⁹ This figure excludes properties with "A" or "B" ratings which are also included in the Local Register under a different criterion.



relationship to preservation districts. Briefly, evaluated properties are assigned an Individual Property Rating between "A" (highest importance) and "F" corresponding to their ability to meet criteria related to visual quality and design, historical association, context, and integrity.¹⁰

OTHER HISTORIC PROPERTIES

Historic properties in Oakland also include those listed at the federal and state levels as National Historic Landmarks (five properties); on the National Register of Historic Places (51 individual properties and approximately 94 district contributors); as California Historical Landmarks (13 properties); and on the California Register of Historical Resources (159 individual properties and more than 900 district contributors). All properties that are listed at the state or federal level are also included in the California Register and are therefore CEQA resources; most are also on Oakland's Local Register.

Numerous properties in Oakland have been evaluated during local, state, and federal environmental review processes and identified as eligible for local, state, or federal designation, but

¹⁰ The OCHS rating system is described in detail in the Oakland General Plan: Historic Preservation Element and at <https://www.oaklandca.gov/topics/historical-and-architectural-rating-systems>.

have not been officially listed. The State of California Office of Historic Preservation Built Environment Resource Directory (BERD) for Alameda County lists more than 1,300 properties in Oakland which have been found eligible for, but are not formally listed in, the National Register, California Register, or Local Register.¹¹ Properties listed on the Local Register, and those which have been found eligible for listing on the National Register or California Register, are considered Historical Resources for the purposes of California Environmental Quality Act (CEQA) project review.

¹¹ California State Office of Historic Preservation, Built Environment Resource Directory (BERD), Alameda County, updated March 2020. Full definitions of the Status Codes are available at: California Office of Historic Preservation, "California Historical Resource Status Codes." Current as of March 1, 2020, electronic resource at <https://ohp.parks.ca.gov/pages/1069/files/Resource-Status-Codes.pdf>, accessed January 19, 2022. These records may include duplicates and not all contributors to the local historic districts may have individual records in the BERD. Records may also include properties listed as having an Oakland address, but are outside the city limits.

7.3 Potential Designated Historic Properties

Many individual properties and areas in Oakland which are not formally designated or included in the Local Register contribute to the historic character and cultural fabric of the city's neighborhoods. The HPE recognizes historic and architectural and community value beyond designated properties (which are approximately three percent of all properties in Oakland) with the category called Potential Designated Historic Property (PDHP). As the name suggests, PDHPs are potentially eligible for designation, typically as Heritage Properties. The category includes individual properties with an OCHS existing or contingency rating of "C" or higher, or which contribute or potentially contribute to an API or Area of Secondary Importance (ASI). ASIs are distinct districts or groupings of properties which share architectural or historical significance. Unlike APIs, however, ASIs are not considered to meet the significance thresholds of the National Register.¹² PDHPs constitute about 20 percent of Oakland's properties.

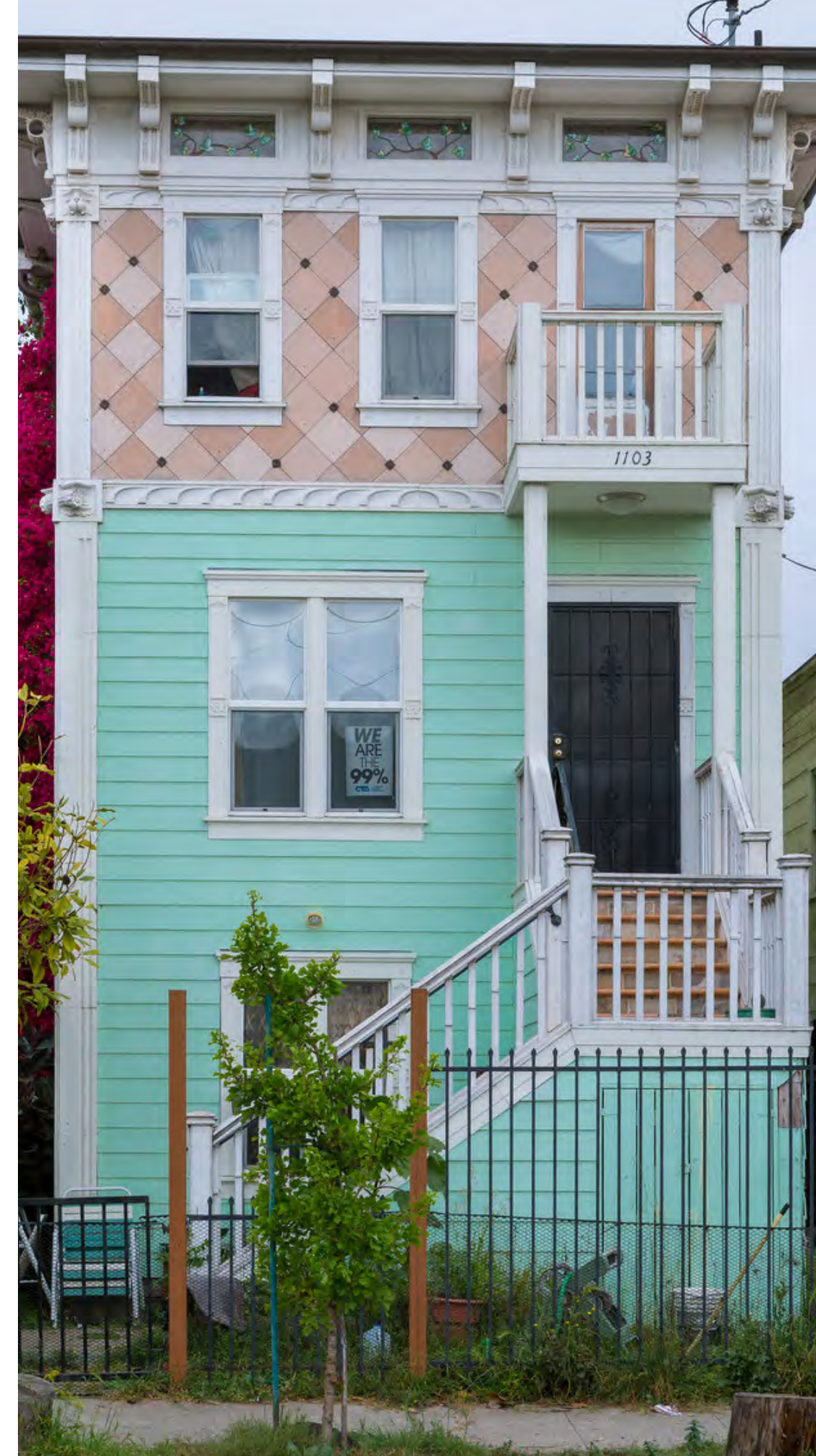
PDHP is not a designation, but rather a category of information adopted by the HPE and used for informing planning decisions and promoting awareness of preservation values. The status of Potential Designated Historic Property (PDHP) was designed to meet "specific minimum significance thresholds for properties which may warrant preservation effort by the City" and are "numerous enough to significantly influence the City's character."¹³

¹² City of Oakland, Oakland General Plan: Historic Preservation Element (Oakland, August 1998), page A-3.

¹³ Policy 1.2 of the City of Oakland, Oakland General Plan: Historic Preservation Element (Oakland, February 1994), 3-4.

Though the majority of PDHPs are not considered historical resources under CEQA, projects involving PDHPs may be subject to preservation-focused review requirements such as the Demolition Findings described under Section 17.136.075 of the City of Oakland Planning Code. A PDHP rating is one flag for planners to pay careful attention to possible effects on historic features during design review of proposed exterior alteration projects. Updated and publicly accessible context statements for historic districts and property types, particularly related to APIs and ASIs or new themes, would help inform the development of sensitive alterations and new construction projects. This would, in turn, help to preserve historic character while achieving vital neighborhoods that reflect a mix of old and new buildings. Neighborhood stakeholders should be involved in conversations about historic resource identification and designation in relation to community needs for housing and business development, particularly among underserved communities.

Whether for the purposes of CEQA compliance, review by the LPAB or Planning staff as part of the local design review process, or for determining eligibility for preservation incentives such as the Mills Act Property Tax Abatement Program, well-informed project design and review involving historic properties and districts relies on availability of clear information regarding properties' designation or survey status, significance, and character-defining features. Developing and updating publicly accessible documentation regarding the city's historic properties and districts at all levels should be a priority in working with the city's property owners and residents to advance preservation objectives.



Greg Linhares, City of Oakland

7.4 The moving 'Age-Eligibility' Threshold

According to GIS data available through the City of Oakland, more than 80,000 parcels citywide include buildings or structures that are 50 years of age or older (**Figure 7-2**). Based on historic preservation guidance provided by the National Park Service and State of California Office of Historic Preservation, these properties are currently eligible for evaluation as potential historic resources.¹⁴ Approximately 6,400 additional buildings will become 50 years old within the next 20 years, the typical planning horizon for general plans and updates.

Age-eligible properties across Oakland which have not yet been evaluated as historic resources include many older homes which may be eligible as part of expanded or new historic districts, as well as post-World War II residential subdivisions and commercial or institutional Modern Movement buildings. While few privately owned residential properties built in the later 20th century are likely to be individually historically or architecturally significant at the Local Register level (just as only a few from earlier periods are), some development tracts may possess significance as historic districts in association with an important local builder or developer, or as strong examples of the city's changing planning approaches and priorities for housing. As increasing numbers of more recent historic buildings will become eligible for evaluation, conducting surveys, developing context statements, and establishing significance thresholds that address Modern architectural styles, diverse histories, and different ways of defining the significance of cultural sites and spaces should be prioritized.

¹⁴ Properties less than 50 years may be eligible for designation if they are of exceptional significance.

7.5 Neighborhood and Specific Plans

The City of Oakland has adopted several neighborhood and specific plans which include goals and policies related to preservation and adaptive reuse of older properties within plan areas, as well as design guidelines developed to encourage compatibility of new construction and alterations with existing historic character. Within a city as large and internally varied as Oakland, neighborhood-focused planning documents are invaluable for providing guidance relevant to distinct historic character. When incorporated into neighborhood and area planning documents, design guidelines such as those developed for the Lake Merritt Station Area Plan and West Oakland Specific Plan provide important guidance for property owners and planners in understanding Oakland's buildings and developing and implementing alteration and new construction projects that respect and preserve historic character. Inclusion of design guidelines responsive to the existing historic character and types of development, as well as development of objective design standards for projects subject to streamlined review, should be a priority for neighborhood and specific plans developed in Oakland neighborhoods, particularly those that are not strongly represented by designated historic properties, districts, or PDHPs.

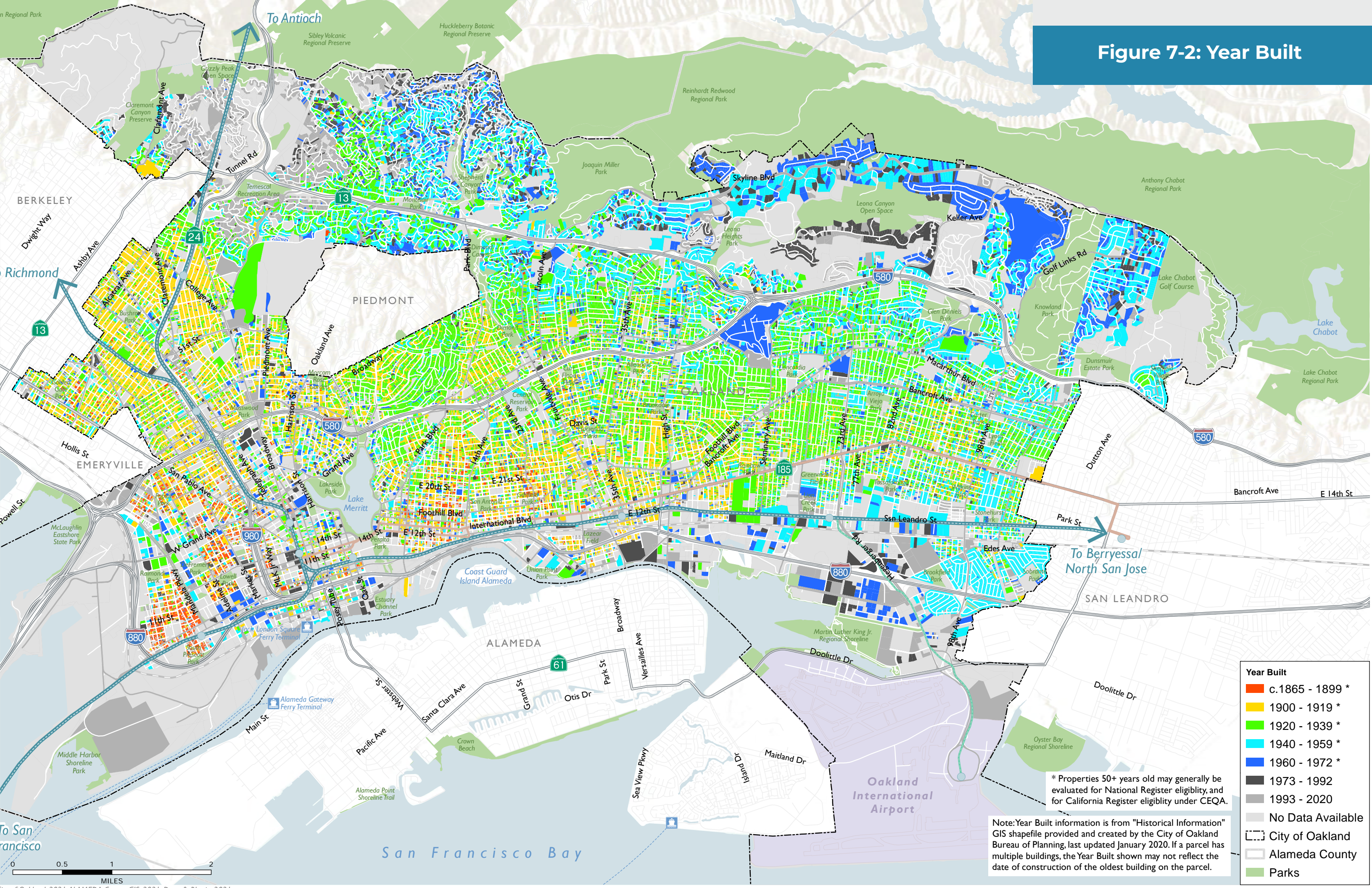


Photo: Greg Linhares, City of Oakland



Photo: Greg Linhares, City of Oakland

Figure 7-2: Year Built



Year Built	
■	c. 1865 - 1899 *
■	1900 - 1919 *
■	1920 - 1939 *
■	1940 - 1959 *
■	1960 - 1972 *
■	1973 - 1992
■	1993 - 2020
■	No Data Available
	City of Oakland
	Alameda County
■	Parks

* Properties 50+ years old may generally be evaluated for National Register eligibility, and for California Register eligibility under CEQA.

Note: Year Built information is from "Historical Information" GIS shapefile provided and created by the City of Oakland Bureau of Planning, last updated January 2020. If a parcel has multiple buildings, the Year Built shown may not reflect the date of construction of the oldest building on the parcel.

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OAKLAND 2045

GENERAL PLAN

Appendix B

NOP & Responses

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CITY OF OAKLAND

Bureau of Planning

250 Frank H. Ogawa Plaza, Suite 3315, Oakland, California, 94612-2032

NOTICE OF PREPARATION (NOP) OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR PHASE I OF THE OAKLAND 2045 GENERAL PLAN UPDATE

The City of Oakland's Bureau of Planning is preparing an Environmental Impact Report ("EIR") for Phase I of the Oakland 2045 General Plan Update ("Project"), which includes updates of the Housing Element and Safety Element, preparation of a new Environmental Justice Element, and conforming changes to the City's Planning Code, Zoning Map, and General Plan Map Amendments. The purpose of the EIR is to provide information about the potential impacts that the Project may have on the environment, identify feasible mitigation measures to minimize any significant impacts, and to analyze potential alternatives that may have reduced impacts.

The City is requesting comments on the scope and content of the EIR. A description of the proposed Project and its location, together with a summary of the probable environmental effects that will be addressed in the EIR, are included herein.

The EIR for the proposed Project is being prepared in compliance with the California Environmental Quality Act (CEQA) (California Public Resources Code §§21000 et seq.) and State CEQA Guidelines (Guidelines) (California Code of Regulations, Title 14, Division 6, Chapter 3, §§15000 et seq.). The City of Oakland is the Lead Agency for the Project and is the public agency that would consider approval of amendments to the Oakland General Plan necessary for the proposed Project. Pursuant to Guidelines §15082(a), upon deciding to prepare an EIR, the City as Lead Agency must issue a Notice of Preparation (NOP) to inform the Governor's Office of Planning and Research, trustee and responsible agencies, and the public of that decision. The City has not prepared an Initial Study; pursuant to California Environmental Quality Act Guidelines §15063(a), a Lead Agency may proceed directly with EIR preparation without an Initial Study if it is clear that an EIR will be required. The City has made this determination for the Project.

The purpose of the NOP is to provide information describing the proposed Project and its potential environmental effects to those who may wish to comment regarding the scope and content of the information to be included in the EIR. Guideline §15082(b) states: "... [E]ach responsible and trustee agency and the Office of Planning and Research shall provide the lead agency with specific detail about the scope and content of the environmental information related to the responsible or trustee agency's area of statutory responsibility that must be included in the draft EIR. The response at a minimum shall identify: (A) The significant environmental issues and reasonable alternatives and mitigation measures that the responsible or trustee agency, or the Office of Planning and Research, will need to have explored in the Draft EIR; and (B) Whether the agency will be a responsible agency or trustee agency for the project." This NOP is being sent to responsible and trustee agencies and other interested parties. Responsible and trustee agencies are those public agencies, besides the City of Oakland, that have a role in considering approval and/or carrying out the project. The City encourages responsible and trustee agencies and the Office of Planning and Research to provide comments in response to this NOP to the City, so that the City can ensure that the Draft EIR meets the needs of those agencies. Once the Draft EIR is published, it will be sent to all responsible or trustee agencies and to others who respond to this NOP or who otherwise indicate that they would like to receive a copy and made available for public review and comment.

SUBMITTING COMMENTS IN RESPONSE TO THIS NOP: The City encourages comments that address the scope of the Draft EIR be submitted by **email to generalplan@oaklandca.gov**. Alternatively, comments may also be submitted in writing by **hand delivery or mail** to Lakshmi Rajagopalan, AICP, Planner IV, City of Oakland Bureau of Planning, 250 Frank H. Ogawa Plaza, Suite 3315, Oakland, CA 94612 or **by fax** to (510) 238-6538. Ms. Rajagopalan may be reached **by phone** at (510) 238-6751.

Responses to the NOP must be received via one of the above methods by 5:00 p.m. on **Monday, May 2, 2022**. Please reference Case File Number GP21002; GP21002-ER01 in all correspondence. Comments and suggestions pertinent to the appropriate scope of analysis in the EIR are invited from all interested parties and will be received at the EIR Scoping Meeting noticed below.

Commenters should focus comments on potential impacts of the proposed Project on the physical environment. Commenters are encouraged to identify ways that potential adverse effects resulting from the proposed Project might be minimized and to identify reasonable alternatives and mitigation measures to the proposed Project.

EIR SCOPING MEETING: The **City of Oakland Planning Commission** will conduct a public scoping meeting on the EIR for Phase I of the Oakland 2045 General Plan Update on April 20, 2022 at **3:00 PM**. The hearing will be held on-line via Zoom, and the public may access the meeting information one week prior to the meeting at the following website: <https://www.oaklandca.gov/boards-commissions/planning-commission>.

PROJECT TITLE: Phase I of the Oakland 2045 General Plan Update (Case File No. GP21002; GP21002-ER01)

PROJECT LOCATION: Approximately 49,910 acres bound by the physical jurisdictional boundaries of the City of Oakland, as shown in figures 1 and 2.

PROJECT SPONSOR: City of Oakland

EXISTING CONDITIONS:

Oakland is located on the eastern shore of the San Francisco Bay and is the county seat of Alameda County and geographic center of the Bay Area. The City is defined by the Bay and Estuary on the southwest, the crest of the Berkeley-Oakland Hills on the northeast and east, the city boundaries of Berkeley and Emeryville to the north, and the City of San Leandro boundary to the south. San Francisco is located just west across the Bay Bridge.

Oakland is at the crossroads of a significant portion of the Bay Area's transportation network. Four interstates (I-80, I-880, I-980, and I-580) pass through the City. All Bay Area Rapid Transit (BART) lines traverse the City, serving eight stations. The City is also served by Amtrak, San Francisco Bay Ferry, and AC Transit. Oakland International Airport connects the City and the region to the rest of the world. The City is a regional employment center as well, and home to major corporations, institutions, and numerous small businesses. Because of Oakland's historic legacy as the western terminus of the Transcontinental Railroad and current status as a major port, much of the waterfront is lined with industrial establishments. While some of these industrial areas have been converted to other uses, existing industrial uses proximate to residential uses remain, particularly in West and East Oakland. More information on Oakland's land use pattern and transportation infrastructure can be found in the Map Atlas Report on the General Plan Update website at <<https://www.oaklandca.gov/topics/oakland-2045-general-plan-project-documents>.

Oakland's existing Housing Element, adopted in 2014, addresses housing needs from 2015 to 2023. Oakland is the third most populous city in the Bay Area, and the eighth largest in the state; it is also the fastest growing of the state's dozen largest cities, with the population growing nearly 13 percent since 2010. According to the Department of Finance, there were approximately 435,514 people and approximately 178,207 housing units in Oakland in 2021, with a housing vacancy rate of 5.9 percent. Cost-burdened households are defined as those who pay more than 30 percent of their income for housing. Nearly half of all residents experience some level of housing cost burden, although lower-income households and renters see higher than average rates of cost burden.

Oakland's current Safety Element was adopted in 2004 and addresses safety hazards within the City. Much of Oakland is located between two known active fault zones, the Hayward and San Andreas, and is vulnerable to seismic hazards such as ground shaking, liquefaction, and earthquake-induced landslides in the hills. The Oakland Hills is largely defined as being part of the wildland-urban interface (WUI), a zone where structures and other human development meets or intermingles with undeveloped wildlands, and is designated by CALFIRE as a Very High Fire Hazard Severity Zone (VHFHSZ). Areas of Oakland are subject to flooding, including along the shorelines of the San Francisco Bay, Oakland Estuary, and San Leandro Bay, with some flooding associated with Lake Merritt and Glen Echo Creek, as well as Arroyo Viejo, Lion, Sausal, and Peralta creeks. Oakland is vulnerable to the effects of coastal flooding caused by climate-change-induced sea level rise. More information on Oakland's existing geographic characteristics can be found in the Map Atlas Report, 2030 Equitable Climate Action Plan, and the 2021-2026 Local Hazard Mitigation Plan.

The City of Oakland experiences inequalities across the physical and social environment, as exemplified by differences in greenery, safety and services, economic success, land use, housing opportunities, and pollution burden. These conditions, driven by a history of discriminatory policies underlied by institutional racism, also have led to inequitable differences in health and opportunity by race and ethnicity in Oakland. Although addressing environmental justice is a relatively recent new requirement in general plans, the City of Oakland has taken significant strides to center and address racial disparities, including establishment of a Race and Equity Department in 2018. While a more robust methodology for identifying the most burdened communities is being developed, the State's designated initial screening tool, CalEnviroScreen 4.0, identifies census tracts in West Oakland and East Oakland (primarily west of I-580) as having some of the highest cumulative pollution burdens and socioeconomic vulnerabilities in the state. More information on environmental justice issues and disparities can be found in the Environmental and Racial Equity Baseline at <https://www.oaklandca.gov/topics/oakland-2045-general-plan-project-documents> and the 2018 Oakland Equity Baseline Report at <https://cao-94612.s3.amazonaws.com/documents/2018-Equity-Indicators-Full-Report.pdf>.

PROJECT DESCRIPTION:

The Project, discussed in further detail below, will establish Housing Element programs, policies, and actions to meet existing and projected housing needs at all income levels of the City of Oakland; provide evidence of the City's ability to accommodate its Regional Housing Needs Allocation (RHNA) for the 2023-2031 period; identify rezoning and General Plan amendments needed to meet the City's housing goals; amend the City of Oakland's existing Safety Element to update and as necessary create policies, programs, and actions that protect Oaklanders from safety hazards, including those resulting from climate change; and adopt an Environmental Justice Element to address the unique and compounded health risks, including but not limited to those resulting from poor air quality, lack of public facilities, safe and sanitary homes, and limited food access, in communities most impacted by poor health outcomes and racial segregation.

Phase I Oakland 2045 General Plan Update Context

The Oakland 2045 General Plan Update will guide the development of Oakland for the following two decades. Most of the City's current General Plan elements were adopted over 20 years ago. With this comprehensive update of the General Plan, the City has the opportunity to advance its commitment to create a "fair and just" city and undo past harms and inequity through more robust and equitable goals, policies, and implementation measures. Development of the 2045 General Plan Update includes a thorough and multi-pronged strategy for community engagement, including workshops, discussion groups, pop-up outreach, cultural events, youth engagement, online engagement methods, decisionmaker meetings, and more. The update process places particular emphasis on engaging communities historically underrepresented and excluded from traditional planning processes and often most negatively impacted by City policies. Initial guiding principles for the General Plan Update process include the following; detailed descriptions can be found at <https://www.oaklandca.gov/topics/general-plan-update-guiding-principles>:

- Equity and Environmental Justice
- Transparency
- Relevance and Clarity
- Focused Planning Process
- Flexible and Adaptable Process
- Strategic and Long-Range Thinking
- Inter-Agency Coordination
- Important Role of Community Based Organizations
- Youth Engagement
- Place-Based Approach

The General Plan Update will consist of two main phases, and this NOP addresses preparation of an EIR for Phase I:

- **Housing Element Update**
- **Safety Element Update**
- **New Environmental Justice Element**
- **Industrial Lands Policy**
- **Conforming changes to the Oakland Planning Code, Zoning Map, and General Plan.**

Phase I is expected to be conducted between 2021-2023 to adhere to State law mandates for completion of each of the above elements by 2023 (discussed below). The City will subsequently conduct Phase II of the General Plan Update between 2023 and 2025, which will include updates to the Land Use and Transportation (LUTE), Estuary Policy Plan (the Land Use Element for much of the land below Interstate 880 along the Oakland Estuary), Open Space, Conservation and Recreation (OSCAR), Noise, and preparation of a new Infrastructure and Facilities Element, including preparation of a separate EIR for which the City will issue a separate NOP.

A. Housing Element Update:

Purpose and Background - The Housing Element is one of the state-mandated elements of the General Plan. State law specifically requires the City to update the Housing Element of its General Plan by January 15, 2023, while making any changes to other elements of the General Plan needed to maintain internal consistency and undertaking any related changes to the City's Planning Code (Oakland Municipal Code Title 17). In accordance with State law, the eight-year planning period for the updated Housing Element will extend from 2023 to 2031; this is also referred to as the 6th Cycle Housing Element Update.

Based on the California Department of Housing and Community Development's (HCD's) requirements, the City of Oakland's 6th Cycle Housing Element (2023-2031) must identify housing sites for at least 26,251 units at specified levels of affordability (income limits/groups based on AMI, adjusted annually by HCD). The Housing Element Update would modify the policies described in the City of Oakland General Plan's

current housing element with the goal of ensuring a path for construction of the RHNA-assigned production target of 26,251 new housing units, including 10,261 affordable units, by 2031. The Housing Element would not directly approve any physical development but assumes that construction would be a reasonably foreseeable future outcome of the update. Also, in the absence of adoption of the Housing Element, it would be expected that the construction of housing would continue in the City on a path similar to what has occurred under current City regulatory requirements, with variation based on changed market conditions and state regulations. The EIR will utilize the existing conditions described above and analyze the impacts of the additional goals, policies, and actions in the Housing Element to assess any environmental impacts of the Project.

Regional Housing Needs Allocation - Housing elements must include an inventory or list of housing sites at sufficient densities to accommodate a specific number of units at various levels of affordability assigned to the City by the Association of Bay Area Governments (ABAG). ABAG assigns unit amounts to Bay Area jurisdictions based on a regional housing production target set by the California Department of Housing and Community Development (HCD), referred to as the Regional Housing Needs Allocation (RHNA). On December 16, 2021, ABAG adopted the Final RHNA, which distributed the regional housing need of 441,176 units across all local jurisdictions in the Bay Area.

The City must plan for its income-based housing allocation to address its share of the Bay Area region’s housing needs. Alameda County's 2021 Area Median Income (AMI) for a household of four persons is \$125,600. Income groups include: “very low income” (less than 50% of AMI); “low income” (51-80% of AMI); “moderate income” (81-120% of AMI); and “above moderate income” (greater than 120% of AMI). Within the 6th Cycle Housing Element Update, the City is required to plan for its fair share allocation of housing units by income group. Table 1 shows the RHNA breakdown of required units in Oakland across the four income categories for cycles 5 and 6, for comparison.

Table 1. 2023-2031 Future Housing Need

Income Group	5th Cycle RHNA (2015-2023)		6th Cycle RHNA (2023-2031)	
	Number	Percent	Number	Percent
Extremely-Low-Income (>30% AMI) ¹	1,030	7.0%	3,256	12.4%
Very-Low-Income (30%-50% AMI) ¹	1,029	7.0%	3,255	12.4%
Low-Income (50%-80% AMI)	2,075	14.0%	3,750	14.3%
Moderate-Income (80%-120% AMI)	2,815	19.1%	4,457	17.0%
Above-Moderate-Income (>120% AMI)	7,816	52.9%	11,533	43.9%
Total	14,765	100.0%	26,251	100.0%

1. Extremely-low-income housing need is assumed to be 50 percent of total very-low-income housing need.
2. AMI – Area Median Income. Per HCD, the 2021 AMI for Alameda County was \$125,600.

Source: ABAG, Final RHNA Plan, December 2021

Study Area / Housing Sites Inventory / Distribution - The Housing Element will reflect the new laws enacted by the State and outline equitable and effective strategies to address the community’s housing challenges, including housing for the unhoused. The Housing Element will also need to fully address new informational and actionable requirements around affirmatively furthering fair housing.

Based on HCD’s requirements, the City’s 6th Cycle Housing Element (2023-2031) must identify housing sites for at least 26,251 units at specified levels of affordability (income limits/groups based on AMI, adjusted annually by HCD). The City may decide to provide capacity for additional units as a buffer and for flexibility. To assemble this inventory, the City will identify pipeline projects that will receive a Certificate of Occupancy after June 30, 2022; City-owned vacant land; Bay Area Rapid Transit sites subject to AB 2923, which facilitates transit-oriented development; Accessory Dwelling Unit (ADU) projections; and units that may result from SB 9 lot splits. The City will also need to rezone identified sites, as necessary, to accommodate additional new units beyond known and “likely” housing sites and amend other elements of the General Plan (for example, the Land Use Element) to ensure that the General Plan as a whole remains consistent with the 6th Cycle Housing Element Update. As part of the Housing Element update, the City will also consider broader rezonings that could lead to more dense, compact development than currently exists in certain Oakland neighborhoods.

The Housing Element update must include policies and programs that address Oakland’s housing needs, including significant rise in rents and home prices, income burdens, and gentrification and the risk of displacement. Adoption of the Housing Element is anticipated to result in increased below market rate housing production throughout the City, including potentially through the use of an affordable housing overlay zone, increased residential density in priority development areas and high resource areas consistent with the City’s goals to affirmatively further fair housing, and greater allowances for missing middle, medium density housing in areas of the City that are currently limited to one-family and two-family residential facilities. The Housing Action Plan portion of the Housing Element will give consideration to all of these programs as well as consideration of revisions to existing development standards and other requirements that may act as a constraint on housing production.

- B. **Safety Element Update:** A comprehensive Safety Element update will build on the City’s 2021- 2026 Local Hazard Mitigation Plan; address all state requirements; and serve as a central reference point for the City’s efforts to address safety and climate change issues, including earthquakes, floods, fires, toxic waste, and other hazards. The Safety Element Update will include analysis and policy development regarding fire safe development codes, fire and flood hazard management for critical facilities, non-conforming development to contemporary fire safe standards (e.g., road standards and vegetation hazards), emergency evacuation and evacuation routes per AB 747 and SB99, emergency evacuation, climate adaptation, sea level rise, drought, and capital improvement programs to improve the City’s resilience to natural and human-caused hazards. The Safety Element will include actionable strategies for addressing identified critical facility needs and enabling climate-smart development.
- C. **(New) Environmental Justice Element:** In accordance with SB 1000, the City will prepare a new Environmental Justice Element concurrent with the updates to the Housing Element and Safety Element. The purpose of the Environmental Justice Element is to address the unique or compounded health risks in “disadvantaged communities” within the City of Oakland. Building on issues identified in the Environmental Justice and Racial Equity Baseline at <https://www.oaklandca.gov/topics/oakland-2045-general-plan-project-documents>. Environmental Justice Element measures will include, but are not limited to, improving air quality, and promoting public facilities, food access, safe and sanitary homes, and physical activity. In addition, the element will serve to promote civic engagement in the public decision-making process and prioritize improvements and programs that address the needs of these communities.
- D. **Zoning Code and Map Update:** The Zoning Code and Map Update will primarily focus on identifying appropriate zoning and General Plan designations for housing opportunity sites to ensure consistency with

the new Housing Element, including sites, and ensuring compliance with State laws. Additionally for Phase 1, the Zoning Code and Map Update would likely include higher densities and heights on City and other publicly owned sites and along transit corridors and near BART stations, promoting “missing-middle” housing, reuse of existing malls (such as Eastmont Mall), and addressing conflicts between industrial and residential uses. The Map amendments will modify existing General Plan and zoning designations, as appropriate.

PROBABLE ENVIRONMENTAL EFFECTS: The EIR will analyze and disclose the direct and indirect potentially significant impacts that would result from implementation of the proposed Phase I of the Oakland 2045 General Plan Update in addition to other analysis scenarios that may be appropriate for the EIR. Where significant impacts are identified, the EIR will describe potentially feasible mitigation measures that could minimize significant adverse impacts (Guidelines §15126.4). The EIR will evaluate the full range of environmental issues contemplated for consideration under CEQA and the CEQA Guidelines, including but not limited to the following:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation and Circulation
- Tribal Cultural Resources
- Utilities
- Wildfire

The Hazards and Hazardous Materials section of the Draft EIR will discuss the potential impacts associated with housing development on sites identified as hazardous materials sites, known as the Cortese list, pursuant to Government Code Section 65962.5. Because the Project is citywide, many such sites are within the Project area. Interested parties can research individual sites using the various resources found at the following links:

<https://calepa.ca.gov/sitecleanup/corteselist/> or <http://www.epa.gov/enviro/sems-search>.

The Draft EIR will evaluate cumulative impacts of the proposed Project, including the effects of other past, present, and reasonably foreseeable projects in the vicinity (Guidelines §15130). The Draft EIR will also identify and examine a range of reasonable alternatives to the proposed Project, including, but not limited to, a No Project Alternative (Guidelines §15126.6).

March 28, 2022

[DATE]
Case File Number: GP21002; GP21002-ER01

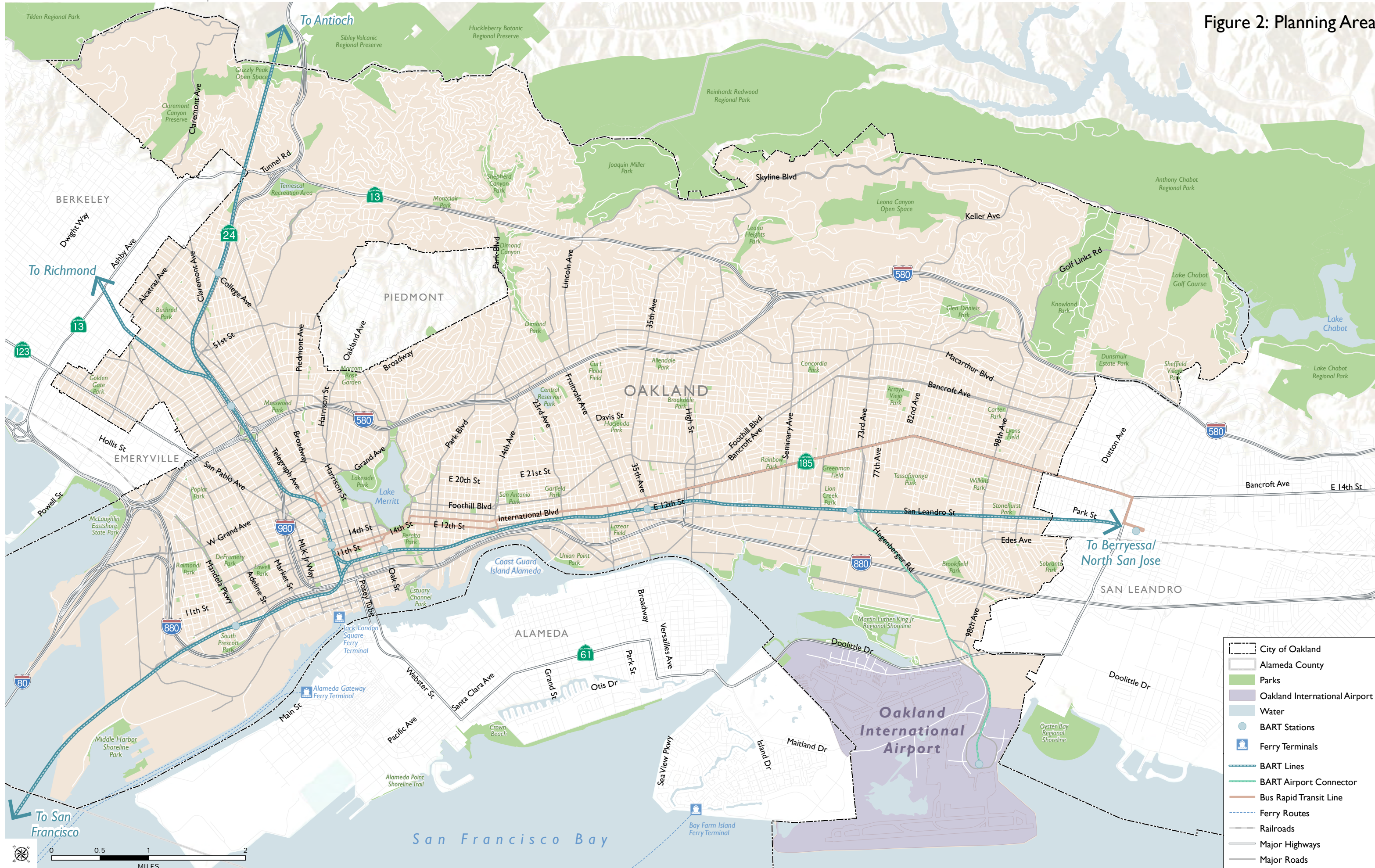


Ed Manasse, Bureau of Planning
Environmental Review Officer

Attachments:

[Figure 1, Regional Context, and Figure 2, Planning Area]

Figure 2: Planning Area



- City of Oakland
- Alameda County
- Parks
- Oakland International Airport
- Water
- BART Stations
- Ferry Terminals
- BART Lines
- BART Airport Connector
- Bus Rapid Transit Line
- Ferry Routes
- Railroads
- Major Highways
- Major Roads

SOURCE: City of Oakland, 2021; ALAMEDA County GIS, 2021; BCDC Open Data Portal, 2021; Dyett & Bhatia, 2021

*Note: The jurisdiction includes the Bay and the first 100 feet inland from the shoreline around the Bay. It also includes open water, marshes, and mudflats of greater San Francisco Bay including Suisun, San Pablo, Honker, Richardson, San Rafael, San Leandro and Grizzly Bays and Carquinez Strait. The jurisdiction also includes portions of most creeks, rivers, sloughs, and other tributaries that flow into San Francisco Bay, as well as salt ponds, duck hunting preserves, game refuges, and other managed wetlands that have been diked off from San Francisco Bay.



Service Development
1600 Franklin Street, Oakland CA 94612

May 2, 2022

Lakshmi Rajagopalan
Planning Department
City of Oakland
Oakland, Ca

Re: Notice of Preparation (NOP) for Oakland General Plan Environmental Impact Report (EIR)

Dear Ms. Rajagopalan:

Thank you for the opportunity to comment on the Notice of Preparation for the EIR on Phase I of the Oakland General Plan revision. Phase I includes the Housing Element of the General Plan, the Safety Element, a new Environmental Justice Element, and an Industrial Lands Policy. We are pleased that the City of Oakland is now undertaking this major planning effort.

AC Transit is vitally concerned with Oakland planning and development. Oakland residents make up approximately ½ of AC Transit's ridership. Nine out of the eleven major transit corridors that AC Transit has identified in our Major Corridors Study are wholly or partly in Oakland. AC Transit hopes the City can prioritize housing development on these corridors to maximize the benefits of the frequent transit service and millions of dollars in proposed infrastructure improvements in these areas. These corridors are as follows:

- Broadway/College
- Telegraph
- Shattuck/Martin Luther King
- Adeline/Stanford
- San Pablo
- MacArthur/Grand
- Fruitvale/Park
- Foothill
- International/East 14th

Providing adequate housing for Oakland will be a major challenge for the **Housing Element**. The NOP notes that, under the Regional Housing Needs Allocation process (RHNA), Oakland is obligated to find sites where over 26,000 additional housing units can be built between 2023 and 2031. Over 10,000 of those units must be affordable to extremely low-, very low-, and low-income households. The requirement for lower income units is more than double that of the last RHNA cycle, the total requirement is 78% more.

Minimizing displacement is also a key task that the EIR and the Housing Element should address. When people are displaced, not only is their housing situation likely

worsened, they are also likely to be forced into locations where they must drive more and use transit less—a negative environmental impact. Quality transit can reduce housing costs for low-income households, making them less likely to be displaced.

Additional housing along AC Transit’s nine major corridors will be central to meeting these goals. There are underutilized and, to a lesser extent, vacant potential development sites along each corridor. Several AC Transit corridors have seen significant new development and increased ridership in recent years, suggesting renewed interest in living in these locations that are anchored by high quality transit.

In developing **the General Plan**, the city should use the 2020 **Equitable Climate Action Plan** (ECAP) as a guide. The Plan states that “Public transit is a core element of an equitable low carbon city.” It calls for all City planning policies and regulations to be aligned with ECAP goals (ECAP TLU-1). It also calls on the City to “Expand and Strengthen Transportation Demand Management (TDM) requirements” (TLU-8). Recommended actions under the alignment policy include requiring transit passes bundled with all major new development, providing density bonuses and other incentives for reduced parking developments near transit, and further prioritizing development near transit. In alignment with these policy goals, AC Transit urges the City of Oakland to require Easy Pass, AC Transit’s institutional transit pass, for new developments as well as set parking maximums to encourage transit ridership and other low-carbon modes of travel.

The TEMPO Bus Rapid Transit (BRT) line along International Boulevard operates as a fixed guideway with 29 pairs of stations in Oakland and creates a particular opportunity for focused housing. 24 of these station pairs are south of Lake Merritt. A number of affordable housing developments have recently been built along this corridor, but there are certainly additional development opportunities. Many BRT lines around the country have become hubs for housing growth. The TEMPO line operates almost exclusively through low-income neighborhoods, improving transportation equity by providing those areas with the best service (and through making a major investment in neighborhood improvements).

Improving Oakland’s major transit corridors is where encouragement of housing and environmentally sustainable transit meets environmental justice. Almost all of the major bus corridors in Oakland operate primarily or substantially in low-income neighborhoods. Oakland should commit to roadway actions that will reduce bus travel time and improve reliability for passengers. Such improvements can include transit signal priority, queue jumps, red transit-only lanes, and where appropriate, transit boarding islands. The TEMPO BRT makes an important contribution to this goal along the International Boulevard corridor. However, other residents, particularly in areas of East Oakland, continue to have long and often unreliable travel times, particularly along the MacArthur/Grand and Foothill corridors. AC Transit’s **Major Corridors Study** (2016) lays out a general series of improvements for each corridor, and AC Transit encourages the City of Oakland to support their implementation.

From a broad perspective, equitable mobility is fundamental to environmental justice. The ability to move easily within, to and from Oakland should not be a class privilege. AC Transit is pleased that the City is undertaking an **Environmental Justice Element**. 70% of AC Transit passengers are low income, a similar percentage are people of color.

In most low- income areas of Oakland, AC Transit is the only means of transit access without a privately-owned vehicle. AC Transit also provides mobility to people with mobility challenges who are unable to use, or limited in use of, active transportation modes.

AC Transit is mindful of prioritizing the most needy in providing service. Our Clean Corridors Plan calls for implementing zero emission buses first in lower income neighborhoods. Under Title VI of the Civil Rights Act, any major action by a transit agency is subject to an equity review. As an example of our commitment, the AC Transit recently restructured its Service Recovery Plan to prioritize returning (COVID-suspended) service to areas that are home to high percentages of low-income people and people of color. The EIR and the Plan should review metrics and actions in the transportation section of the ECAP that might be applicable.

We look forward to working with the City of Oakland as a partner on the preparation and implementation of the General Plan.

Yours Truly,



Robert del Rosario
Director of Service Development
AC Transit

CC: Nathan Landau, AC Transit
Owen Goetze, AC Transit
Jim Cunradi, AC Transit
Claudia Burgos, AC Transit
Beverly Greene, AC Transit
Salvador Llamas, AC Transit
Ramakrishna Pochiraju, AC Transit



May 2, 2022

Lakshmi Rajagopalan, AICP, Planner IV
City of Oakland Bureau of Planning
250 Frank H. Ogawa Plaza, Suite 3315
Oakland, CA 94612

SUBJECT: Response to the Notice of Preparation (NOP) of an Environmental Impact Report for the City of Oakland 2045 General Plan Update

Dear Lakshmi,

Thank you for the opportunity to comment on the Notice of Preparation (NOP) of the Environmental Impact Report (EIR) for Phase 1 of the City of Oakland 2045 General Plan Update. The proposed project encompasses the entire City of Oakland, which is located in northern Alameda County Oakland, spans approximately 49,910 acres with 178,207 housing units, and is the third most populous city in the Bay Area with a population of approximately 430,000 in 2021. The proposed project will amend the General Plan and update the Housing Element in order to identify housing sites for a minimum of 26,251 units as required by the Regional Housing Needs Allocation. The project will also amend the Safety Element to address climate change issues and adopt an Environmental Justice Element to address inequitable health risks in heavily impacted communities.

The Alameda County Transportation Commission (Alameda CTC) respectfully submits the following comments:

Basis for Congestion Management Program (CMP) Review

- It appears that the proposed project will generate at least 100 p.m. peak hour trips over existing conditions, and therefore the CMP Land Use Analysis Program requires the City to conduct a transportation impact analysis of the project. For information on the CMP, please visit: <https://www.alamedactc.org/planning/congestion-management-program/>.

Use of Countywide Travel Demand Model

- The Alameda Countywide Travel Demand Model should be used for CMP Land Use Analysis purposes. The CMP requires local jurisdictions to conduct travel model runs themselves or through a consultant. The City of Oakland and the Alameda CTC signed a Countywide Model Agreement on May 28, 2008. Before the model can be used for this project, a letter must be submitted to the Alameda CTC requesting use of the model and describing the project. A copy of a sample letter agreement is available upon request. The most current version of the Alameda CTC Countywide Travel Demand Model was updated in May 2019 to be consistent with the assumptions of Plan Bay Area 2040.

Impacts

- The EIR should address all potential impacts of the plan on the Metropolitan Transportation System (MTS) roadway network.
 - MTS roadway facilities in the plan area include:
 - I-80/I-580 and SR-123 in Oakland, Emeryville and Berkeley
 - I-580, I-880, SR-185 and SR-61 in Oakland and San Leandro
 - I-980, SR-24, 12th Street, Broadway, West Grand Avenue, Stanford Avenue, International Boulevard, Foothill Boulevard, East 15th Street, High Street, 73rd Avenue, MacArthur Boulevard, Broadway Avenue, and College Avenue in Oakland
 - SR-13, Martin Luther King Way, Shattuck Avenue, Telegraph Avenue, and College Avenue in Oakland and Berkeley
 - For the purposes of CMP Land Use Analysis, the Highway Capacity Manual 2010 freeway and urban streets methodologies are the preferred methodologies to study vehicle delay impacts.
 - The Alameda CTC has *not* adopted any policy for determining a threshold of significance for Level of Service for the Land Use Analysis Program of the CMP.
- The EIR should address potential impacts of the project on Metropolitan Transportation System (MTS) transit operators.
 - MTS transit operators potentially affected by the plan include: BART, Capital Corridor, WETA, AC Transit
 - Transit impacts for consideration include the effects of project vehicle traffic on mixed flow transit operations, transit capacity, transit access/egress, need for future transit service, and consistency with adopted plans.
- The EIR should address potential impacts of the plan to people biking and walking in and near the plan area, especially nearby roads included in the Countywide High-injury Network and major barriers identified in the Countywide Active Transportation Plan.
 - Impacts to consider on conditions for cyclists include effects of vehicle traffic on cyclist safety and performance, site development and roadway improvements, and consistency with adopted plans.

Mitigation Measures

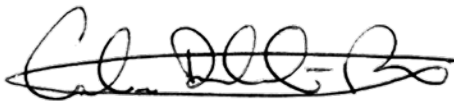
- Alameda CTC's policy regarding mitigation measures is that to be considered adequate they must:
 - Adequately sustain CMP roadway and transit service standards;
 - Be fully funded; and
 - Be consistent with project funding priorities established in the Capital Improvement Program of the CMP, the Countywide Transportation Plan (CTP), and the Regional Transportation Plan (RTP) or the Federal Transportation Improvement Program, if the agency relies on state or federal funds programmed by Alameda CTC.
- The EIR should discuss the adequacy of proposed mitigation measures according to the criteria above. In particular, the EIR should detail when proposed roadway or transit route improvements are expected to be completed, how they will be funded, and the effect on service standards if only the funded portions of these mitigation measures are built prior to Project completion. The EIR

should also address the issue of transit funding as a mitigation measure in the context of the Alameda CTC mitigation measure criteria discussed above.

- Jurisdictions are encouraged to discuss multimodal tradeoffs associated with mitigation measures that involve changes in roadway geometry, intersection control, or other changes to the transportation network. This analysis should identify impacts to automobiles, transit, bicyclists, and pedestrians. The HCM 2010 MMLoS methodology is encouraged as a tool to evaluate these tradeoffs, but project sponsors may use other methodologies as appropriate for particular contexts or types of mitigations.
- The EIR should consider the use of TDM measures, in conjunction with roadway and transit improvements, as a means of attaining acceptable levels of service. Whenever possible, mechanisms that encourage ridesharing, flextime, transit, bicycling, telecommuting and other means of reducing peak hour traffic trips should be considered.

Thank you for the opportunity to comment on this NOP. Please contact me at (510) 208 7400 or Chris G. Marks, Associate Transportation Planner at (510) 208-7453, if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Colin Dentel-Post". The signature is stylized and somewhat cursive, with a horizontal line underlining the name.

Colin Dentel-Post
Principal Planner

cc: Chris G. Marks, Associate Transportation Planner
Shannon McCarthy, Associate Transportation Planner



SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT
 2150 Webster Street, P.O. Box 12688
 Oakland, CA 94604-2688
 (510) 464-6000

2022

DATE: May 2, 2022

Rebecca Saltzman
 PRESIDENT
 Janice Li
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 Robert Powers
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Lakshmi Rajagopalan, AICP, Planner IV
 City of Oakland Bureau of Planning
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Lateefah Simon
 7TH DISTRICT

Janice Li
 8TH DISTRICT

Bevan Duffy
 9TH DISTRICT

RE: BART Comments on the Notice of Preparation of a Draft Environmental Impact Report for Phase I of the Oakland 2045 General Plan Update

Dear Ms. Rajagopalan,

This letter provides comments from the San Francisco Bay Area Rapid Transit District (BART) on the Notice of Preparation (NOP) for the Draft Environmental Impact Report (DEIR), being prepared for the Phase I of the Oakland 2045 General Plan Update (the Project) by the City of Oakland (the City). BART appreciates the opportunity to continue to participate in this process and provides the comments below on the NOP.

We understand that the General Plan Update will consist of two main phases, and this NOP addresses preparation of an EIR for Phase I, which is expected to be conducted between 2023 and 2025 and includes 1) Housing Element Update, 2) Safety Element Update, 3) New Environmental Justice Element, 4) Industrial Lands Policy, and 5) Conforming changes to the Oakland Planning Code, Zoning Map, and General Plan. The City will subsequently conduct Phase II of the General Plan Update between 2023 and 2025, which will include updates to the Land Use and Transportation (LUTE), Estuary Policy Plan (the Land Use Element for much of the land below Interstate 880 along the Oakland Estuary), Open Space, Conservation and Recreation (OSCAR), Noise, and preparation of a new Infrastructure and Facilities Element.

BART is supportive of new infill development projects especially near BART stations. All BART lines traverse Oakland, serving eight stations. As provided in BART’s 2005 Transit-Oriented Development (TOD) Policy, BART believes that by “promoting high quality, more intensive development on and near BART-owned property, [BART] can increase ridership, support long-term system capacity and generate new revenues for transit.” In addition, Assembly Bill 2923 (AB2923) requires jurisdictions to rezone certain BART-owned property in support of TOD and allows BART’s developer partners to seek entitlement streamlining. BART is currently advancing two important TODs at Lake Merritt and West Oakland and looks forward to collaborating with the City to develop the Project with substantial benefits for the public.

Based on the California Department of Housing and Community Development’s (HCD’s) requirements, the City of Oakland’s 6th Cycle Housing Element (2023-2031) must identify housing sites for at least 26,251 units at specified levels of affordability. To accommodate the projected increase in housing, BART requests that the DEIR analyzes both Project and cumulative impacts on BART service, station access and station

www.bart.gov

City of Oakland

RE: BART Comments on the Notice of Preparation of a Draft Environmental Impact Report for Phase I of the Oakland 2045 General Plan Update

capacity. An increase in peak hour ridership or lines for stations could well result in a decrease in the performance or safety of BART facilities. The impact on safety from increasing the number of passengers within the station complex, particularly during peak periods, must be analyzed in order to determine whether any significant impacts will result from the Project and whether mitigation measures such as improvements to stations' vertical circulation, platform widths, lighting, ventilation systems, fire suppression systems and wayfinding might be necessary to ensure safety during emergency situations.

Again, thank you for the opportunity to comment. We look forward to working with the City of Oakland on this important Project. If you have any questions, please contact my staff Seung-Yen Hong at 510-230-3429 or at Seung-yen.hong@BART.gov.

Sincerely,

A handwritten signature in black ink, appearing to be 'T. Chan', with a long horizontal flourish extending to the right.

Tim Chan

Group Manager - Stations Planning

Re: GPU EIR NOP

Brian Beveridge <bbeveridge@woeip.org>

Thu 3/31/2022 4:20 PM

To: Rajagopalan, Lakshmi <LRajagopalan@oaklandca.gov>

Lakshmi

Thank you for this clarification. I can almost guarantee that I will not be the last person to raise this issue. The public process has barely begun, so folks are going to feel that the city is rushing ahead without them. This timetable should be explained through the many layers of contractors and organizations that have been drawn into this complicated process.

Best regards,

Brian Beveridge

Co-Exec Director

West Oakland Environmental Indicators Project

510-257-5645 dir.

On Thu, Mar 31, 2022 at 1:33 PM General Plan <generalplan@oaklandca.gov> wrote:

Good afternoon Brian,

Thank you so much for your email and your comments.

The notice of preparation is the first step in the EIR preparation process. CEQA Guidelines encourage public agencies to begin the EIR preparation process as early as possible in the planning process but late enough to provide meaningful information to the environmental assessment. (Guidelines 15004(b).) This helps to ensure that environmental considerations can influence early project decisions.

When the City determines that an EIR is required, it issues a Notice of Preparation. The purpose of the NOP is to invite input from the public and relevant agencies on the environmental topics to be addressed in the EIR. Starting scoping early helps to ensure key environmental issues are identified early in the process and taken into consideration as part of the GPU process. Later, when the draft EIR is released, members of the public will have an additional opportunity to provide feedback to the City.

Thanks.

Lakshmi

General Plan Update Team | City of Oakland | Bureau of Planning | 250 Frank H. Ogawa Plaza, Suite 3315, Oakland, CA 94612 | Email: generalplan@oaklandca.gov | Website: www.oaklandca.gov/topics/general-plan-update | [Sign up to receive General Plan Update e-mails.](#)

The City buildings at Frank H. Ogawa Plaza are closed to the public until further notice. For the current status of all Planning and Building Department services, please go to the following: <https://www.oaklandca.gov/news/2020/planning-building-department-response-to-shelter-in-place>

From: Brian Beveridge <bbeveridge@woeip.org>

Sent: Wednesday, March 30, 2022 7:14 PM

To: General Plan <generalplan@oaklandca.gov>

Subject:

[EXTERNAL] This email originated outside of the City of Oakland. Please do not click links or open attachments unless you recognize the sender and expect the message.

Hi

You may know that my organization is involved with the community engagement process for the GPU. I'm wondering how we can scope the EIR before we have scoped the plan changes? The process seems very backward.

Brian



Jared Blumenfeld
Secretary for
Environmental Protection



Department of Toxic Substances Control

Meredith Williams, Ph.D.
Director
8800 Cal Center Drive
Sacramento, California 95826-3200



Gavin Newsom
Governor

SENT VIA ELECTRONIC MAIL

May 2, 2022

Ms. Lakshmi Rajagopalan, AICP
Planner IV
City of Oakland, Bureau of Planning
250 Frank H. Ogawa Plaza, Suite 3315
Oakland, CA 94612
Generalplan@oaklandca.gov

NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR PHASE I OF THE OAKLAND 2045 GENERAL PLAN UPDATE (CASE FILE NO. GP21002; GP21002-ER01) – DATED MARCH 2022 (STATE CLEARINGHOUSE NUMBER: 2022030800)

Dear Ms. Rajagopalan:

The Department of Toxic Substances Control (DTSC) received a Notice of Preparation of a Draft Environmental Impact Report (NOP of DEIR) for Phase I of the Oakland 2045 General Plan Update (Project). The Lead Agency is receiving this notice from DTSC because the Project includes one or more of the following: groundbreaking activities, work in close proximity to a roadway, work in close proximity to mining or suspected mining or former mining activities, presence of site buildings that may require demolition or modifications, importation of backfill soil, and/or work on or in close proximity to an agricultural or former agricultural site.

DTSC notes that the *Probable Environmental Effects* section of the NOP indicates that the DEIR will discuss potential impacts associated with hazardous materials sites found on the listing compiled in accordance with California Government Code Section 65962.5, commonly known as the Cortese List. Not all sites impacted by hazardous waste or hazardous materials will be found on the Cortese List. DTSC recommends that the Hazards and Hazardous Materials section of the DEIR address actions to be taken for any sites impacted by hazardous waste or hazardous materials, not just those found on the Cortese List. DTSC hazardous waste facilities and sites with known or

suspected contamination issues can be found on DTSC's [EnviroStor](#) website, and a map of these sites can be found on DTSC's [EnviroStor Map](#).

DTSC recommends that the following issues be evaluated in the Hazards and Hazardous Materials section of the DEIR:

1. The DEIR should acknowledge the potential for historic or future activities on or near the project site to result in the release of hazardous wastes/substances on the project site. In instances in which releases have occurred or may occur, further studies should be carried out to delineate the nature and extent of the contamination, and the potential threat to public health and/or the environment should be evaluated. The DEIR should also identify the mechanism(s) to initiate any required investigation and/or remediation and the government agency who will be responsible for providing appropriate regulatory oversight.
2. Refiners in the United States started adding lead compounds to gasoline in the 1920s in order to boost octane levels and improve engine performance. This practice did not officially end until 1992 when lead was banned as a fuel additive in California. Tailpipe emissions from automobiles using leaded gasoline contained lead and resulted in aurally deposited lead (ADL) being deposited in and along roadways throughout the state. ADL-contaminated soils still exist along roadsides and medians and can also be found underneath some existing road surfaces due to past construction activities. Due to the potential for ADL-contaminated soil DTSC, recommends collecting soil samples for lead analysis prior to performing any intrusive activities for the project described in the DEIR.
3. If any sites within the project area or sites located within the vicinity of the project have been used or are suspected of having been used for mining activities, proper investigation for mine waste should be discussed in the DEIR. DTSC recommends that any project sites with current and/or former mining operations onsite or in the project site area should be evaluated for mine waste according to DTSC's 1998 [Abandoned Mine Land Mines Preliminary Assessment Handbook](#).
4. If buildings or other structures are to be demolished on any project sites included in the proposed project, surveys should be conducted for the presence of lead-based paints or products, mercury, asbestos containing materials, and polychlorinated biphenyl caulk. Removal, demolition and disposal of any of the above-mentioned chemicals should be conducted in compliance with California environmental regulations and policies. In addition, sampling near current and/or former buildings should be conducted in accordance with DTSC's 2006

[Interim Guidance Evaluation of School Sites with Potential Contamination from Lead Based Paint, Termiticides, and Electrical Transformers.](#)

5. If any projects initiated as part of the proposed project require the importation of soil to backfill any excavated areas, proper sampling should be conducted to ensure that the imported soil is free of contamination. DTSC recommends the imported materials be characterized according to [DTSC's 2001 Information Advisory Clean Imported Fill Material.](#)
6. If any sites included as part of the proposed project have been used for agricultural, weed abatement or related activities, proper investigation for organochlorinated pesticides should be discussed in the DEIR. DTSC recommends the current and former agricultural lands be evaluated in accordance with DTSC's 2008 [Interim Guidance for Sampling Agricultural Properties \(Third Revision\).](#)

DTSC appreciates the opportunity to comment on the DEIR. Should you need any assistance with an environmental investigation, please visit DTSC's [Site Mitigation and Restoration Program](#) page to apply for lead agency oversight. Additional information regarding voluntary agreements with DTSC can be found at [DTSC's Brownfield website.](#)

If you have any questions, please contact me at (916) 255-3582 or via email at Brian.McAloon@dtsc.ca.gov.

Sincerely,



Brian McAloon
Project Manager
Site Evaluation and Remediation Unit
Site Mitigation and Restoration Program
Department of Toxic Substances Control

cc: (via email)

Governor's Office of Planning and
Research
State Clearinghouse
State.Clearinghouse@opr.ca.gov

Mr. Dave Kereazis
Office of Planning & Environmental Analysis
Department of Toxic Substances Control
Dave.Kereazis@dtsc.ca.gov

Re: NOP of a DEIR for Phase I of the Oakland 2045 General Plan Update, Oakland

Drake, Ginelle <ginelle.drake@ebmud.com>

Thu 4/14/2022 1:24 PM

To: General Plan <generalplan@oaklandca.gov>

 1 attachments (4 MB)

Oakland 2045 General Plan Update.pdf;

[EXTERNAL] This email originated outside of the City of Oakland. Please do not click links or open attachments unless you recognize the sender and expect the message.
--

Dear Ms. Rajagopalan,

Please see attached response letter regarding the Oakland 2045 General Plan Update.

Thank you,

Ginelle Drake, Administrative Secretary II
Water Distribution Planning Division
510-287-1081 | ginelle.drake@ebmud.com



April 14, 2022

Lakshmi Rajagopalan, AICP, Planner IV
City of Oakland
Bureau of Planning
250 Frank H Ogawa Plaza
Suite 3315
Oakland, CA 94612

Re: Notice of Preparation of a Draft Environmental Impact Report for Phase I of the
Oakland 2045 General Plan Update, Oakland

Dear Ms. Rajagopalan:

East Bay Municipal Utility District (EBMUD) appreciates the opportunity to comment on the Notice of Preparation (NOP) of a Draft Environmental Impact Report (EIR) for Phase I of the Oakland 2045 General Plan Update, which encompasses the entire City of Oakland (City). EBMUD has the following comments.

WATER SERVICE

Effective January 1, 2018, water service for new multi-unit structures shall be individually metered or sub-metered in compliance with California State Senate Bill 7 (SB-7). SB-7 encourages conservation of water in multi-family residential, mixed-use multi-family and commercial buildings through metering infrastructure for each dwelling unit, including appropriate water billing safeguards for both tenants and landlords. EBMUD water services shall be conditioned for all development projects within the General Plan Update that are subject to SB-7 requirements and will be released only after the project sponsor has satisfied all requirements and provided evidence of conformance with SB-7.

Main extensions that may be required to serve any specific developments within the General Plan Update to provide adequate domestic water supply, fire flows, and system redundancy will be at the project sponsor's expense. Pipeline and fire hydrant relocations and replacements due to modifications of existing streets, and off-site pipeline improvements, also at the project sponsor's expense, may be required depending on EBMUD metering requirements and fire flow requirements set by the local fire department. When the development plans are finalized for individual projects within the General Plan Update, project sponsors for individual projects should contact EBMUD's New Business Office and request a water service estimate to determine costs and conditions of providing water service to the development. Engineering and installation of new and relocated pipelines and services require substantial lead time, which should be provided for in the project sponsor's development schedule.

Project sponsors for individual projects within the General Plan Update should be aware that EBMUD will not install piping or services in contaminated soil or groundwater (if groundwater is present at any time during the year at the depth piping is to be installed) that must be handled as a hazardous waste or that may be hazardous to the health and safety of construction and maintenance personnel wearing Level D personal protective equipment. Nor will EBMUD install piping or services in areas where groundwater contaminant concentrations exceed specified limits for discharge to the sanitary sewer system and sewage treatment plants. The project sponsor must submit copies to EBMUD of all known information regarding soil and groundwater quality within or adjacent to the project boundary and a legally sufficient, complete, and specific written remediation plan establishing the methodology, planning and design of all necessary systems for the removal, treatment, and disposal of contaminated soil and groundwater.

EBMUD will not design piping or services until soil and groundwater quality data and remediation plans have been received and reviewed and will not start underground work until remediation has been carried out and documentation of the effectiveness of the remediation has been received and reviewed. If no soil or groundwater quality data exists, or the information supplied by the project sponsor is insufficient, EBMUD may require the project sponsor to perform sampling and analysis to characterize the soil and groundwater that may be encountered during excavation, or EBMUD may perform such sampling and analysis at the project sponsor's expense. If evidence of contamination is discovered during EBMUD work on the project site, work may be suspended until such contamination is adequately characterized and remediated to EBMUD standards.

GEOLOGY

On Page 3 of the NOP, under Existing Conditions, it states that the greater Oakland area is vulnerable to seismic hazards including earthquake-inducing landslides, liquefaction, and ground shaking. When the project sponsor applies for water service for individual projects within the General Plan, they will need to provide EBMUD with any proposed landslide mitigation measures for the developments so that no landslide impact hazard is posed to proposed water main extensions that will serve the projects.

WASTEWATER SERVICE

EBMUD's Main Wastewater Treatment Plant (MWWTP) and interceptor system are anticipated to have adequate dry weather capacity to accommodate the proposed wastewater flows from this project and to treat such flows provided that the wastewater generated by the project meets the requirements of the EBMUD Wastewater Control Ordinance. However, wet weather flows are a concern. The East Bay regional wastewater collection system experiences exceptionally high peak flows during storms due to excessive infiltration and inflow (I/I) that enters the system through cracks and misconnections in both public and private sewer lines. EBMUD has historically operated three Wet Weather Facilities (WWFs) to provide primary treatment and disinfection for peak wet weather flows that exceed the treatment capacity of the MWWTP. Due to

reinterpretation of applicable law, EBMUD's National Pollutant Discharge Elimination System (NPDES) permit now prohibits discharges from EBMUD's WWFs. Additionally, the seven wastewater collection system agencies that discharge to the EBMUD wastewater interceptor system ("Satellite Agencies") hold NPDES permits that prohibit them from causing or contributing to WWF discharges. These NPDES permits have removed the regulatory coverage the East Bay wastewater agencies once relied upon to manage peak wet weather flows.

A federal consent decree, negotiated among EBMUD, the Satellite Agencies, the Environmental Protection Agency (EPA), the State Water Resources Control Board (SWRCB), and the Regional Water Quality Control Board (RWQCB), requires EBMUD and the Satellite Agencies to eliminate WWF discharges by 2036. To meet this requirement, actions will need to be taken over time to reduce I/I in the system. The consent decree requires EBMUD to continue implementation of its Regional Private Sewer Lateral Ordinance (www.eastbaypsl.com), construct various improvements to its interceptor system, and identify key areas of inflow and rapid infiltration over a 22-year period. Over the same time period, the consent decree requires the Satellite Agencies to perform I/I reduction work including sewer main rehabilitation and elimination of inflow sources. EBMUD and the Satellite Agencies must jointly demonstrate at specified intervals that this work has resulted in a sufficient, pre-determined level of reduction in WWF discharges. If sufficient I/I reductions are not achieved, additional investment into the region's wastewater infrastructure would be required, which may result in significant financial implications for East Bay residents.

To ensure that future projects following adoption of the City's General Plan Update contribute to these legally required I/I reductions, the lead agency should require all future housing project applicants to comply with EBMUD's Regional Private Sewer Lateral Ordinance. Additionally, it would be prudent for the lead agency to require the following mitigation measures for future proposed projects: (1) replace or rehabilitate any existing sanitary sewer collection systems, including sewer lateral lines to ensure that such systems and lines are free from defects or, alternatively, disconnected from the sanitary sewer system, and (2) ensure any new wastewater collection systems, including sewer lateral lines, for the project are constructed to prevent I/I to the maximum extent feasible while meeting all requirements contained in the Regional Private Sewer Lateral Ordinance and applicable municipal codes or Satellite Agency ordinances.

WATER RECYCLING

EBMUD's Policy 9.05 requires that customers use non-potable water, including recycled water, for non-domestic purposes when it is of adequate quality and quantity, available at reasonable cost, not detrimental to public health, and not injurious to plant, fish, and wildlife to offset demand on EBMUD's limited potable water supply.

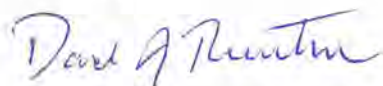
Some portions of the City's boundaries fall within and around the service area of the East Bayshore Recycled Water Project transmission and distribution pipeline infrastructure. Although the housing element is residential in nature, many housing projects and any related non-residential developments present opportunities for recycled water uses. Appropriate recycled water uses range from landscape irrigation, toilet flushing, cooling, and other non-potable commercial and industrial applications. These could be served by existing or expanded recycled water pipelines in the future. Therefore, EBMUD recommends that the City and project sponsors maintain coordination and consultation with EBMUD during the planning and implementation of the various projects within the General Plan Update, regarding the feasibility of providing recycled water for appropriate non-potable uses.

WATER CONSERVATION

Individual projects within the General Plan Update presents an opportunity to incorporate water conservation measures. EBMUD requests that the City include in its conditions of approval a requirement that the project sponsor comply with Assembly Bill 325, "Model Water Efficient Landscape Ordinance," (Division 2, Title 23, California Code of Regulations, Chapter 2.7, Sections 490 through 495). The project sponsors should be aware that Section 31 of EBMUD's Water Service Regulations requires that water service shall not be furnished for new or expanded service unless all the applicable water-efficiency measures described in the regulation are installed at the project sponsor's expense.

If you have any questions concerning this response, please contact Timothy R. McGowan, Senior Civil Engineer, Major Facilities Planning Section at (510) 287-1981.

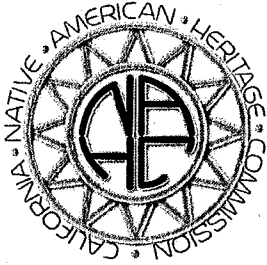
Sincerely,



David J. Rehnstrom
Manager of Water Distribution Planning

DJR:KTL:grd

sb22_077 Oakland 2045 General Plan Update NOP Response



NATIVE AMERICAN HERITAGE COMMISSION

April 14, 2022

Lakshmi Rajagopalan, AICP
City of Oakland Bureau of Planning
250 Frank H. Ogawa Plaza, Suite 3315
Oakland, CA 94612

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Pomo

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

Re: 2022030800, Oakland 2045 General Plan Update – Phase 1 Project, Alameda County

Dear Ms. Rajagopalan:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that 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. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, § 15064.5 (b) (CEQA Guidelines § 15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064.(a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.



NATIVE AMERICAN HERITAGE COMMISSION

April 14, 2022

Lakshmi Rajagopalan, AICP
City of Oakland Bureau of Planning
250 Frank H. Ogawa Plaza, Suite 3315
Oakland, CA 94612

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nahc@nahc.ca.gov
NAHC.ca.gov

Re: 2022030800, Oakland 2045 General Plan Update – Phase 1 Project, Alameda County

Dear Ms. Rajagopalan:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that 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. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, § 15064.5 (b) (CEQA Guidelines § 15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines § 15064.(a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

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The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

- 1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project:** Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:
 - a. A brief description of the project.
 - b. The lead agency contact information.
 - c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
 - d. A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

- 2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report:** A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subs. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).
 - a. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

- 3. Mandatory Topics of Consultation If Requested by a Tribe:** The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:
 - a. Alternatives to the project.
 - b. Recommended mitigation measures.
 - c. Significant effects. (Pub. Resources Code §21080.3.2 (a)).

- 4. Discretionary Topics of Consultation:** The following topics are discretionary topics of consultation:
 - a. Type of environmental review necessary.
 - b. Significance of the tribal cultural resources.
 - c. Significance of the project's impacts on tribal cultural resources.
 - d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

- 5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process:** With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

- 6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document:** If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:
 - a. Whether the proposed project has a significant impact on an identified tribal cultural resource.
 - b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

- 7. Conclusion of Consultation:** Consultation with a tribe shall be considered concluded when either of the following occurs:
- a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
 - b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).
- 8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document:** Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).
- 9. Required Consideration of Feasible Mitigation:** If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).
- 10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:**
- a. Avoidance and preservation of the resources in place, including, but not limited to:
 - i. Planning and construction to avoid the resources and protect the cultural and natural context.
 - ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
 - b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
 - i. Protecting the cultural character and integrity of the resource.
 - ii. Protecting the traditional use of the resource.
 - iii. Protecting the confidentiality of the resource.
 - c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
 - d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).
 - e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).
 - f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).
- 11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource:** An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:
- a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.
 - b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.
 - c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf.

Some of SB 18's provisions include:

1. **Tribal Consultation:** If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).
2. **No Statutory Time Limit on SB 18 Tribal Consultation.** There is no statutory time limit on SB 18 tribal consultation.
3. **Confidentiality:** Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. **Conclusion of SB 18 Tribal Consultation:** Consultation should be concluded at the point in which:
 - a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
 - b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: <http://nahc.ca.gov/resources/forms/>.

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
 - a. If part or all of the APE has been previously surveyed for cultural resources.
 - b. If any known cultural resources have already been recorded on or adjacent to the APE.
 - c. If the probability is low, moderate, or high that cultural resources are located in the APE.
 - d. If a survey is required to determine whether previously unrecorded cultural resources are present.
2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
 - a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
 - b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:
 - a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
 - b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
 - a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
 - b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
 - c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address:
Cody.Campagne@nahc.ca.gov.

Sincerely,

Cody Campagne

Cody Campagne
Cultural Resources Analyst

cc: State Clearinghouse



April 19, 2022

Planning Commission
City of Oakland
250 Frank Ogawa Plaza
Oakland, CA 94610

RE: General Plan Update EIR Scoping

Planning Commissioners,

East Bay for Everyone is a network of 2500 members fighting for the future of housing, transit and environmental justice in the East Bay. We write to provide comments on the Housing Element Update scope for the Environmental Impact Report (EIR) as required under the California Environmental Quality Act (CEQA).

On February 7, 2022 we wrote to the Department of Planning and Building to request five items for the Housing Element Update: 1) small lot upzoning of single and two-family zoned parcels; 2) prioritizing large rezonings in high-resource areas near transit; 3) an affordable housing overlay; 4) ministerial approvals; and 5) tenant protections.

We are happy to see Items 1-3 included in the Housing Element Update EIR. These are strong policies that are integral to increasing housing production, including deed-restricted homes, reducing displacement and reversing historic patterns of exclusion.

We hope that Items 4 and 5, ministerial approvals and tenant protections, are still under consideration as policies that do not require analysis under CEQA. Ministerial approvals are especially important to accompany high-resource rezoning and the affordable housing overlay, as nonprofits' and small builders' projects are the most vulnerable to process uncertainty. For example, the Redwood Hill Townhomes, a low-income housing development by SAHA located above I-580, took nearly 30 years from first proposal to move-in in part due to neighborhood opposition and discretionary approvals. The less uncertainty in the approval process, the less our city will depend on the whims of big developers and lenders.

Increased tenant protections are equally important as a policy and/or program under the Housing Element Update. Oakland must strengthen its SB330/SB8 tenant protection processes to ensure rent-controlled or filtered housing occupied by low-income people is not demolished without

replacement units, relocation assistance and a right of return provided to displaced tenants. This will require close coordination between the Planning Department and the Oakland Department of Housing and Community Development.

We look forward to continuing to engage with the City of Oakland in the 6th Cycle Housing Element Update.

Sincerely,
John Minot and Jonathan Singh
Co-Executives
East Bay for Everyone

Sid Kapur
Chapter Lead
East Bay YIMBY

Appendix C

Plant and Wildlife Species Lists

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Selected Elements by Common Name
California Department of Fish and Wildlife
California Natural Diversity Database



Query Criteria: Quad (Oakland East (3712272) OR Oakland West (3712273) OR San Leandro (3712262))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
adobe sanicle <i>Sanicula maritima</i>	PDAP11Z0D0	None	Rare	G2	S2	1B.1
Alameda Island mole <i>Scapanus latimanus parvus</i>	AMABB02031	None	None	G5T1Q	SH	SSC
Alameda song sparrow <i>Melospiza melodia pusillula</i>	ABPBXA301S	None	None	G5T2T3	S2S3	SSC
Alameda whipsnake <i>Masticophis lateralis euryxanthus</i>	ARADB21031	Threatened	Threatened	G4T2	S2	
alkali milk-vetch <i>Astragalus tener var. tener</i>	PDFAB0F8R1	None	None	G2T1	S1	1B.2
American badger <i>Taxidea taxus</i>	AMAJF04010	None	None	G5	S3	SSC
American peregrine falcon <i>Falco peregrinus anatum</i>	ABNKD06071	Delisted	Delisted	G4T4	S3S4	FP
Bay checkerspot butterfly <i>Euphydryas editha bayensis</i>	IILEPK4055	Threatened	None	G5T1	S1	
beach layia <i>Layia carnosa</i>	PDAST5N010	Threatened	Endangered	G2	S2	1B.1
bent-flowered fiddleneck <i>Amsinckia lunaris</i>	PDBOR01070	None	None	G3	S3	1B.2
Berkeley kangaroo rat <i>Dipodomys heermanni berkeleyensis</i>	AMAFD03061	None	None	G4T1	S1	
big free-tailed bat <i>Nyctinomops macrotis</i>	AMACD04020	None	None	G5	S3	SSC
black skimmer <i>Rynchops niger</i>	ABNNM14010	None	None	G5	S2	SSC
blue coast gilia <i>Gilia capitata ssp. chamissonis</i>	PDPLM040B3	None	None	G5T2	S2	1B.1
Bridges' coast range shoulderband <i>Helminthoglypta nickliniana bridgesi</i>	IMGASC2362	None	None	G3T1	S1S2	
bristly sedge <i>Carex comosa</i>	PMCYP032Y0	None	None	G5	S2	2B.1
burrowing owl <i>Athene cunicularia</i>	ABNSB10010	None	None	G4	S3	SSC
California black rail <i>Laterallus jamaicensis coturniculus</i>	ABNME03041	None	Threatened	G3T1	S1	FP
California least tern <i>Sternula antillarum browni</i>	ABNNM08103	Endangered	Endangered	G4T2T3Q	S2	FP



Selected Elements by Common Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
California red-legged frog <i>Rana draytonii</i>	AAABH01022	Threatened	None	G2G3	S2S3	SSC
California Ridgway's rail <i>Rallus obsoletus obsoletus</i>	ABNME05011	Endangered	Endangered	G3T1	S1	FP
California seablite <i>Suaeda californica</i>	PDCHE0P020	Endangered	None	G1	S1	1B.1
California tiger salamander - central California DPS <i>Ambystoma californiense pop. 1</i>	AAAAA01181	Threatened	Threatened	G2G3T3	S3	WL
Choris' popcornflower <i>Plagiobothrys chorisianus var. chorisianus</i>	PDBOR0V061	None	None	G3T1Q	S1	1B.2
Congdon's tarplant <i>Centromadia parryi ssp. congdonii</i>	PDAST4R0P1	None	None	G3T2	S2	1B.1
congested-headed hayfield tarplant <i>Hemizonia congesta ssp. congesta</i>	PDAST4R065	None	None	G5T2	S2	1B.2
Contra Costa goldfields <i>Lasthenia conjugens</i>	PDAST5L040	Endangered	None	G1	S1	1B.1
Cooper's hawk <i>Accipiter cooperii</i>	ABNKC12040	None	None	G5	S4	WL
Crotch bumble bee <i>Bombus crotchii</i>	IIHYM24480	None	None	G2	S1S2	
dark-eyed gilia <i>Gilia millefoliata</i>	PDPLM04130	None	None	G2	S2	1B.2
Diablo helianthella <i>Helianthella castanea</i>	PDAST4M020	None	None	G2	S2	1B.2
double-crested cormorant <i>Nannopterum auritum</i>	ABNFD01020	None	None	G5	S4	WL
foothill yellow-legged frog <i>Rana boylei</i>	AAABH01050	None	Endangered	G3	S3	SSC
fragrant fritillary <i>Fritillaria liliacea</i>	PMLIL0V0C0	None	None	G2	S2	1B.2
golden eagle <i>Aquila chrysaetos</i>	ABNKC22010	None	None	G5	S3	FP
green sturgeon - southern DPS <i>Acipenser medirostris pop. 1</i>	AFCAA01031	Threatened	None	G2T1	S1	
hoary bat <i>Lasiurus cinereus</i>	AMACC05030	None	None	G3G4	S4	
Jepson's coyote-thistle <i>Eryngium jepsonii</i>	PDAP10Z130	None	None	G2	S2	1B.2
Kellogg's horkelia <i>Horkelia cuneata var. sericea</i>	PDROS0W043	None	None	G4T1?	S1?	1B.1
Lee's micro-blind harvestman <i>Microcina leei</i>	ILARA47040	None	None	G1	S1	



Selected Elements by Common Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Loma Prieta hoita <i>Hoita strobilina</i>	PDFAB5Z030	None	None	G2?	S2?	1B.1
longfin smelt <i>Spirinchus thaleichthys</i>	AFCHB03010	Candidate	Threatened	G5	S1	
long-styled sand-spurrey <i>Spergularia macrotheca var. longistyla</i>	PDCAR0W062	None	None	G5T2	S2	1B.2
Marin knotweed <i>Polygonum marinense</i>	PDPGN0L1C0	None	None	G2Q	S2	3.1
mimic tryonia (=California brackishwater snail) <i>Tryonia imitator</i>	IMGASJ7040	None	None	G2	S2	
minute pocket moss <i>Fissidens pauperculus</i>	NBMUS2W0U0	None	None	G3?	S2	1B.2
monarch - California overwintering population <i>Danaus plexippus plexippus pop. 1</i>	IILEPP2012	Candidate	None	G4T1T2	S2	
most beautiful jewelflower <i>Streptanthus albidus ssp. peramoenus</i>	PDBRA2G012	None	None	G2T2	S2	1B.2
Northern Coastal Salt Marsh <i>Northern Coastal Salt Marsh</i>	CTT52110CA	None	None	G3	S3.2	
northern harrier <i>Circus hudsonius</i>	ABNKC11011	None	None	G5	S3	SSC
Northern Maritime Chaparral <i>Northern Maritime Chaparral</i>	CTT37C10CA	None	None	G1	S1.2	
northern slender pondweed <i>Stuckenia filiformis ssp. alpina</i>	PMPOT03091	None	None	G5T5	S2S3	2B.2
obscure bumble bee <i>Bombus caliginosus</i>	IIHYM24380	None	None	G2G3	S1S2	
Oregon meconella <i>Meconella oregana</i>	PDPAP0G030	None	None	G2G3	S2	1B.1
oval-leaved viburnum <i>Viburnum ellipticum</i>	PDCPR07080	None	None	G4G5	S3?	2B.3
Pacific walker <i>Pomatiopsis californica</i>	IMGASJ9020	None	None	G1	S1	
pallid bat <i>Antrozous pallidus</i>	AMACC10010	None	None	G4	S3	SSC
pallid manzanita <i>Arctostaphylos pallida</i>	PDERI04110	Threatened	Endangered	G1	S1	1B.1
Point Reyes salty bird's-beak <i>Chloropyron maritimum ssp. palustre</i>	PDSCR0J0C3	None	None	G4?T2	S2	1B.2
Presidio clarkia <i>Clarkia franciscana</i>	PDONA050H0	Endangered	Endangered	G1	S1	1B.1
robust spineflower <i>Chorizanthe robusta var. robusta</i>	PDPGN040Q2	Endangered	None	G2T1	S1	1B.1



Selected Elements by Common Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
rose leptosiphon <i>Leptosiphon rosaceus</i>	PDPLM09180	None	None	G1	S1	1B.1
saline clover <i>Trifolium hydrophilum</i>	PDFAB400R5	None	None	G2	S2	1B.2
saltmarsh common yellowthroat <i>Geothlypis trichas sinuosa</i>	ABPBX1201A	None	None	G5T3	S3	SSC
salt-marsh harvest mouse <i>Reithrodontomys raviventris</i>	AMAFF02040	Endangered	Endangered	G1G2	S1S2	FP
salt-marsh wandering shrew <i>Sorex vagrans halicoetes</i>	AMABA01071	None	None	G5T1	S1	SSC
San Francisco Bay spineflower <i>Chorizanthe cuspidata var. cuspidata</i>	PDPGN04081	None	None	G2T1	S1	1B.2
San Francisco dusky-footed woodrat <i>Neotoma fuscipes annectens</i>	AMAFF08082	None	None	G5T2T3	S2S3	SSC
San Francisco popcornflower <i>Plagiobothrys diffusus</i>	PDBOR0V080	None	Endangered	G1Q	S1	1B.1
San Joaquin spearscale <i>Extriplex joaquinana</i>	PDCHE041F3	None	None	G2	S2	1B.2
sandy beach tiger beetle <i>Cicindela hirticollis gravida</i>	IICOL02101	None	None	G5T2	S2	
Santa Clara red ribbons <i>Clarkia concinna ssp. automixa</i>	PDONA050A1	None	None	G5?T3	S3	4.3
Santa Cruz tarplant <i>Holocarpha macradenia</i>	PDAST4X020	Threatened	Endangered	G1	S1	1B.1
Serpentine Bunchgrass <i>Serpentine Bunchgrass</i>	CTT42130CA	None	None	G2	S2.2	
silver-haired bat <i>Lasionycteris noctivagans</i>	AMACC02010	None	None	G3G4	S3S4	
Tiburon buckwheat <i>Eriogonum luteolum var. caninum</i>	PDPGN083S1	None	None	G5T2	S2	1B.2
tidewater goby <i>Eucyclogobius newberryi</i>	AFCQN04010	Endangered	None	G3	S3	
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	AMACC08010	None	None	G4	S2	SSC
water star-grass <i>Heteranthera dubia</i>	PMPON03010	None	None	G5	S2	2B.2
western bumble bee <i>Bombus occidentalis</i>	IIHYM24250	None	None	G2G3	S1	
western leatherwood <i>Dirca occidentalis</i>	PDTHY03010	None	None	G2	S2	1B.2
western pond turtle <i>Emys marmorata</i>	ARAAD02030	None	None	G3G4	S3	SSC



Selected Elements by Common Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
western snowy plover <i>Charadrius nivosus nivosus</i>	ABNNB03031	Threatened	None	G3T3	S2	SSC
white-tailed kite <i>Elanus leucurus</i>	ABNKC06010	None	None	G5	S3S4	FP
woodland woollythreads <i>Monolopia gracilens</i>	PDAST6G010	None	None	G3	S3	1B.2
yellow rail <i>Coturnicops noveboracensis</i>	ABNME01010	None	None	G4	S1S2	SSC

Record Count: 86



A non-profit database providing information on wild California plants

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- Scientific [A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [X](#) [Y](#) [Z](#)
- Family [A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#)

Enter part of a name - common, scientific or family

plant name NAME WIZARD

- duration**
- Annual
 - Perennial
 - Biennial

- lifeform**
- Grasslike
 - Tree
 - Herb
 - Fern
 - Shrub
 - Vine
 - Moss
 - Liverwort
 - Hornwort

- native status**
- Native to California
 - Not native to California
 - Cal-IPC invasive plants
 - CNPS rare plants
 - Affinity to serpentine soil

- community**
- any
 - Alkali Sink
 - Alpine Fell-fields
 - Bristle-cone Pine Forest
 - Chaparral
 - Closed-cone Pine Forest

result format [more...](#) Order by

NAME WIZARD X

scientific name

common name

Type a few letters to see matching names.

- Colusa
- Contra Costa
- Del Norte
- El Dorado
- Fresno
- Glenn
- Humboldt
- Imperial
- Inyo
- Kern
- Kings
- Lake
- Lassen
- Los Angeles
- Madera
- Marin
- Mariposa
- Mendocino
- Merced
- Modoc

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Alameda , Contra Costa , and San Francisco counties, California



Local offices

San Francisco Bay-Delta Fish And Wildlife

☎ (916) 930-5603

📠 (916) 930-5654

650 Capitol Mall

Suite 8-300

Sacramento, CA 95814

Sacramento Fish And Wildlife Office

☎ (916) 414-6600

📠 (916) 414-6713

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
<p>Salt Marsh Harvest Mouse <i>Reithrodontomys raviventris</i></p> <p>Wherever found</p> <p>No critical habitat has been designated for this species.</p> <p>https://ecos.fws.gov/ecp/species/613</p>	Endangered

Birds

NAME	STATUS
<p>California Clapper Rail <i>Rallus longirostris obsoletus</i></p> <p>Wherever found</p> <p>No critical habitat has been designated for this species.</p> <p>https://ecos.fws.gov/ecp/species/4240</p>	Endangered
<p>California Least Tern <i>Sterna antillarum browni</i></p> <p>Wherever found</p> <p>No critical habitat has been designated for this species.</p> <p>https://ecos.fws.gov/ecp/species/8104</p>	Endangered

Western Snowy Plover *Charadrius nivosus nivosus*

Threatened

There is **final** critical habitat for this species. The location of the critical habitat is not available.

<https://ecos.fws.gov/ecp/species/8035>

Yellow-billed Cuckoo *Coccyzus americanus*

Threatened

There is **final** critical habitat for this species. The location of the critical habitat is not available.

<https://ecos.fws.gov/ecp/species/3911>

Reptiles

NAME

STATUS

Alameda Whipsnake (=striped Racer) *Masticophis lateralis euryxanthus*

Threatened

Wherever found

There is **final** critical habitat for this species. Your location overlaps the critical habitat.

<https://ecos.fws.gov/ecp/species/5524>

Green Sea Turtle *Chelonia mydas*

Threatened

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/6199>

Amphibians

NAME

STATUS

California Red-legged Frog *Rana draytonii*

Threatened

Wherever found

There is **final** critical habitat for this species. The location of the critical habitat is not available.

<https://ecos.fws.gov/ecp/species/2891>

California Tiger Salamander *Ambystoma californiense*

Threatened

There is **final** critical habitat for this species. The location of the critical habitat is not available.

<https://ecos.fws.gov/ecp/species/2076>

Fishes

NAME

STATUS

Delta Smelt *Hypomesus transpacificus*

Threatened

Wherever found

There is **final** critical habitat for this species. The location of the critical habitat is not available.

<https://ecos.fws.gov/ecp/species/321>

Tidewater Goby *Eucyclogobius newberryi*

Endangered

Wherever found

There is **final** critical habitat for this species. The location of the critical habitat is not available.

<https://ecos.fws.gov/ecp/species/57>

Insects

NAME

STATUS

Monarch Butterfly *Danaus plexippus*

Candidate

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/9743>

Crustaceans

NAME

STATUS

Vernal Pool Fairy Shrimp *Branchinecta lynchi*

Threatened

Wherever found

There is **final** critical habitat for this species. The location of the critical habitat is not available.

<https://ecos.fws.gov/ecp/species/498>

Flowering Plants

NAME

STATUS

California Seablite *Suaeda californica*

Endangered

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/6310>

Contra Costa Goldfields *Lasthenia conjugens*

Endangered

Wherever found

There is **final** critical habitat for this species. The location of the critical habitat is not available.

<https://ecos.fws.gov/ecp/species/7058>

Pallid Manzanita *Arctostaphylos pallida*

Threatened

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/8292>

Presidio Clarkia *Clarkia franciscana*

Endangered

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/3890>

Robust Spineflower *Chorizanthe robusta* var. *robusta*

Endangered

Wherever found

There is **final** critical habitat for this species. The location of the critical habitat is not available.

<https://ecos.fws.gov/ecp/species/9287>

Santa Cruz Tarplant *Holocarpha macradenia*

Threatened

Wherever found

There is **final** critical habitat for this species. The location of the critical habitat is not available.

<https://ecos.fws.gov/ecp/species/6832>

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

NAME	TYPE
Alameda Whipsnake (=striped Racer) <i>Masticophis lateralis euryxanthus</i> https://ecos.fws.gov/ecp/species/5524#crithab	Final

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <https://www.fws.gov/program/migratory-birds/species>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
<p>Allen's Hummingbird <i>Selasphorus sasin</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p>https://ecos.fws.gov/ecp/species/9637</p>	Breeds Feb 1 to Jul 15

Bald Eagle *Haliaeetus leucocephalus*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1626>

Breeds Jan 1 to Aug 31

Belding's Savannah Sparrow *Passerculus sandwichensis beldingi*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/8>

Breeds Apr 1 to Aug 15

Black Oystercatcher *Haematopus bachmani*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9591>

Breeds Apr 15 to Oct 31

Black Scoter *Melanitta nigra*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Breeds elsewhere

Black Skimmer *Rynchops niger*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/5234>

Breeds May 20 to Sep 15

Black Swift *Cypseloides niger*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/8878>

Breeds Jun 15 to Sep 10

Black Tern *Chlidonias niger*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/3093>

Breeds May 15 to Aug 20

Black Turnstone *Arenaria melanocephala*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds elsewhere

Black-chinned Sparrow *Spizella atrogularis*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9447>

Breeds Apr 15 to Jul 31

Black-legged Kittiwake *Rissa tridactyla*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Breeds elsewhere

Brown Pelican *Pelecanus occidentalis*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/6034>

Breeds Jan 15 to Sep 30

Bullock's Oriole *Icterus bullockii*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Breeds Mar 21 to Jul 25

California Thrasher *Toxostoma redivivum*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds Jan 1 to Jul 31

Cassin's Finch *Carpodacus cassinii*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9462>

Breeds May 15 to Jul 15

Clark's Grebe *Aechmophorus clarkii*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds Jun 1 to Aug 31

Common Loon *gavia immer*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/4464>

Breeds Apr 15 to Oct 31

Common Murre *Uria aalge*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Breeds Apr 15 to Aug 15

Common Yellowthroat *Geothlypis trichas sinuosa*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/2084>

Breeds May 20 to Jul 31

Double-crested Cormorant *phalacrocorax auritus*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/3478>

Breeds Apr 20 to Aug 31

Golden Eagle *Aquila chrysaetos*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1680>

Breeds Jan 1 to Aug 31

Gull-billed Tern *Gelochelidon nilotica*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9501>

Breeds May 1 to Jul 31

Lawrence's Goldfinch *Carduelis lawrencei*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9464>

Breeds Mar 20 to Sep 20

Long-eared Owl *asio otus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/3631>

Breeds Mar 1 to Jul 15

Long-tailed Duck *Clangula hyemalis*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/7238>

Breeds elsewhere

Marbled Godwit *Limosa fedoa*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9481>

Breeds elsewhere

Mountain Plover *Charadrius montanus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/3638>

Breeds elsewhere

Nuttall's Woodpecker *Picoides nuttallii*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/9410>

Breeds Apr 1 to Jul 20

Oak Titmouse *Baeolophus inornatus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9656>

Breeds Mar 15 to Jul 15

Olive-sided Flycatcher *Contopus cooperi*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/3914>

Breeds May 20 to Aug 31

Pink-footed Shearwater *Puffinus creatopus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds elsewhere

Pomarine Jaeger *Stercorarius pomarinus*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Breeds elsewhere

Red Phalarope *Phalaropus fulicarius*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Breeds elsewhere

Red-breasted Merganser *Mergus serrator*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Breeds elsewhere

Red-necked Phalarope *Phalaropus lobatus*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Breeds elsewhere

Red-throated Loon *Gavia stellata*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Breeds elsewhere

Ring-billed Gull *Larus delawarensis*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Breeds elsewhere

Short-billed Dowitcher *Limnodromus griseus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9480>

Breeds elsewhere

Surf Scoter *Melanitta perspicillata*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Breeds elsewhere

Tricolored Blackbird *Agelaius tricolor*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/3910>

Breeds Mar 15 to Aug 10

Tufted Puffin *Fratercula cirrhata*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/430>

Breeds elsewhere

Western Grebe *aechmophorus occidentalis*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/6743>

Breeds Jun 1 to Aug 31

White-winged Scoter *Melanitta fusca*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Breeds elsewhere

Willet *Tringa semipalmata*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds elsewhere

Wrentit *Chamaea fasciata*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds Mar 15 to Aug 10

Yellow-billed Magpie *Pica nuttalli*

Breeds Apr 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9726>

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

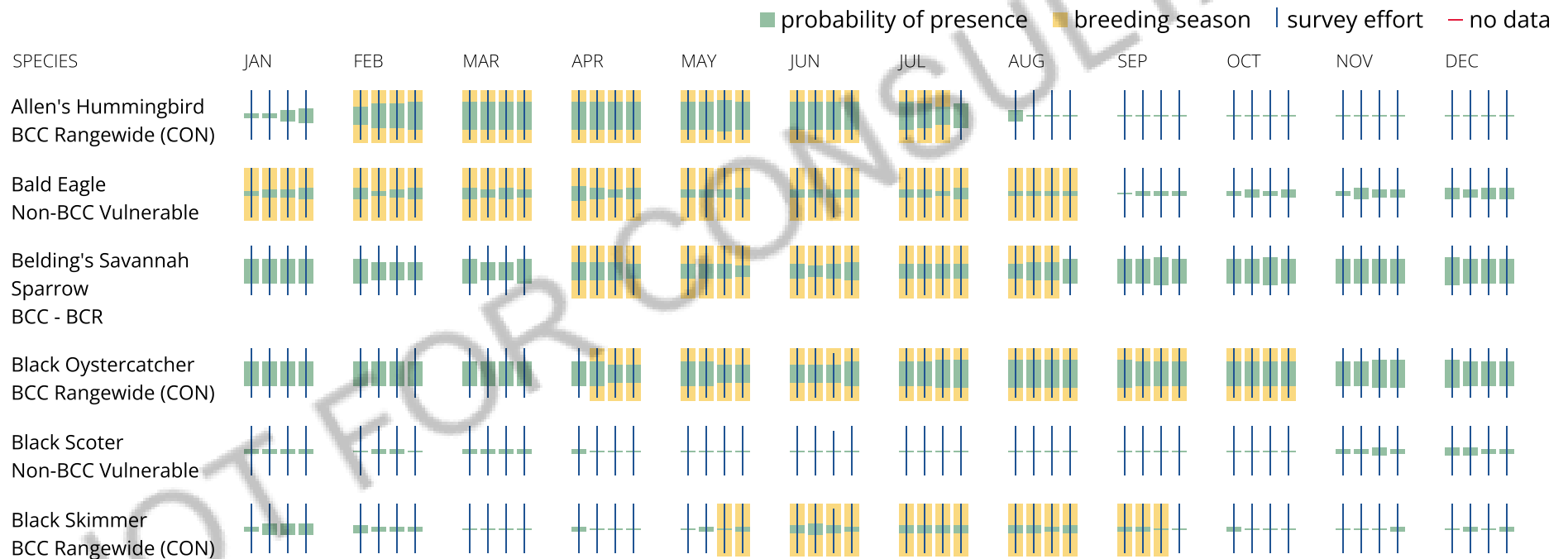
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

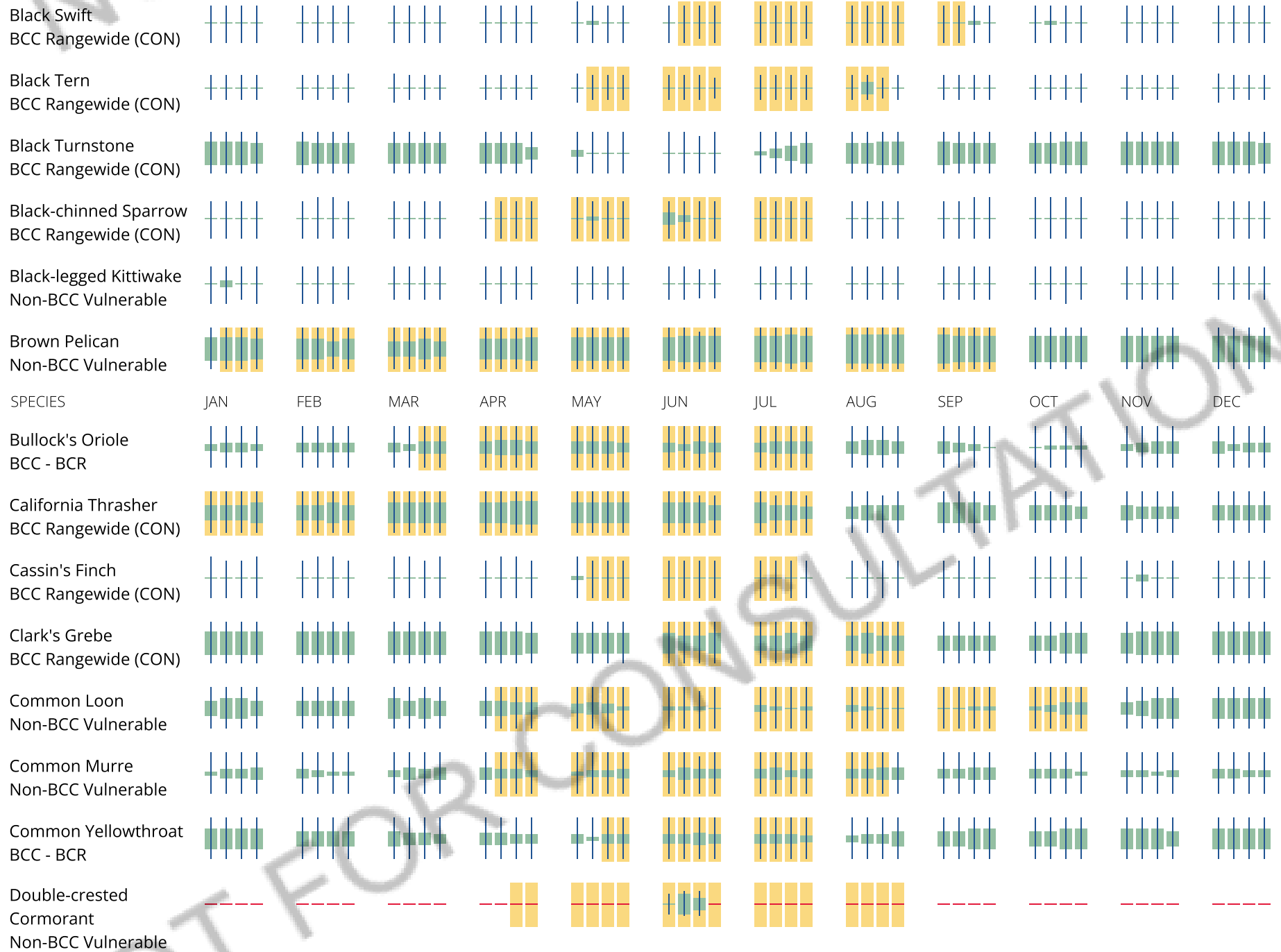
No Data (-)

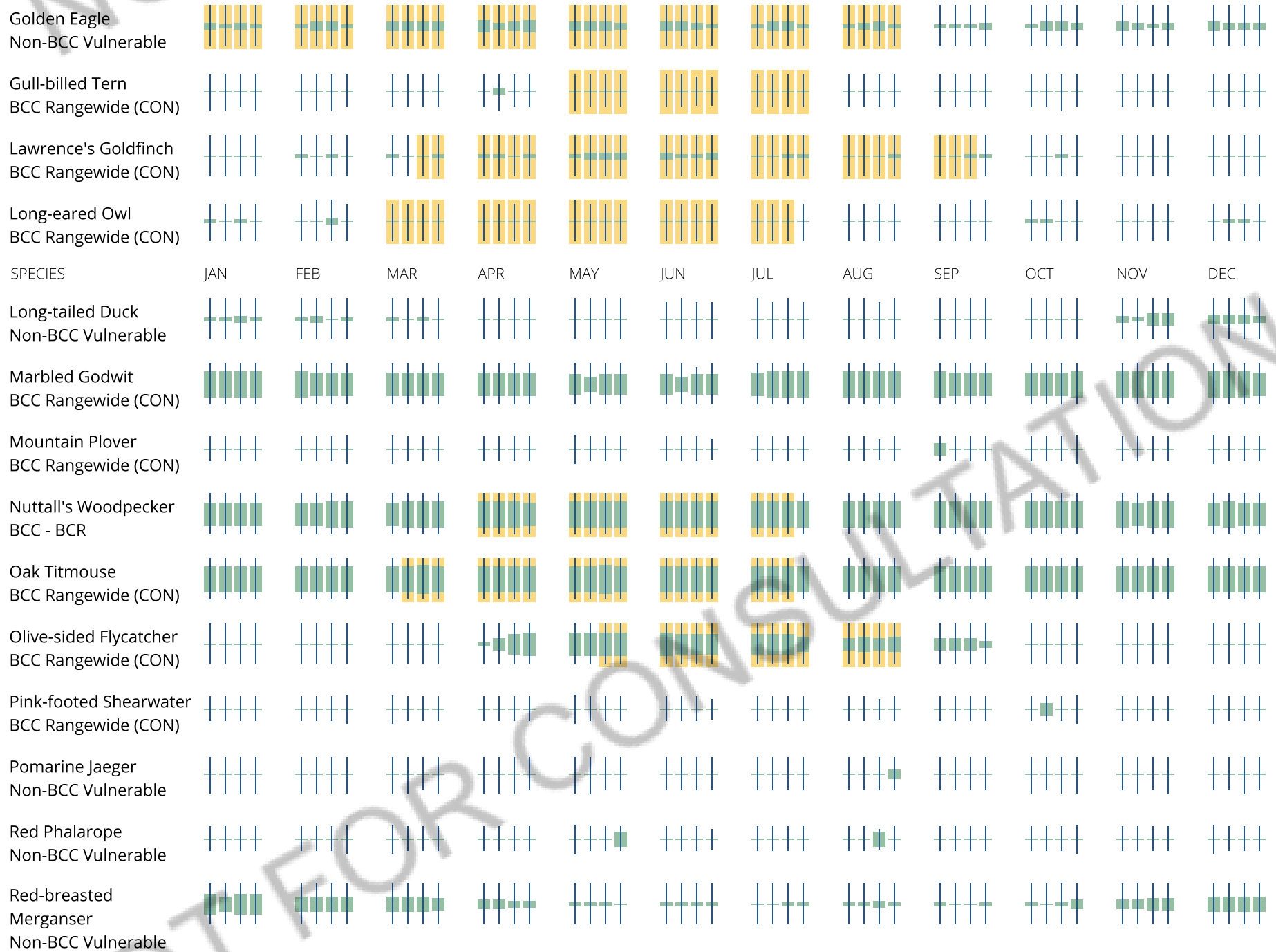
A week is marked as having no data if there were no survey events for that week.

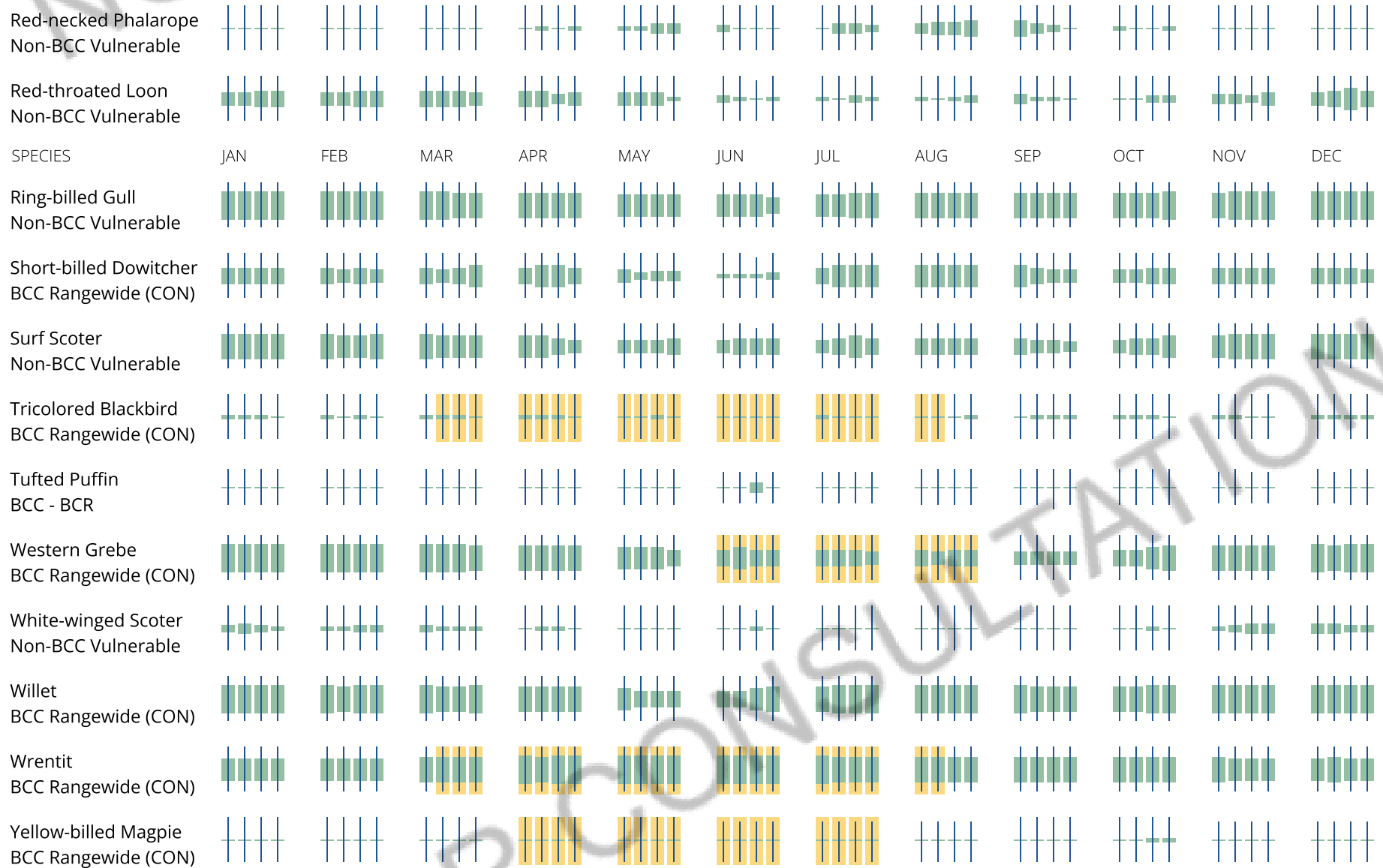
Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.









Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure.

To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In

contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Coastal Barrier Resources System

Projects within the [John H. Chafee Coastal Barrier Resources System](#) (CBRS) may be subject to the restrictions on federal expenditures and financial assistance and the consultation requirements of the Coastal Barrier Resources Act (CBRA) (16 U.S.C. 3501 et seq.). For more information, please contact the local [Ecological Services Field Office](#) or visit the [CBRA Consultations website](#). The CBRA website provides tools such as a flow chart to help determine whether consultation is required and a template to facilitate the consultation process.

There are no known coastal barriers at this location.

Data limitations

The CBRS boundaries used in IPaC are representations of the controlling boundaries, which are depicted on the [official CBRS maps](#). The boundaries depicted in this layer are not to be considered authoritative for in/out determinations close to a CBRS boundary (i.e., within the "CBRS Buffer Zone" that appears as a hatched area on either side of the boundary). For projects that are very close to a CBRS boundary but do not clearly intersect a unit, you may contact the Service for an official determination by following the instructions here: <https://www.fws.gov/service/coastal-barrier-resources-system-property-documentation>

Data exclusions

CBRS units extend seaward out to either the 20- or 30-foot bathymetric contour (depending on the location of the unit). The true seaward extent of the units is not shown in the CBRS data, therefore projects in the offshore areas of units (e.g., dredging, breakwaters, offshore wind energy or oil and gas projects) may be subject to CBRA even if they do not intersect the CBRS data. For additional information, please contact CBRA@fws.gov.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the [NWI map](#) to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Appendix D

Transportation & Circulation Technical Appendix

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Technical Memorandum

January 5, 2023

Project# 26453

To: Elizabeth Kanner
Senior Managing Associate
ESA

From: Lilian Wu, Mike Aronson and Dhawal Kataria
Kittelison Associates, Inc

CC: Lakshmi Rajagopalan, City of Oakland and Rajeev Bhatia, Dyett and Bhatia

RE: **Oakland 2023 Housing Element ACTC CMP Analysis**

The proposed project is the Planning Code, Zoning Map and General Plan amendments, or Housing Element Implementation (HEI) implementing several actions contained in the City of Oakland's recently adopted 2023-2031 Housing Element. The HEI is projected to allow approximately 41,458 housing units by 2030. These housing units will primarily be developed in high resource neighborhoods such as the Rockridge area, Downtown Oakland, along transit corridors, and in the Affordable Housing Overlay. Pursuant to the request of the Alameda County Transportation Commission (ACTC) in a letter dated May 2, 2022, in response to the Notice of Preparation (NOP), a Congestion Management Program (CMP) analysis was conducted for this project to analyze the impacts associated with the development of 41,458 housing units. The proposed project will generate more than 100 p.m. peak hour trips over existing conditions and hence, it requires a CMP analysis. The effect of the project on the regional transportation system was assessed using the most current version of the Alameda CTC Countywide Travel Demand Model (ACTC Model), updated in May 2019, which is consistent with the assumptions of Plan Bay Area 2040. For the roadway analysis, the No Project and With Project volumes were obtained from the Alameda CTC Model for p.m. peak hour to evaluate the project effects. This memorandum includes the CMP analysis and results for automobiles, transit, bicycles and pedestrians.

CMP and MTS Highway Segments

Roadway Segments and Analysis Methods

Significance Criteria

While recent legislation from SB 743 has switched CEQA impact metrics to VMT, the CMP still relies on roadway LOS for its impact assessment.

Level of service is a qualitative measure of the traffic flow under different traffic conditions. The roadway deficiencies of the project were considered significant if the addition of project-related traffic would:

- Result in the Metropolitan Transportation System (MTS) roadways deteriorating from LOS E or better to LOS F, or
- An increase in the V/C ratio on an MTS roadway already operating at LOS F by more than 0.03; or
- An increase in project-related traffic on an MTS roadway already operating at LOS F is at least three percent (3%) of the total existing traffic.

Alameda CTC has not established thresholds of significance, therefore these standards have been included to address deficiencies along roadway segments currently operating under unacceptable levels and were developed based on professional judgment using a “reasonableness test” of daily fluctuations of traffic. In addition, a change in the V/C ratio of more than 0.03 has been found to be the threshold for which a perceived change in congestion is observed (the V/C ratio is calculated by comparing the peak hour link volume to the peak hour capacity of the road link). This change is equivalent to about one-half of the change from one level of service to the next.

Roadway Segments

This analysis addresses the potential deficiencies of the project on MTS roadway network facilities by analyzing the most congested segments along:

- I-80/I-580 and SR-123 in Oakland, Emeryville and Berkeley
- I-580, I-880, SR-185 (International Boulevard) and SR-61 (Doolittle Drive) in Oakland and San Leandro
- I-980, SR-24, 12th Street, Broadway, West Grand Avenue, Stanford Avenue, Foothill Boulevard, East 15th Street, High Street, 73rd Avenue, MacArthur Boulevard in Oakland
- SR-13, Martin Luther King Way, Shattuck Avenue, Telegraph Avenue, and College Avenue in Oakland and Berkeley

Analysis Methods and Results

For freeway segments, LOS results were based on volumes and speeds from model outputs (using the most current version of the ACTC Model, updated in May 2019, which is consistent with the assumptions of Plan Bay Area 2040) based on the Highway Capacity Manual (HCM 2010) methods. HCM 2010 provides methods to analyze merge or diverge (Exhibit 13-2), weaving (Exhibit 12-10), and basic freeway segments (Exhibit 10-7). The selection of the method used was based on the geometric design of the three segments and the segment type definitions in the HCM 2010. LOS is based on the roadway segment densities which were estimated based on segment volumes and speeds from the Alameda CTC model. The assumption for the number of lanes at each link location was extracted from the Alameda CTC Model.

For arterial segments, LOS results were based on generalized peak hour directional service volume thresholds for urban street facility by assuming a K factor of 0.1 and a D factor of 60% (see HCM 2010 Exhibit 16-14). A volume to capacity ratio was calculated using the volumes from the Alameda CTC Model and using the LOS F service volume threshold based on Exhibit 10-7 as the estimate for roadway capacity. The assumption for the number of lanes at each link location was extracted from the Alameda CTC Model, and confirmed by Google Maps aerial images for existing conditions (2020).

The “No Project” and “With Project” traffic forecasts for 2020 and 2030 were extracted at the required MTS highway segments from the Alameda CTC Model for the PM peak hour.

The peak hour operations were evaluated in compliance with Alameda CTC requirements. Table 1 and Table 2 compare the no-project results to the with-project results on the freeway analysis segments for 2020 and 2030. The peak hour volumes, density, and LOS for with and without project conditions are provided for each direction of flow.

Table 3 and Table 4 compare the arterial MTS segments between the no-project and with project results for 2020 and 2030. The PM peak hour volumes, V/C ratio, and LOS are provided for each flow direction.

Table 1 MTS Freeway LOS Results for 2020 PM Peak Hour

Location	Type	Num of Lanes	No Project			With Project			Change in V/C > 0.03?	Significant?
			Volume ¹	Density ²	LOS ³	Volume ¹	Density ²	LOS ³		
Westbound/Northbound										
I-80 Between Bay Bridge and W Grand Avenue WB	Merge	5	6,606	60.7	F	6,615	60.8	F	No	No
I-580 Between Ashby Avenue and 40th Street (Emeryville) NB	Weave	6	8,619	26.2	C	8,715	26.5	C	No	No
I-580 Between Grand Avenue and 13th Street NB	Basic	4	5,126	21	C	5,117	21	C	No	No
I-580 Between Macarthur Boulevard and 150th Avenue (San Leandro) NB	Weave	4	4,509	22.4	C	4,513	22.4	C	No	No
I-880 Between Kennedy Street and Hegenberger Road NB	Merge	4	7,050	51.3	F	7,100	51.6	F	No	No
I-880 Between Davis Street and Hesperian Boulevard (San Leandro) NB	Weave	5	8,694	32.7	D	8,820	33.1	D	No	No
I-980 Between I-880 and I-580 NB	Weave	5	5,479	18.8	B	5,626	19.3	B	No	No
SR 24 Between SR-13 and Camino Pablo NB	Basic	4	6,633	94	F	6,605	93.6	F	No	No
SR 13 Between SR -24 and Moraga Avenue NB	Overlap	2	2,391	27.7	C	2,393	27.7	C	No	No
Eastbound/Southbound										
I-80 Between Bay Bridge and W Grand Avenue EB	Diverge	6	8,772	102.9	F	8,820	103.5	F	No	No
I-580 Between Ashby Avenue and 40th Street (Emeryville) SB	Diverge	3	6,284	77.2	F	6,315	77.6	F	No	No
I-580 Between Grand Avenue and 13th Street SB	Basic	4	7,564	49.2	F	7,583	49.4	F	No	No
I-580 Between Macarthur Boulevard and 150th Avenue (San Leandro) SB	Weave	4	5,219	34.1	D	5,206	34	D	No	No
I-880 Between Kennedy Street and Hegenberger Road SB	Diverge	4	7,798	74.4	F	7,815	74.5	F	No	No
I-880 Between Davis Street and Hesperian Boulevard (San Leandro) SB	Weave	5	10,055	52.7	F	10,064	52.7	F	No	No

Location	Type	Num of Lanes	No Project			With Project			Change in V/C > 0.03?	Significant?
			Volume ¹	Density ²	LOS ³	Volume ¹	Density ²	LOS ³		
I-980 Between I-880 and I-580 SB	Weave	5	3,189	10.6	B	3,211	10.7	B	No	No
SR 24 Between SR-13 and Camino Pablo SB	Basic	4	4,041	17.7	B	4,048	17.7	B	No	No
SR 13 North of Moraga Avenue SB	Overlap	2	2,547	34.1	D	2,542	34	D	No	No

Source: Kittelson & Associates, Inc., 2022.

¹ Volume = vehicles per hour (pcph)

² Density = passenger car per mile per lane (pc/m/ln)

³ LOS = Level of Service

⁴ The 1,500-ft influence areas for on- and off-ramps overlap at this 2,500-ft segment. LOS is based on the thresholds for merge/diverge segments in HCM 2010.

Table 2 MTS Freeway LOS Results for 2030 PM Peak Hour

Location	Type	Num of Lanes	No Project			With Project			Change in V/C > 0.03?	Significant?
			Volume ¹	Density ²	LOS ³	Volume ¹	Density ²	LOS ³		
Westbound/Northbound										
I-80 Between Bay Bridge and W Grand Avenue WB	Merge	5	7,564	82.9	F	7,573	82.9	F	No	No
I-580 Between Ashby Avenue and 40th Street (Emeryville) NB	Weave	6	9,085	28.5	D	9,181	29.1	D	No	No
I-580 Between Grand Avenue and 13th Street NB	Basic	4	6,024	26.2	D	6,015	26.1	D	No	No
I-580 Between Macarthur Boulevard and 150th Avenue (San Leandro) NB	Weave	4	5,222	28.2	D	5,226	28.3	D	No	No
I-880 Between Kennedy Street and Hegenberger Road NB	Merge	4	7,652	67.9	F	7,702	69.7	F	No	No
I-880 Between Davis Street and Hesperian Boulevard (San Leandro) NB	Weave	5	9,424	34.9	D	9,550	35.7	E	No	No
I-980 Between I-880 and I-580 NB	Weave	5	5,834	20.0	B	5,981	20.6	C	No	No
SR 24 Between SR-13 and Camino Pablo NB	Basic	4	7,840	218.9	F	7,812	213.2	F	No	No
SR 13 Between SR -24 and Moraga Avenue NB	Overlap	2	2,767	37.3	E	2,769	37.2	E	No	No
Eastbound/Southbound										
I-80 Between Bay Bridge and W Grand Avenue EB	Diverge	6	9,982	139.9	F	10,030	143	F	No	No
I-580 Between Ashby Avenue and 40th Street (Emeryville) SB	Diverge	3	6,853	115.5	F	6,884	118.3	F	No	No
I-580 Between Grand Avenue and 13th Street SB	Basic	4	8,286	60.3	F	8,305	60.7	F	No	No
I-580 Between Macarthur Boulevard and 150th Avenue (San Leandro) SB	Weave	4	5,907	42	E	5,894	41.8	E	No	No
I-880 Between Kennedy Street and Hegenberger Road SB	Diverge	4	8,318	97.2	F	8,335	98.1	F	No	No
I-880 Between Davis Street and Hesperian Boulevard (San Leandro) SB	Weave	5	11,221	59.5	F	11,230	59.9	F	No	No
I-980 Between I-880 and I-580 SB	Weave	5	3,452	11.5	B	3,474	11.6	B	No	No

Location	Type	Num of Lanes	No Project			With Project			Change in V/C > 0.03?	Significant?
			Volume ¹	Density ²	LOS ³	Volume ¹	Density ²	LOS ³		
SR 24 Between SR-13 and Camino Pablo SB	Basic	4	4,413	19.5	C	4,420	19.6	C	No	No
SR 13 North of Moraga Avenue SB	Overlap	2	2,739	35.9	E	2,734	35.6	E	No	No

Source: Kittelson & Associates, Inc., 2022.

¹ Volume = vehicles per hour (pcph)

² Density = passenger car per mile per lane (pc/m/ln)

³ LOS = Level of Service

⁴ The 1,500-ft influence areas for on- and off-ramps overlap at this 2,500-ft segment. LOS is based on the thresholds for merge/diverge segments in HCM 2010.

Table 3 MTS Arterial LOS Results for 2020 PM Peak Hour

Segment	No-Project Volume	With Project Volume	Change in V/C Ratio	Change in Volume	No-Project LOS	With Project LOS	Change in V/C > 0.03?	Significant Impact?
Northbound/ Westbound								
SR 123/San Pablo Avenue Between 67th and 53rd Street NB	1,252	1,229	-0.01	-23 (-1.8%)	D	D	No	No
SR 123/San Pablo Avenue Between 36th Street and 67th Street (Emeryville) NB	1,022	1,011	-0.01	-11 (-1.1%)	D	D	No	No
SR 123/San Pablo Avenue Between 67th Street and Harrison Street (Berkeley) NB	1,589	1,582	0.00	-7 (-0.4%)	E	E	No	No
SR 185/East 14th Street Between Durant Avenue and Bayfair Drive (San Leandro) NB	921	931	0.00	10 (1.1%)	C or Better	C or Better	No	No
SR 61/Doolittle Drive Between Davis Street and Airport Access Drive (San Leandro) NB	1,438	1,418	-0.01	-20 (-1.4%)	D	D	No	No
International Boulevard Between 42nd Avenue and Seminary Avenue NB	588	594	0.01	6 (1.0%)	D	D	No	No
SR 61/Doolittle Drive Between Hegenberger Road and Harbor Bay Pkwy NB	1,696	1,720	0.01	24 (1.4%)	D	D	No	No
12th Street Between Oak Street and Martin Luther King Jr Way NB	1,320	1,340	0.01	20 (1.5%)	D	D	No	No
Broadway Between 5th Street and Keith Avenue NB	620	725	0.05	105 (16.9%)	D	D	Yes	No
W Grand Avenue Between Euclid Avenue and MacArthur Boulevard WB	607	617	0.01	10 (1.6%)	D	D	No	No
Stanford Avenue Between San Pablo Avenue and Market Street WB	872	811	-0.03	-61 (-7.0%)	D	D	No	No
Foothill Boulevard Between 24th Avenue and Irving Avenue WB	464	519	0.06	55 (11.9%)	D	D	Yes	No
High Street Between Tidewater Avenue and Brookdale Avenue NB	969	960	-0.01	-9 (-0.9%)	E	E	No	No
73rd Avenue Between International Boulevard and Simson Street NB	1,917	1,902	-0.01	-15 (-0.8%)	F	F	No	No
MacArthur Boulevard Between Park Boulevard and Oakland Avenue NB	157	158	0.00	1 (0.6%)	C or Better	C or Better	No	No
SR 13/Tunnel Road Between SR 24 and Claremont Avenue (Berkeley) WB	1,005	1,043	0.04	38 (3.8%)	F	F	Yes	Yes
Martin Luther King Jr. Way Between Stanford Avenue and Alcatraz Avenue (Berkeley) NB	2,885	2,887	0.00	2 (0.1%)	F	F	No	No
Shattuck Avenue Between Adeline Street and Dwight Way (Berkeley) NB	2,011	1,959	-0.03	-52 (-2.6%)	F	F	No	No

Segment	No-Project Volume	With Project Volume	Change in V/C Ratio	Change in Volume	No-Project LOS	With Project LOS	Change in V/C > 0.03?	Significant Impact?
Telegraph Avenue Between Russell Street and Bancroft Way (Berkeley) NB	1,922	1,949	0.01	27 (1.4%)	F	F	No	No
College Avenue Between Alcatraz Avenue and Bancroft Way (Berkeley) NB	427	434	0.01	7 (1.6%)	D	D	No	No
Martin Luther King Jr. Way Between 47th Street and 62nd Street NB	1,966	1,974	0.00	8 (0.4%)	F	F	No	No
Telegraph Avenue Between 16th Street and 66th Street NB	757	747	0.00	-10 (-1.3%)	D	D	No	No
College Avenue Between Broadway and Chabot Road NB	685	697	0.02	12 (1.8%)	D	D	No	No
Southbound/ Eastbound								
SR 123/San Pablo Avenue Between 67th and 53rd Street SB	768	751	-0.01	-17 (-2.2%)	D	D	No	No
SR 123/San Pablo Avenue Between 36th Street and 67th Street (Emeryville) SB	1,478	1,449	-0.01	-29 (-2.0%)	D	D	No	No
SR 123/San Pablo Avenue Between 67th Street and Harrison Street (Berkeley) SB	901	908	0.00	7 (0.8%)	D	D	No	No
SR 185/East 14th Street Between Durant Avenue and Bayfair Drive (San Leandro) SB	1,809	1,789	-0.01	-20 (-1.1%)	D	D	No	No
SR 61/Doolittle Drive Between Davis Street and Airport Access Drive (San Leandro) SB	1,442	1,432	0.00	-10 (-0.7%)	D	D	No	No
International Boulevard Between 42nd Avenue and Seminary Avenue SB	1,032	1,036	0.00	4 (0.4%)	F	F	No	No
SR 61/Doolittle Drive Between Hegenberger Road and Harbor Bay Pkwy SB	1,484	1,480	0.00	-4 (-0.3%)	D	D	No	No
Broadway Between 5th Street and Keith Avenue SB	650	635	-0.01	-15 (-2.3%)	D	D	No	No
W Grand Avenue Between Euclid Avenue and MacArthur Boulevard EB	1,183	1,193	0.01	10 (0.8%)	D	D	No	No
Stanford Avenue Between San Pablo Avenue and Market Street EB	1,228	1,209	-0.01	-19 (-1.5%)	D	D	No	No
Foothill Boulevard Between 24th Avenue and Irving Avenue EB	736	711	-0.03	-25 (-3.4%)	D	D	No	No
East 15th Street Between 1st Avenue and 14th Avenue SB	560	570	0.01	10 (1.8%)	C or Better	D	No	No
High Street Between Tidewater Avenue and Brookdale Avenue SB	651	660	0.01	9 (1.4%)	D	D	No	No
73rd Avenue Between International Boulevard and Simson Street SB	763	778	0.01	15 (2.0%)	D	D	No	No

Segment	No-Project Volume	With Project Volume	Change in V/C Ratio	Change in Volume	No-Project LOS	With Project LOS	Change in V/C > 0.03?	Significant Impact?
MacArthur Boulevard Between Park Boulevard and Oakland Avenue SB	423	432	0.00	9 (2.1%)	C or Better	C or Better	No	No
SR 13/Tunnel Road Between SR 24 and Claremont Avenue (Berkeley) EB	1,115	1,097	-0.02	-18 (-1.6%)	F	F	No	No
Martin Luther King Jr. Way Between Stanford Avenue and Alcatraz Avenue (Berkeley) SB	2,905	2,883	-0.01	-22 (-0.8%)	F	F	No	No
Shattuck Avenue Between Adeline Street and Dwight Way (Berkeley) SB	1,969	1,991	0.01	22 (1.1%)	F	F	No	No
Telegraph Avenue Between Russell Street and Bancroft Way (Berkeley) SB	1,808	1,781	-0.01	-27 (-1.5%)	E	E	No	No
College Avenue Between Alcatraz Avenue and Bancroft Way (Berkeley) SB	623	636	0.02	13 (2.1%)	D	D	No	No
Martin Luther King Jr. Way Between 47th Street and 62nd Street SB	2,004	1,996	0.00	-8 (-0.4%)	F	F	No	No
Telegraph Avenue Between 16th Street and 66th Street SB	383	383	0.00	0 (0.0%)	C or Better	C or Better	No	No
College Avenue Between Broadway and Chabot Road SB	175	183	0.01	8 (4.6%)	C or Better	C or Better	No	No
<i>Volume Source: Alameda CTC Countywide Model</i>								
<i>Kittelson & Associates, Inc. 2022</i>								
Note: Impacted locations are shown in bold.								

Table 4 MTS Arterial LOS Results for 2030 PM Peak Hour

Segment	No-Project Volume	With Project Volume	Change in V/C Ratio	Change in Volume	No-Project LOS	With Project LOS	Change in V/C > 0.03?	Significant Impact?
Northbound/ Westbound								
SR 123/San Pablo Avenue Between 67th and 53rd Street NB	711	688	-0.02	-23 (-3.2%)	D	D	No	No
SR 123/San Pablo Avenue Between 36th Street and 67th Street (Emeryville) NB	708	697	-0.01	-11 (-1.6%)	D	D	No	No
SR 123/San Pablo Avenue Between 67th Street and Harrison Street (Berkeley) NB	987	980	-0.01	-7 (-0.7%)	F	E	No	No
SR 185/East 14th Street Between Durant Avenue and Bayfair Drive (San Leandro) NB	1,066	1,076	0.01	10 (0.9%)	D	D	No	No
SR 61/Doolittle Drive Between Davis Street and Airport Access Drive (San Leandro) NB	1,498	1,478	-0.01	-20 (-1.3%)	D	D	No	No
International Boulevard Between 42nd Avenue and Seminary Avenue NB	658	664	0.01	6 (0.9%)	D	D	No	No
SR 61/Doolittle Drive Between Hegenberger Road and Harbor Bay Pkwy NB	1,694	1,718	0.02	24 (1.4%)	D	D	No	No
12th Street Between Oak Street and Martin Luther King Jr Way NB	1,640	1,660	0.01	20 (1.2%)	D	D	No	No
Broadway Between 5th Street and Keith Avenue NB	1,131	1,236	0.05	105 (9.3%)	D	D	Yes	No
W Grand Avenue Between Euclid Avenue and MacArthur Boulevard WB	642	652	0.00	10 (1.6%)	D	D	No	No
Stanford Avenue Between San Pablo Avenue and Market Street WB	1,197	1,136	-0.03	-61 (-5.1%)	D	D	No	No
Foothill Boulevard Between 24th Avenue and Irving Avenue WB	713	768	0.05	55 (7.7%)	D	E	Yes	No
High Street Between Tidewater Avenue and Brookdale Avenue NB	981	972	-0.01	-9 (-0.9%)	F	E	No	No
73rd Avenue Between International Boulevard and Simson Street NB	2,230	2,215	-0.01	-15 (-0.7%)	F	F	No	No
MacArthur Boulevard Between Park Boulevard and Oakland Avenue NB	193	194	0.00	1 (0.5%)	C or Better	C or Better	No	No
SR 13/Tunnel Road Between SR 24 and Claremont Avenue (Berkeley) WB	801	839	0.04	38 (4.7%)	E	E	Yes	No
Martin Luther King Jr. Way Between Stanford Avenue and Alcatraz Avenue (Berkeley) NB	2,952	2,954	0.01	2 (0.1%)	F	F	No	No
Shattuck Avenue Between Adeline Street and Dwight Way (Berkeley) NB	2,062	2,010	-0.03	-52 (-2.5%)	F	F	No	No

Segment	No-Project Volume	With Project Volume	Change in V/C Ratio	Change in Volume	No-Project LOS	With Project LOS	Change in V/C > 0.03?	Significant Impact?
Telegraph Avenue Between Russell Street and Bancroft Way (Berkeley) NB	1,943	1,970	0.02	27 (1.4%)	F	F	No	No
College Avenue Between Alcatraz Avenue and Bancroft Way (Berkeley) NB	508	515	0.01	7 (1.4%)	D	D	No	No
Martin Luther King Jr. Way Between 47th Street and 62nd Street NB	1,968	1,976	0.00	8 (0.4%)	F	F	No	No
Telegraph Avenue Between 16th Street and 66th Street NB	807	797	-0.01	-10 (-1.2%)	D	D	No	No
College Avenue Between Broadway and Chabot Road NB	715	727	0.02	12 (1.7%)	D	D	No	No
Southbound/ Eastbound								
SR 123/San Pablo Avenue Between 67th and 53rd Street SB	679	662	-0.01	-17 (-2.5%)	D	D	No	No
SR 123/San Pablo Avenue Between 36th Street and 67th Street (Emeryville) SB	812	783	-0.03	-29 (-3.6%)	E	E	No	No
SR 123/San Pablo Avenue Between 67th Street and Harrison Street (Berkeley) SB	833	840	0.01	7 (0.8%)	E	E	No	No
SR 185/East 14th Street Between Durant Avenue and Bayfair Drive (San Leandro) SB	2,024	2,004	-0.01	-20 (-1.0%)	F	F	No	No
SR 61/Doolittle Drive Between Davis Street and Airport Access Drive (San Leandro) SB	1,552	1,542	0.00	-10 (-0.6%)	D	D	No	No
International Boulevard Between 42nd Avenue and Seminary Avenue SB	1,022	1,026	0.00	4 (0.4%)	F	F	No	No
SR 61/Doolittle Drive Between Hegenberger Road and Harbor Bay Pkwy SB	1,766	1,762	0.00	-4 (-0.2%)	D	D	No	No
Broadway Between 5th Street and Keith Avenue SB	1,719	1,704	0.00	-15 (-0.9%)	E	E	No	No
W Grand Avenue Between Euclid Avenue and MacArthur Boulevard EB	1,318	1,328	0.00	10 (0.8%)	D	D	No	No
Stanford Avenue Between San Pablo Avenue and Market Street EB	1,273	1,254	-0.01	-19 (-1.5%)	D	D	No	No
Foothill Boulevard Between 24th Avenue and Irving Avenue EB	1,057	1,032	-0.02	-25 (-2.4%)	F	F	No	No
East 15th Street Between 1st Avenue and 14th Avenue SB	590	600	0.00	10 (1.7%)	D	D	No	No
High Street Between Tidewater Avenue and Brookdale Avenue SB	719	728	0.01	9 (1.3%)	D	D	No	No
73rd Avenue Between International Boulevard and Simson Street SB	780	795	0.01	15 (1.9%)	D	D	No	No

Segment	No-Project Volume	With Project Volume	Change in V/C Ratio	Change in Volume	No-Project LOS	With Project LOS	Change in V/C > 0.03?	Significant Impact?
MacArthur Boulevard Between Park Boulevard and Oakland Avenue SB	747	756	0.01	9 (1.2%)	D	D	No	No
SR 13/Tunnel Road Between SR 24 and Claremont Avenue (Berkeley) EB	1,119	1,101	-0.02	-18 (-1.6%)	F	F	No	No
Martin Luther King Jr. Way Between Stanford Avenue and Alcatraz Avenue (Berkeley) SB	2,948	2,926	-0.01	-22 (-0.7%)	F	F	No	No
Shattuck Avenue Between Adeline Street and Dwight Way (Berkeley) SB	1,968	1,990	0.01	22 (1.1%)	F	F	No	No
Telegraph Avenue Between Russell Street and Bancroft Way (Berkeley) SB	1,837	1,810	-0.01	-27 (-1.5%)	E	E	No	No
College Avenue Between Alcatraz Avenue and Bancroft Way (Berkeley) SB	642	655	0.01	13 (2.0%)	D	D	No	No
Martin Luther King Jr. Way Between 47th Street and 62nd Street SB	2,002	1,994	-0.01	-8 (-0.4%)	F	F	No	No
Telegraph Avenue Between 16th Street and 66th Street SB	213	213	0.00	0 (0.0%)	C or Better	C or Better	No	No
College Avenue Between Broadway and Chabot Road SB	195	203	0.01	8 (4.1%)	C or Better	C or Better	No	No
<i>Volume Source: Alameda CTC Countywide Model</i>								
<i>Kittelson & Associates, Inc. 2022</i>								
Note: Impacted locations are shown in bold.								

Operational Deficiencies on Roadway Segments

With Project Conditions

The addition of project-related traffic at freeways segments would not result in a significant CMP operational deficiency after improvement measures.

The addition of project-generated traffic would increase traffic volumes on the MTS arterial roadway above levels identified under no project conditions for 2020. (Significant)

The addition of project-related traffic at the following MTS roadway arterials would result in a significant CMP operational deficiency at the following location:

- At SR 13/Tunnel Road Between SR 24 and Claremont Avenue (Berkeley) in the PM peak hour, which is at LOS F under no project condition, the project would cause a 3.8% of volume increase on the westbound segment. Therefore, a significant impact is identified at this location.

No improvement measure is identified because this impact is not expected to be in effect in 2030.

The addition of project-related traffic on the MTS arterial roadway segments would not result in a significant CMP operational deficiency after improvement measures for 2030.

- At SR 13/Tunnel Road Between SR 24 and Claremont Avenue (Berkeley) in the PM peak hour which is at LOS F under 2020 no project condition, the volume drops in 2030 which is expected to result in a LOS E under both no project and plus project conditions according to the Alameda CTC Countywide Model. This is probably due to the planned employment and housing growth in Berkeley and Oakland. This roadway segment mainly serves commuter traffic between Oakland and Berkely, which is expected to drop with more housing developments within Oakland.

The results of this analysis are consistent with the Impact TRA-3 in the Draft EIR Section 4.15, *Transportation and Circulation*.

Impact TRA-3: Adoption of the Proposed Project would not substantially induce additional automobile travel by increasing physical roadway capacity in congested areas (i.e., by adding new mixed-flow lanes) or by adding new roadways to the network. (Criterion 3) (Less than Significant, no Mitigation Required)

Transit Segments

According to the Alameda CMP Transportation Impact Analysis Technical Guidelines, a project’s effects on transit service should consider the following topics:

- Effects of vehicle traffic on mixed flow transit operations
- Transit capacity
- Transit access/egress
- Future transit service
- Consistency with adopted plans

The primary transit agencies serving the project are AC Transit, BART, Capital Corridor and WETA. According to the BATS2000 mode shares by trip purpose and proximity to rail and ferries table shown on page L-2 of the Alameda CMP Transportation Impact Analysis Technical Guidelines, the project is expected to have the mode split shown in Table 5. In Vehicle person trips would be further reduced to vehicle trips via average vehicle occupancies. The housing sites located near BART stations will have a much higher transit percentage as compared to sites away from the BART station. Table 5 provides a mode split for both categories and assumes that the additional units will mostly (70 percent) be located near the BART stations. The PM Peak Trips are calculated based on the hourly ridership data provided by BART and peak factors used for other similar studies.

Table 5 Mode Split for Total Trips Generated by a Project

Mode	Housing units with 1/2 mile of BART Stations	Number of Trips	Housing units elsewhere in Oakland	Number of Trips	Total Number of Project Trips	PM Peak Trips
In-Vehicle Person	48.20%	13,408	77.30%	9,216	22,624	2,262
Rail & Ferry	8.20%	2,281	3.70%	441	2,722	354
Bus	17.50%	4,868	4.50%	536	5,404	540
Bicycle	3.30%	918	2.10%	250	1,168	117
Pedestrian	19.50%	5,425	11.20%	1,335	6,760	676
Other	3.30%	918	1.20%	143	1,061	106
Total		27,818		11,922	39,740	4,055

Source: CMP Transportation Impact Analysis Technical Guidelines, Appendix L, pg. L-2, Alameda CTC Countywide Travel Demand Model.

Effects of Vehicle Traffic on Mixed Flow Transit Operations

This section evaluates if vehicle trips generated by the project will cause congestion that degrades transit vehicle operations. To evaluate the effects of vehicle traffic on mixed flow transit operation, only Local bus routes and Transbay lines were considered due to their operation during the peak periods. Based on the analysis for MTS roadway segments, AC Transit Line 604, connecting North Berkeley BART to Oakland Hebrew Day School going through SR 13/Tunnel Road between SR 24 and Claremont Avenue is expected to be degraded due to the increased vehicle traffic under existing condition (i.e., 2020) only. With improvements such as bus-only lanes on International Boulevard and Broadway, the effect of vehicle traffic on transit is being minimized. Note that the analysis based on ACTC Model volume indicates there is no significant impact of vehicle traffic on mixed flow transit operations under 2030 condition.

Transit Capacity

In addition to the vehicle effects on transit operations, the CMP guidelines require a determination of whether a proposed project would result in the existing transit service exceeding its available capacity. Both, BART and AC Transit lines were considered (the effect on the local Links transit shuttle service was not considered and its capacity would likely not be affected by the Project).

As shown in Table 5, the project is expected to generate 2,722 weekday BART trips with 354 peak-hour trips in 2030. Currently, all six BART lines pass through the City of Oakland including the Beige Line that connects Oakland International Airport (OAK). All lines run at a 15-minute frequency during the peak hour with a total of 24 trains during the peak hour.

On average, the project would increase the BART ridership by 15 passengers for each train. Given the current ridership in 2020 with the impact of COVID, the increase is not expected to exceed BART's capacity. Note that BART lines serving Transbay movements exceeded its maximum load capacity under the pre-COVID conditions. However, with the planned future transit service, explained in the section below, Oakland commuters going to San Francisco will be relieved of capacity constraints.

As shown in Table 5, the project is estimated to generate 5,404 weekday bus trips with 540 peak hour trip in 2030. AC Transit has a total of 127 lines serving Oakland, including 59 – Local, 14 – Transbay, 6 – All Night, 5 – Early Bird, and 43 – Service to School Lines. Table 6 shows the list of Local lines and Transbay lines. On average the project would increase the ridership for each bus by 4 to 6 passengers in 2030. As a high-level evaluation, this increase is not expected to affect the capacity of transit lines.

Table 6 AC Transit Lines in Oakland

Route #	Route Name	Bi-direction Runs During PM Peak Hour (5:00-6:00 p.m.)
1T	TEMPO: International - E. 14th	12
6	Berkeley- Telegraph-Oakland	10
12	MLK Jr. - Temescal - Grand	6
14	14th St - San Antonio - High St	6
18	Solano - Shattuck - MLK Jr.	8
19	Buena Vista - Fruitvale	2
20	Dimond - Fruitvale - South Shore	4
21	Dimond - Fruitvale - Bay Farm	4
29	Hollis - Peralta - Lakeshore	6
33	Piedmont - Harrison - Park Blvd.	8
34	Estudillo - Davis - Meekland	2
35	Estudillo - Davis - Lewelling	2
36	Dwight - Shellmound - Adeline	4
39	Skyline - Dimond - Fruitvale	2
40	Foothill - Bancroft - Bay Fair	6
45	Seminary - Sobrante Park	8
46L	82nd Ave. - Grass Valley Limited	2
51A	Broadway - Santa Clara	12
51B	University - College - Rockridge	10
52	UC Village - Cedar - UC Campus	8
54	35th Ave. - Merritt College	8
57	40th St. - MacArthur	8
62	7th St. - San Antonio - 23rd Av.	6
65	Grizzly Peak - Euclid	4
72	Hilltop - CCC - San Pablo	4
72M	Macdonald - San Pablo	4
72R	San Pablo Rapid	10
73	73rd Ave. - Coliseum - Airport	8
78	Santa Clara Ave - Seaplane Lagoon	2
79	Colusa - The Alameda - Claremont	4
88	Sacramento - Market	8
90	85th Ave. - Elmhurst - 90th Ave.	6
95	D St. - Maud - Fairview	2
96	Alameda Pt. - 14th Ave. - Dimond	4
98	Eastmont - 98th Ave. - Edgewater	6
E	Tunnel Rd. - Claremont Transbay	4
F	Adeline - Market Transbay	4
NL	MacArthur Transbay Limited	8
NX	Grand Lake - Laurel Transbay	4
NX3	MacArthur - Eastmont Transbay	6
O	Santa Clara - Encinal Transbay	4
OX	Bay Farm - Park St. Transbay	8
P	Piedmont - Oakland Ave. Transbay	8
U	Stanford - Dumbarton - Fremont	4

Route #	Route Name	Bi-direction Runs During PM Peak Hour (5:00-6:00 p.m.)
V	Montclair - Park Blvd. Transbay	4
W	High - South Shore Transbay	6

Source: <https://www.actransit.org/maps-schedules>

Transit Access and Egress

The adequate connection between the local transit service and the project is dependent on the individual housing unit development under the proposed project. The future development will be required to undergo a project-level environmental review that will assess whether pedestrian connections between the project site and transit stops are adequate to support any project trip generation assumed to be served by transit. The developer/project applicant will be required to submit a site plan that shows access from the building to the nearest transit stop. Sidewalks will be built to the current ADA accessibility guidelines including both clear width and appropriate curb ramp design.

Future Transit Service

Most developments in housing element areas are planned near the vacant parcels around the BART stations, along transit corridors, and in existing residential neighborhoods to allow for “missing middle” housing. As mentioned in Section 4.15.2 Regulatory Setting, MTC through Plan Bay Area 2050 intends to expand and modernize the rail network via South Bay Connect and Link21. South Bay Connect includes funding to implement improvements to the existing Capitol Corridor rail service between Oakland and Newark/Fremont. Link21 provides new Transbay rail service between San Francisco and Oakland, including new stations in the East Bay and San Francisco (10 trains per hour per direction in peak). Additionally, I-80 express bus service is planned between Vallejo and Downtown Oakland, including park-and-ride facilities (15-minute peak headways). As the housing element gets built out, the City of Oakland will coordinate with BART and AC Transit to ensure current transit service can accommodate future development.

Consistency with Adopted Plans

The CMP requires projects to determine if a project is consistent with transit operator’s short- and long-range plans. Section 4.15.1 (Impact TRA-1) of the Housing Element EIR analyzed the consistency with plans regarding public transit facilities.

Bicycles and Pedestrians

According to the Alameda CMP Transportation Impact Analysis Technical Guidelines, a project’s effect on bicyclist and pedestrian should be considered and include discussions of the following topics:

- Effects of vehicle traffic on bicyclist and pedestrian conditions
- Site development and roadway improvements
- Consistency with adopted plans

Effects of Vehicle Traffic on Bicyclist Conditions

Vehicle trips generated by the project are expected to be 2,262 PM peak hour trips in person during 2030. The increased traffic will be spread across the City of Oakland and other destinations and is not expected to conflict with secondary modes such as bicyclists and pedestrians, because the design of housing elements will be based on the City's standards.

As part of the City's entitlement process, future development under the Proposed Project would be required to comply with all applicable City guidelines, standards, and specifications. The Oakland Department of Transportation would provide oversight engineering review to ensure that future development is constructed according to City specifications and incorporates relevant SCAs which focus on the safety and performance of the transportation system.

Site Development and Roadway Improvements

The proposed project does not propose specific private developments, but for the purposes of environmental review, establishes the Phase I Buildout Program. There are no specific development projects or specific changes to the street network associated with the Phase I Buildout Program. However, future development under the proposed project could include changes to the adjacent street network such as new or relocated driveways, reconstructed sidewalks, and various color curb changes to accommodate on-street commercial and passenger loading activities; and could include one or more transportation features to allow for site access that would change the transportation network.

Individual building projects would be required to meet planning code requirements for provision of onsite freight loading spaces, onsite and on-street bicycle parking spaces, vehicle parking, and transportation demand management.

Consistency with Adopted Plans

This section 4.15.4 of the project EIR document discusses the proposed project's impacts related to conflicts with applicable plans, ordinances, and policies with details.

Impact TRA-1: Adoption of the Proposed Project would not conflict with a plan, ordinance, or policy addressing the safety or performance of the circulation system, including transit, roadway, bicycle lanes, and pedestrian paths. (Criterion 1) (Less than Significant)

Technical Memorandum

February 27, 2023

Project# 26553

To: Elizabeth Kanner
Senior Managing Associate
ESA

From: Dhawal Kataria and Mike Aronson

CC: Lakshmi Rajagopalan, City of Oakland and Rajeev Bhatia, Dyett and Bhatia

RE: **Oakland 2023 Housing Element - BART Ridership Analysis**

The proposed project is the Planning Code, Zoning Map and General Plan amendments, or Housing Element Implementation (HEI) implementing several actions contained in the City of Oakland's recently adopted 2023-2031 Housing Element. The HEI is projected to allow approximately 41,458 housing units by 2030. These housing units will primarily be developed in high resource neighborhoods such as the Rockridge area, Downtown Oakland, along transit corridors, and in the Affordable Housing Overlay. Pursuant to the request of the San Francisco Bay Area Rapid Transit District (BART) in a letter dated May 2, 2022, and subsequent conversation with BART staff, in response to the Notice of Preparation (NOP), a BART ridership analysis was conducted for this project to analyze the impacts associated with the development of 41,458 units. An increase in housing units is expected to increase BART ridership which could affect the BART service, station access and station capacity. This memorandum presents information on ridership forecasts and a discussion summarizing the potential impacts of additional ridership due to the project on BART facilities.

BART RIDERSHIP DATA AND FORECASTS

Table 1 presents the BART average daily weekday data for Oakland station activity for 2019 (Pre-COVID) and 2040 weekday forecasts provided by BART's planning and development department. Kittelson estimated the ridership under no project and with project conditions for the 2030 horizon year using the most current version of the Alameda CTC Countywide Travel Demand Model (Alameda Countywide Model), which is consistent with the assumptions of Plan Bay Area 2040. The 2040 ridership forecast provided by BART is shown for informational purposes only but indicates ridership growth trends consistent with the Alameda Countywide model results.

The West Oakland, Rockridge, MacArthur and 12th Street stations are projected to have an increase of more than 200 daily BART riders (4-6 percent increase) with the implementation of the proposed Housing Element. Currently, BART has not established a level of service threshold criteria to evaluate land use development projects. However, individual future housing development projects will be required to undergo a project-level environmental review that will assess the impacts of additional ridership in specific locations.

Table 1 BART Daily Ridership Data and Forecast

Station Name	2019 Average Weekday Entrances ¹	2030 Oakland GP NP ² (No Project)	2030 Oakland HE ² (With project)	Difference	Percent Difference	2040 Weekday Forecast ²
12th Street	13,891	17,382	17,630	248	1%	20,872
19th Street	14,028	15,921	15,998	77	0%	17,813
Coliseum	6,117	7,595	7,773	178	2%	9,073
Fruitvale	7,931	10,025	10,189	164	2%	12,119
Lake Merritt	7,425	8,774	8,874	100	1%	10,122
MacArthur	8,910	9,869	10,223	354	4%	10,827
Rockridge	5,349	6,221	6,544	323	5%	7,092
West Oakland	8,110	8,988	9,566	578	6%	9,865

Source: BART Ridership Data; BART Ridership Model; Alameda Countywide Travel Demand Model

Notes:

¹Non-revenue trips, as well as entries-without-exits, are included.

² Forecast is not capacity constrained i.e., the ridership demand may be higher than the station can support.

Table 2 presents BART weekday ridership during the AM and PM peak hours. Kittelson calculated the peak hour to daily ridership proportion based on the 2019 ridership data provided by BART and applied those peak hour percentages to the daily ridership from the Alameda Countywide Model. Kittelson assumes that the proportion of peak-to-daily ridership will remain the same for no project and with project conditions.

Table 2 BART Ridership and Forecast During AM and PM Peak Hour

Station Name	AM Peak Hour				PM Peak Hour			
	2019 Average Entrances	2030 Oakland GP NP	2030 Oakland HE	Difference	2019 Average Entrances	2030 Oakland GP NP	2030 Oakland HE	Difference
12th Street	963	1,205	1,222	17	2,697	3,375	3,423	48
19th Street	1,597	1,813	1,821	9	2,349	2,666	2,679	13
Coliseum	677	841	860	20	322	400	409	9
Fruitvale	1,259	1,591	1,617	26	393	497	505	8
Lake Merritt	1,251	1,478	1,495	17	601	710	718	8
MacArthur	1,492	1,653	1,712	59	894	990	1,026	36
Rockridge	1,112	1,293	1,360	67	333	387	407	20
West Oakland	1,580	1,751	1,864	113	399	442	471	28
Total	9,931	11,625	11,952	328	7,988	9,467	9,638	171

Source: BART Ridership Data; BART Ridership Model; Alameda Countywide Travel Demand Model

Note: AM Peak Hour = 8:00 a.m. – 9:00 a.m. and PM Peak Hour = 5:00 p.m. – 6:00 p.m.

A significant amount of these transit trips will be destined to travel to San Francisco and utilize the Transbay Tube. The project would generate approximately 328 additional people traveling in the Transbay Tube in

the peak westbound direction during the weekday AM peak hour. Based on the current BART schedule, with one train departing the West Oakland station every four minutes to San Francisco during the peak commute hour, this would equate to 22 people per train. Given that each train typically has between eight and ten cars (or consists), this would amount to an increase of two people per rail car. This level of transit ridership would not result in substantial delays to existing riders. Similarly, the project during the PM peak hour is estimated to cause an increase of one person per rail car in the peak direction.

BART under pre-COVID conditions was operating over capacity with peak hour ridership of more than 28,000 through the Transbay Tube. the addition of project-generated transit riders would contribute to the over-capacity conditions on Transbay lines. However, the project's incremental contribution to overall ridership on these BART lines would be minimal. Furthermore, BART is currently making major investments in new infrastructure to accommodate growth and improve and increase service. As mentioned in the Draft EIR Section 4.15, *Transportation and Circulation*, in subsection 4.15.2, MTC through Plan Bay Area 2050 intends to expand and modernize the rail network via South Bay Connect and Link21. Link21 would provide new Transbay rail service between San Francisco and Oakland, including new stations in the East Bay and San Francisco (10 trains per hour per direction during peak periods). Additionally, BART's Fleet of the Future project provides new train cars with higher capacity and three-door boarding. An improved train control system, which will allow for shorter headways, is another interrelated capital investment initiative that will increase capacity along the BART line.

The project would not substantially increase local or regional transit ridership and does not propose any features that would impact BART services and facilities.

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Appendix E

Evacuation Analysis

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Technical Memorandum

November 14, 2022

Project# 26553

To: Daniel Findley
City of Oakland
250 Frank H. Ogawa, Suite 3315,
Oakland, CA 94612

From: Kittelson & Associates, Inc.

RE: City of Oakland General Plan & Safety Element Update: Evacuation Analysis – Methodology,
Results and Considerations

INTRODUCTION

This memorandum presents the evacuation analysis methodology, results, and considerations for the City of Oakland (City). Kittelson & Associates, Inc. (Kittelson) modeled seven (7) evacuation scenarios for the City as part of their Safety Element update. The analyses were conducted to provide the City with an estimate of roadway capacity constraints during evacuations. Specifically, the analysis helps identify locations where there is a greater potential for traffic congestion in the event of an evacuation. This evaluation is consistent with requirements outlined in Assembly Bill (AB) 747¹. These laws require agencies to evaluate the resiliency of their transportation system, and the capacity and viability of evacuation routes.

The document is organized into four sections:

1. Roadway network baseline conditions;
2. Evacuation scenarios methodology and evaluation;
3. Evacuation scenario findings, including potential evacuation congestion; and,
4. Evacuation planning considerations and recommendations.

Legislative Requirements

Recent California legislation, including AB 747 and SB 99, has been passed requiring all local agencies to review accessibility and evacuation routes when specific elements within the General Plan or other emergency planning documents are completed or updated by a local agency.

- **Senate Bill 99** requires review and update of Safety Element to include information to identify residential developments in hazard areas that do not have at least two emergency evacuation routes. This is intended to assist the city in identifying opportunities to improve the connectivity and resiliency of the transportation system.
- **Assembly Bill 747** requires that the Safety Element be reviewed and updated to identify evacuation routes and their capacity, safety, and viability under a range of emergency scenarios. This is a requirement for all Safety Elements or updates to Hazard Mitigation Plans completed after January 2022.

¹ <https://openstates.org/ca/bills/20192020/AB747/>

ROADWAY NETWORK & BASELINE CONDITIONS

The City of Oakland is centrally located in the San Francisco East Bay Area, bounded by Berkeley to the north and San Leandro to the south. Communities and businesses are oriented along interstates and several state highway facilities (SR 13, SR 24, SR 185 and SR 123). Evacuation trips from Oakland are most likely to use the least congested route to Interstate-880 (I-880), Interstate 580 (I-580), or one of the other state routes in the City. There are also several secondary routes that run parallel to the interstates and state highways that are likely to be used for evacuation purposes, depending on the evacuation area. These secondary routes include High Street, 73rd Avenue, 98th Avenue, Fruitvale Avenue, and Hegenberger Road.

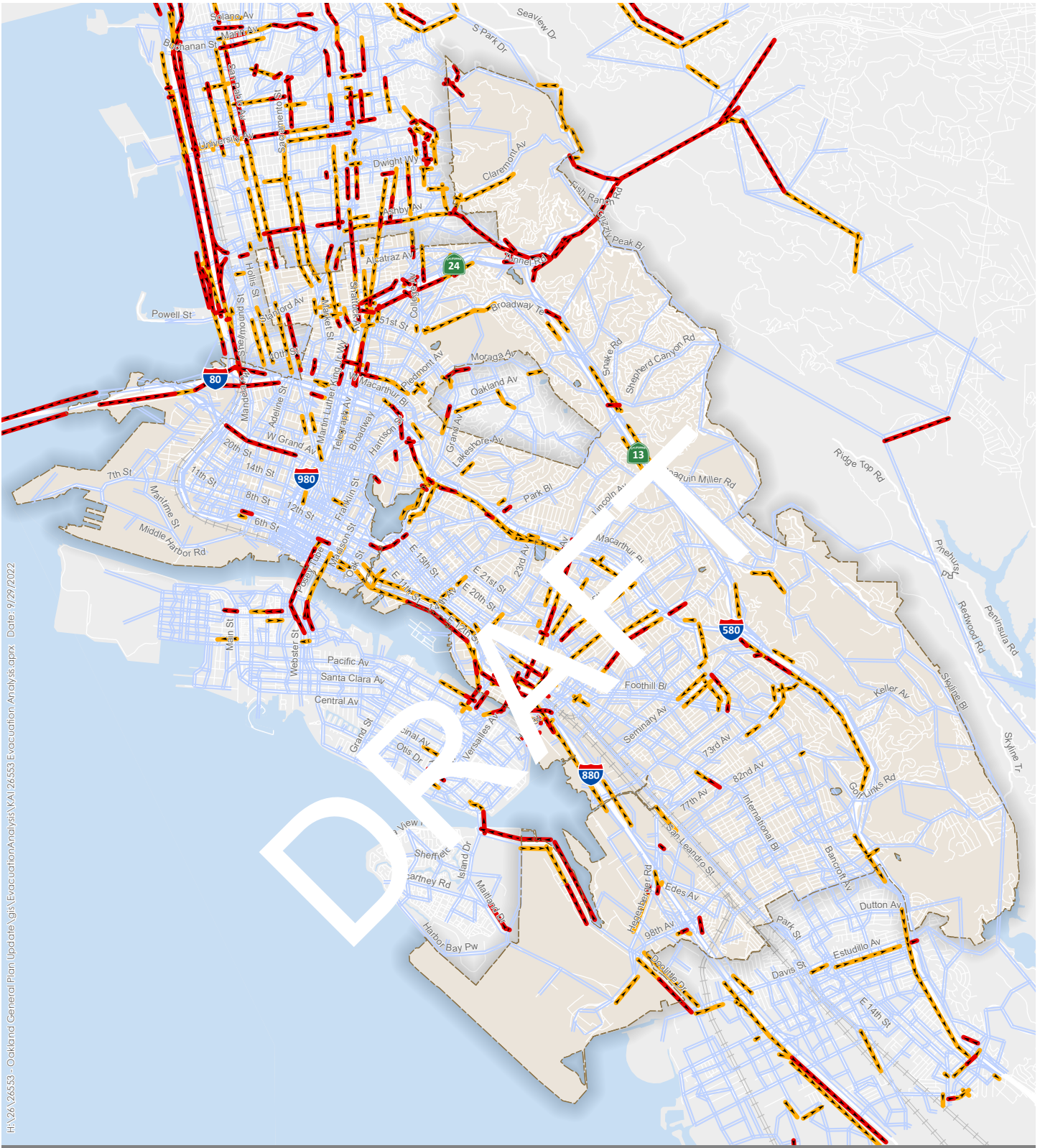
The evacuation congestion analysis utilizes the Alameda County Transportation Commission (CTC) Countywide Travel Demand Model (model). The current model was completed in 2019 and includes Plan Bay Area 2040 land use assumptions. The model represents all land uses in the County grouped into traffic analysis zones (TAZs) and includes a representative roadway network (generally all streets except for very local residential streets). Each road segment is coded with functional classification, number of lanes, uncongested speed, and an estimate of the typical hourly capacity. The model estimates the vehicle trips generated by each land use, distributes the trips to a variety of likely destinations, and assigns each origin-destination pair to the best route. The model also assesses congestion and iteratively diverts some traffic to alternative routes until congestion is balanced between all available routes. For this analysis, Kittelson considered the land use associated with the future 2030 year plus the Housing Element scenario (this scenario includes land use assumptions from Plan Bay Area 2040 and housing and employment calculations estimated as part of the City's current (2022) Housing Element update.

Each evacuation scenario analyses compare results to the baseline 2030 year plus Housing Element weekday PM peak hour conditions to identify locations where traffic during evacuation might be expected to result in substantial congestion. The model estimates of baseline conditions indicate that congestion in 2030 will be present. Specifically, roadways where volumes are at/exceed capacity include but are not limited to:

- Southbound I-880 (towards San Jose);
- Southbound I-580 (towards Dublin and San Ramon);
- Southbound I-80 (from Berkeley towards Oakland);
- Fruitvale Avenue, between International Boulevard and MacArthur Boulevard;
- Northbound SR 24 between Telegraph Avenue to Broadway;
- Parts of SR 13 between Lincoln Ave and SR 24;
- Tunnel Road;
- West Grand Avenue, between Market Street and Frontage Road;
- High Street, between Foothill Boulevard and MacArthur Boulevard

This congestion reflects regular commute congestion in the Bay Area. The secondary roadways noted above, serve as parallel routes to freeways as well as east-west connections in the City. These congested roadways represent the usual commute traffic patterns and congestion, specifically in the City of Oakland and generally in the Bay Area. Figure 1 shows the conditions for the City of Oakland where the highest baseline 2030 PM peak hour volume to capacity conditions are estimated.

H:\26\26553 - Oakland General Plan Update\gis\EvacuationAnalysis\KAI\26553 Evacuation Analysis.aprx Date: 9/29/2022



- Over Capacity (V/C > 1)
 - Congested (V/C 0.9 to 1)
 - Uncongested (V/C under 0.9)
- Oakland Boundary



Figure 1

EVACUATION EVALUATION

Kittelson modeled evacuations for seven emergency scenarios selected based on City staff input at the kickoff meeting. The attendees included City staff from various departments such as the Planning & Building Department and Fire Department's Emergency Management Services Division (EMSD). Through these discussions and the most likely emergency scenarios expected to impact the City, the scenarios identified for evacuation analysis include:

- Wildfire
 - North Oakland Hills (PM Peak and Nighttime)
 - Central Oakland Hills (PM Peak)
 - South Oakland Hills (PM Peak)
- Tsunami (PM Peak)
- Dam failure (PM Peak)
- Flood: 100 and 500 – year floodplain (PM Peak)

Limitations

The results of this memo are intended to identify potential congested locations during modeled evacuation scenarios. These scenarios were developed based on conservative assumptions and modeling techniques that reflect current understanding of evacuation analysis. These scenarios are intended to model a potential range of different evacuation scenarios but not all possible scenarios that may impact the City.

The scenarios represent potential emergency occurring in a portion of the City. Actual emergencies may occur at other locations in the City and the specific conditions of an emergency evacuation could result in evacuation behavior that diverges from the definitions and assumptions used for this analysis. As a result, the identified scenarios and evacuation constraints represent informed estimates of the most likely potential evacuation scenario footprints and capacity constraints based on available data. For each scenario, a two-step process was conducted to create the scenario, noted below.

Step 1: Identifying Travel Patterns

Time Period: Kittelson modeled transportation activity for one time period – PM peak hour for six of the seven evacuation scenarios. We modeled the wildfire scenario evacuating northern Oakland hills area for nighttime evacuation in addition to the PM peak hour. All evacuation traffic was assumed to occur during this period involving the specified area within the City. For the PM peak hour and nighttime scenario, Kittelson reviewed the model's TAZs and assigned each TAZ a combination of Baseline travel and Evacuation travel (25% and 75%, respectively), based on its presence in the evacuation area.

Travel Type: Baseline travel represents normal travel patterns during the PM peak hour or nighttime as included in the travel model. Evacuation travel represents estimated evacuation trips from each evacuating TAZ. Evacuation travel replaces the normal travel patterns (discussed in Step 2 below). Kittelson modeled travel for each evacuating TAZ shifting to a mix of baseline and evacuation travel (i.e., 25% and 75%, respectively).

Roadway Capacity: Kittelson modeled trip patterns using the default capacities for each roadway within and outside the City. The scenarios represent conditions without implementation of any evacuation

strategies, such as contraflow lanes, which could increase roadway capacity in one direction versus the other.

Step 2: Estimating Evacuation Trips and Routing

Number of Evacuation Trips: In general, modeled trips are a function of several patterns, including the land uses in an area, the socio-economic characteristics of the population in the area (e.g., auto ownership, income, and household size), and the type and extent of transportation facilities in an area. Kittelson obtained the Citywide 2030 land use information by TAZ (including households, population, and employment information) from the Alameda CTC travel demand model as well as Citywide auto ownership information by Census Tract from the American Community Survey (ACS) data website. Kittelson estimated total evacuation trips by calculating the trips generated at the household level and trips generated at the non-residential level. Kittelson assumed 75% of the residents and 75% of the employees evacuated for each modeled scenario. The number of occupied households and employees by TAZ for each of the evacuation scenarios are summarized in the following evacuation results section for each scenario.

Evacuation Destination and Route Choice: For each evacuation TAZ, Kittelson assigned likely evacuation destinations based on the Red Cross emergency evacuation destinations as well as destinations that can accommodate large groups of people. These include locations such as elementary, middle, and high schools, community colleges, and community centers. Evacuation destinations were assigned based on the location and direction of the evacuation. These destinations are selected for each of the evacuation scenarios with a goal of identifying evacuation travel patterns and congestion throughout the City. The distribution of the destinations is not intended to reflect a precise distribution of the routes that would be taken during an evacuation. The trips were distributed from each of the evacuating TAZs to each of the destination TAZs, as appropriate. The locations for the evacuating TAZs and the destination TAZs for each of the evacuation scenarios are provided in the results section.

EVACUATION RESULTS

Evacuation capacity analysis was conducted for PM peak hour and nighttime for the seven (7) different evacuation scenarios. The results represent the peak hour conditions for an evacuation when non-evacuation traffic would be at its highest levels. Each evacuation scenario's results are discussed below.

Wildfire Scenario: Northern Hills

Under this scenario, the fire is assumed to start in the Claremont Canyon Regional Preserve area (see Figure 2 for the modeled evacuated area for this scenario). The evacuation area extends to the communities east of SR-13 up to Golf Course Drive to the north and Skyline Boulevard to the south. Evacuation is expected to be primarily directed west of the affected area, with evacuation traffic traveling west, north, and south. For this scenario, the analysis considers two time periods, PM Peak Hour and Nighttime, to understand travel patterns in two different time periods. Table 1 shows the number of occupied households and employees as well as the total estimated evacuation trips for the scenario.

Table 1: Modeled Wildfire Evacuation Trips for PM Peak Hour (Northern Hills)

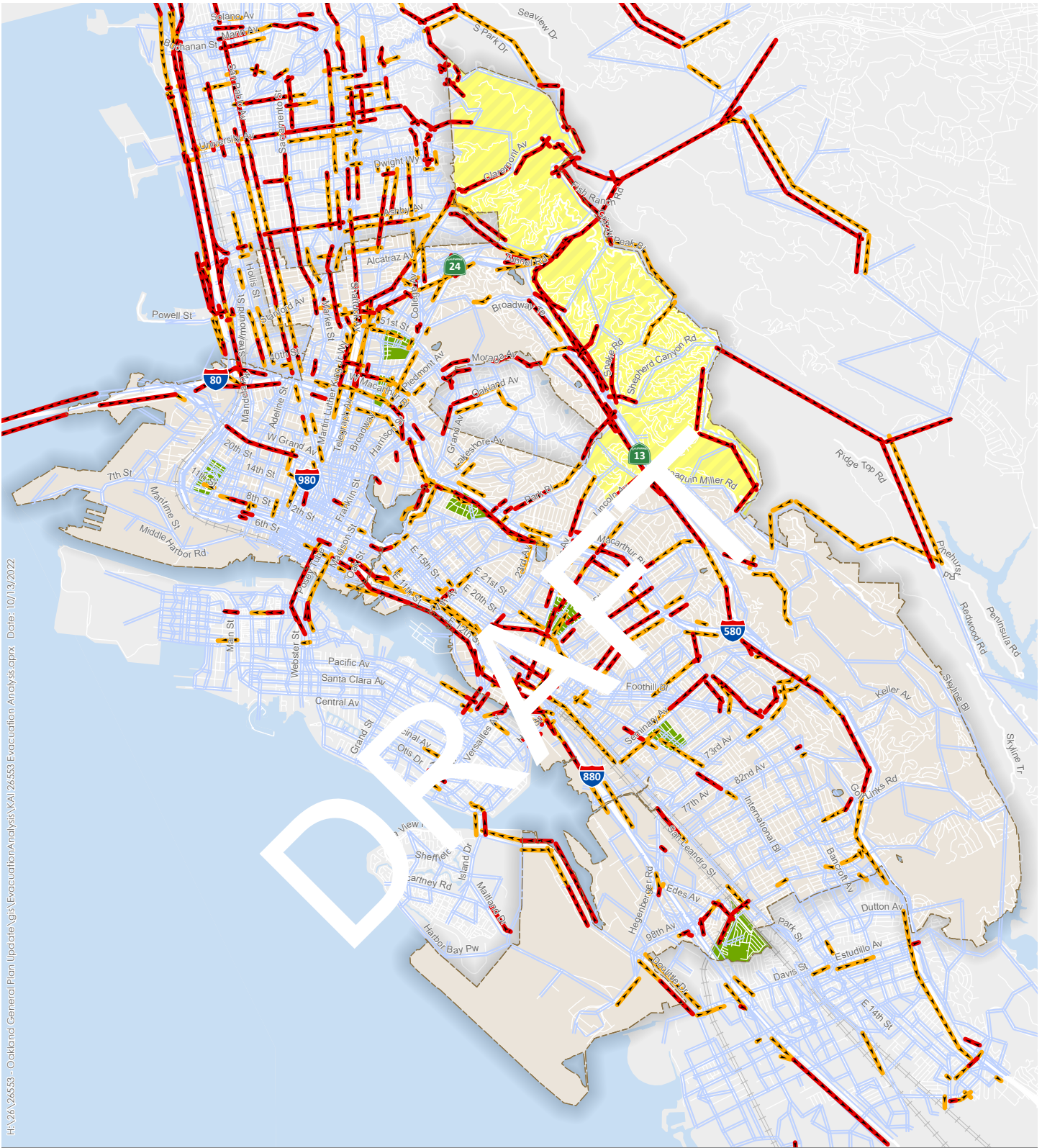
Evacuating TAZs	Households	Population	Employment	Trips
337	2,532	6,026	550	4,384
330	818	2,015	410	1,517
127	1,394	3,183	2,861	3,433
338	1,203	2,908	2,586	2,956
339	1,302	3,147	326	2,200
340	1,487	3,671	504	2,618
341	361	889	712	873

SOURCE: ALAMEDA COUNTY TRAVEL DEMAND MODEL; KITTELSON & ASSOCIATES, INC., 2022

The model indicates substantial and immediate over capacity conditions on several roadways in the City as shown in Figure 2. Specifically, the roadways where volumes are at/exceed capacity include but are not limited to:

- Southbound I-880 (towards San Jose);
- Southbound I-580 (towards Dublin and San Ramon);
- Fruitvale Avenue, between International Boulevard and MacArthur Boulevard;
- High Street, between Foothill Boulevard and MacArthur Boulevard
- Southbound SR 13;
- SR 24, between Shattuck Avenue and College Avenue
- MacArthur Boulevard, between Lakeshore Avenue to 35th Avenue;
- West Grand Avenue, between Market Street and Frontage Road

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- Over Capacity (V/C > 1)
- Congested (V/C 0.9 to 1)
- Uncongested (V/C under 0.9)
- Destinations
- Evacuation Zones
- Oakland Boundary



Figure 2

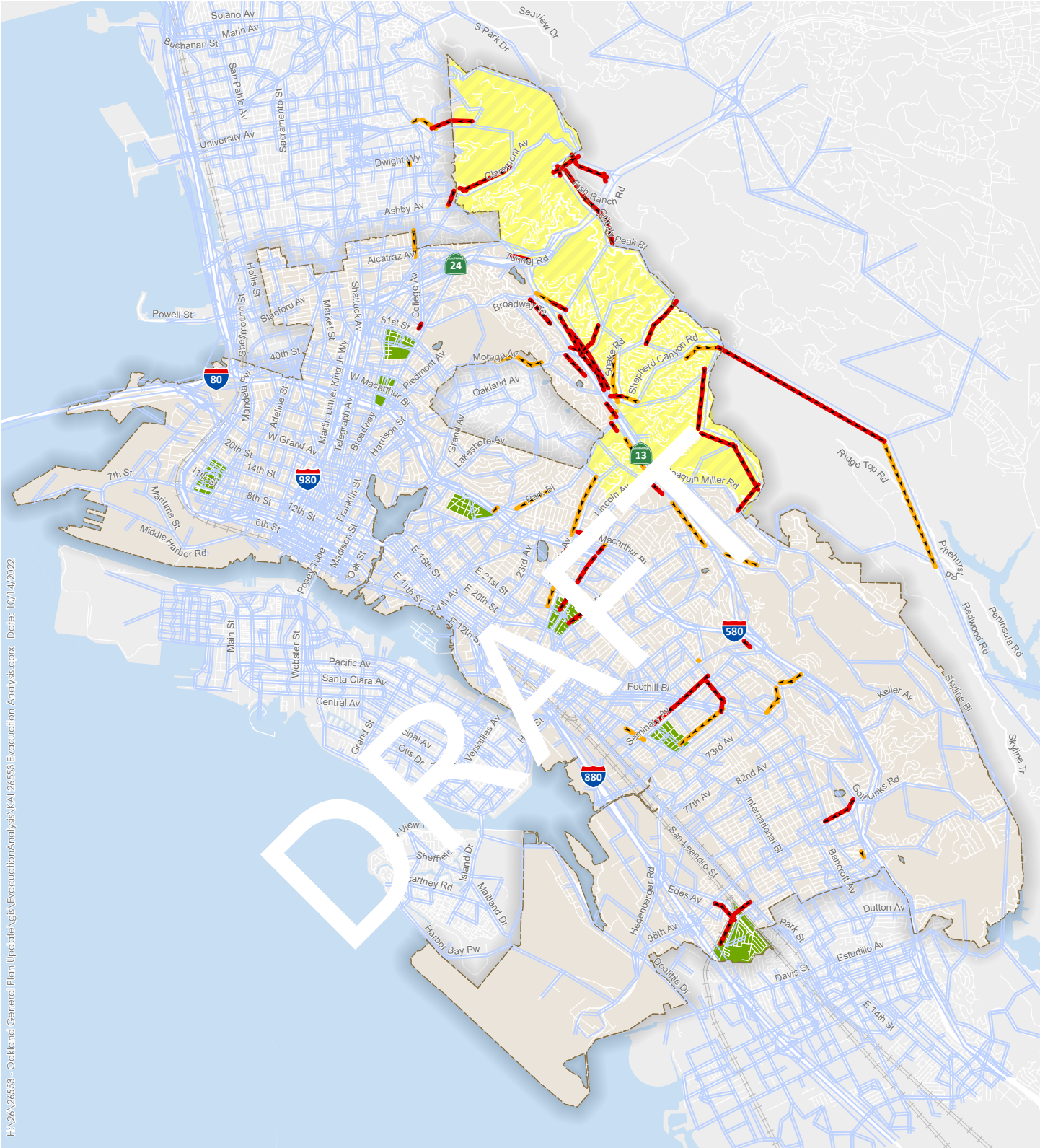
Table 2: Modeled Wildfire Evacuation Trips for Nighttime (Northern Hills)

Evacuating TAZs	Households	Population	Employment	Trips
337	2,532	6,026	N/A	4,161
330	818	2,015	N/A	1,351
127	1,394	3,183	N/A	2,274
338	1,203	2,908	N/A	1,909
339	1,302	3,147	N/A	2,068
340	1,487	3,671	N/A	2,414
341	361	889	N/A	584

SOURCE: ALAMEDA COUNTY TRAVEL DEMAND MODEL; KITTELSON & ASSOCIATES, INC., 2022

The model indicates substantial and immediate over capacity conditions on several roadways in the City as shown in Figure 3. Specifically, the roadways where volumes are at/exceed capacity include but are not limited to:

- Southbound SR 13;
- Claremont Avenue, within City limits;
- Grizzly Peak Boulevard, between Claremont Avenue and City Limits;
- Skyline Boulevard, between Castle Drive to Joaquin Miller Road;
- 35th Avenue, between Salisbury Street and School Street;
- Coolidge Avenue, between Foothill Boulevard and Montana Street;
- 105th Avenue, between San Leandro Street and City limits



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- Over Capacity (V/C > 1)
- - - Congested (V/C 0.9 to 1)
- Uncongested (V/C under 0.9)
- Destinations
- Evacuation Zones
- Oakland Boundary



Figure 3

Wildfire Scenario: Central Hills

Under this scenario, the fire starts in the Ridgemont area (see Figure 2: Wildfire Evacuation – 2030 PM Peak Hour (Northern Hills) for the modeled evacuated area for this scenario). The evacuation area extends to include Skyline High School and the communities east of SR-13 up to Skyline Boulevard to the north and Keller Avenue to the south. Evacuation is expected to be primarily directed west of the affected area, with evacuation traffic traveling west, north, and south. The fire would result in the entire neighborhood of Ridgemont evacuating. Table 1 shows the number of occupied households and employees as well as the total estimated evacuation trips for the scenario.

Table 3: Modeled Wildfire Evacuation Trips for PM Peak Hour (Central Hills)

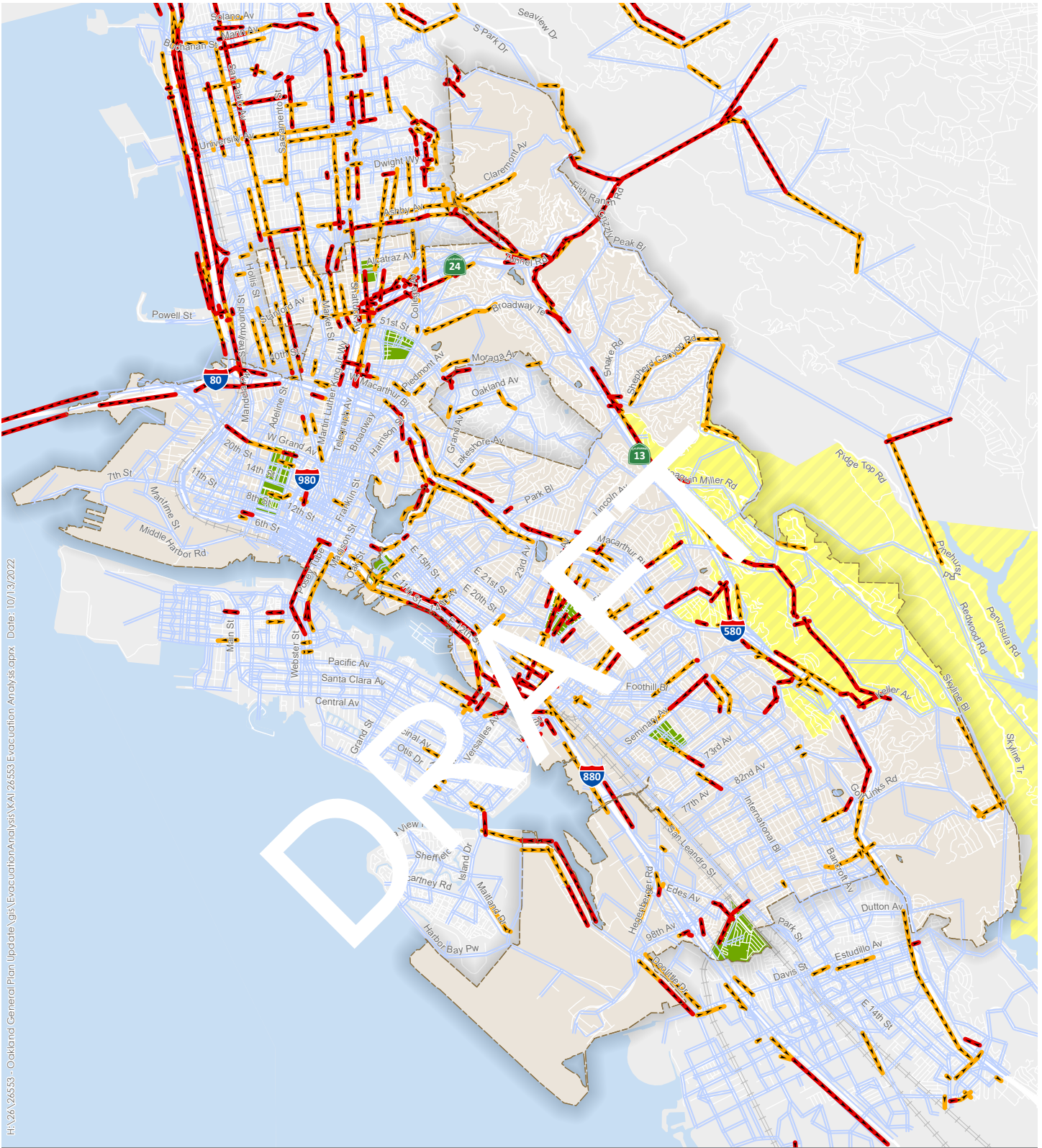
Evacuating TAZs	Households	Population	Employment	Trips
341	361	889	712	873
342	972	2,728	1,042	1,988
346	584	1,493	312	935
348	1,370	3,436	212	2,098
412	1,115	2,872	488	1,831
415	1,683	4,045	480	2,816
416	730	1,757	98	1,176
417	472	1,134	688	1,012
1376	140	406	559	454

SOURCE: ALAMEDA COUNTY TRAVEL DEMAND MODEL; KITTELSON & ASSOCIATES, INC., 2022

The model indicates substantial and immediate over capacity conditions on several roadways in the City as shown in Figure 4. Specifically, the roadways where volumes are at/exceed capacity including but not limited to:

- Southbound SR 13;
- Southbound 880 (towards San Jose);
- Southbound I-80;
- Doolittle Drive, between Hegenberger Road and City limits;
- 35th Avenue, between Salisbury Street and School Street;
- Campus Drive, between Redwood Road and Keller Avenue;
- Coolidge Avenue, between Foothill Boulevard and Montana Street;
- 105th Avenue, between San Leandro Street and City limits

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- Over Capacity (V/C > 1)
- Congested (V/C 0.9 to 1)
- Uncongested (V/C under 0.9)
- Destinations
- Evacuation Zones
- Oakland Boundary



Figure 4

Wildfire Scenario: Southern Hills

Under this scenario, the fire starts in the Chabot Park area (see Figure 5 for the modeled evacuated area for this scenario). The evacuation area extends to include Oakland Zoo and the communities east of I-580 up to Keller Avenue to the north and the San Leandro Creek to the south. Evacuation is expected to be primarily directed west of the affected area, with evacuation traffic traveling west, north, and south. The fire would result in the entire neighborhood of Chabot Park evacuating. Table 4 shows the number of occupied households and employees as well as the total estimated evacuation trips for the scenario.

Table 4: Modeled Wildfire Evacuation Trips for PM Peak Hour (South Oakland Hills)

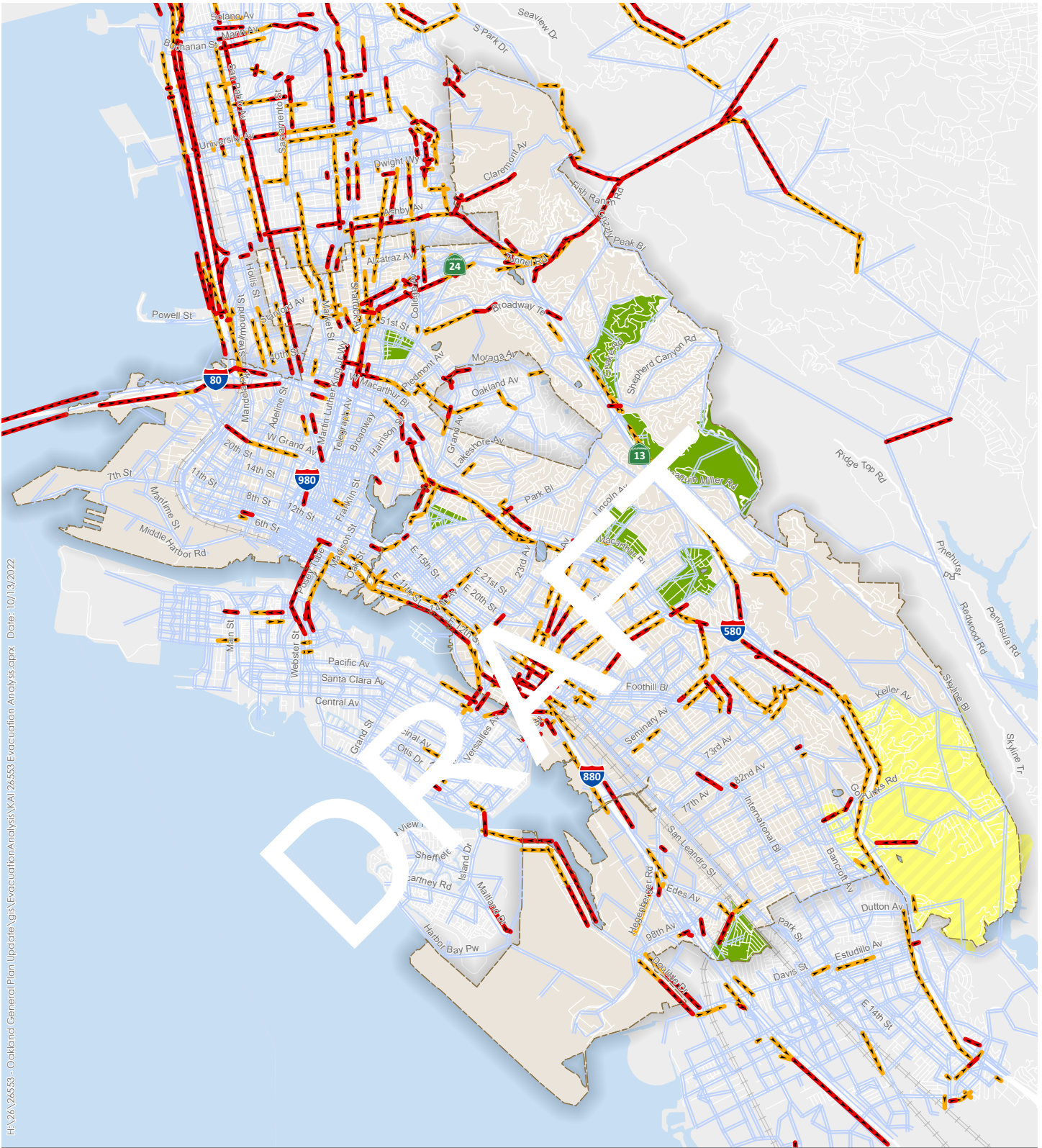
Evacuating TAZs	Households	Population	Employment	Trips
418	374	930	724	925
419	1,351	3,330	632	2,546
420	293	732	210	582
421	457	1,152	739	1,048
422	413	1,039	18	686
423	0	0	10	4
424	265	726	576	588
425	466	1,273	198	705
426	349	954	12	474

SOURCE: ALAMEDA COUNTY TRAVEL DEMAND MODEL; KITTELSON & ASSOCIATES, INC., 2022

The model indicates substantial and immediate over capacity conditions on several roadways in the City as shown in Figure 5. Specifically, the roadways where volumes are at/exceed capacity include but are not limited to:

- Southbound I-880 (towards San Jose);
- Southbound I-580 (towards Dublin and San Ramon);
- Northbound I-580 (towards Berkeley);
- SR 61, between Harbor Bay Parkway and Hegenberger Road;
- High Street, between Foothill Boulevard and MacArthur Boulevard;
- 105th Avenue, between San Leandro Street and City limits;
- Doolittle Drive, within City limits

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- Over Capacity (V/C > 1)
- Congested (V/C 0.9 to 1)
- Uncongested (V/C under 0.9)
- Destinations
- Evacuation Zones
- Oakland Boundary



Figure 5

Tsunami Scenario

Under this scenario, the potential flooding is assumed to affect portions of the City of Oakland and also areas in the City of Alameda (see Figure 6 for the potential affected area for this scenario). Evacuation is expected to be primarily directed east of the affected area, with evacuation traffic traveling east, north, and south. The flooding would result in the entire shoreline including City of Oakland and Alameda and it is assumed that the City of Alameda's residents will also evacuate using the City of Oakland's roadways. Table 5 shows the number of occupied households and employees as well as the total estimated evacuation trips for the tsunami scenario.

Table 5: Modeled Tsunami Evacuation Trips for PM Peak Hour

Evacuating TAZs	Households	Population	Employment	Trips
513	885	2,404	380	1,580
179	1,368	3,199	214	1,128
178	193	488	2,398	1,116
155	0	0	92	37
153	219	632	1,044	590
250	0	1	852	345
251	34	64	98	84
252	51	88	254	169
244	613	1,058	1,022	1,078
245	495	893	2,033	1,354
246	334	576	268	470
247	185	338	358	354
270	493	990	199	464
271	530	1,065	580	646
272	30	59	156	87
273	1,026	2,068	322	923
249	495	894	927	906
278	3	4	578	238
378	4	15	1,700	691
263	29	58	238	121
264	401	929	884	662
265	2,638	6,135	508	2,328
268	17	38	1,372	568
269	48	111	1,598	695
316	174	532	258	271
443	37	124	25	54
513	885	2,404	380	1,580
174	695	1,902	226	638
486	255	611	37	322
524	308	830	72	474
1405	0	0	963	390
454	2	7	898	366
445	0	1	2,146	869
255	3521	10,605	1,064	3,430
256	2	6	822	334
156	0	0	4	2
157	12	30	606	256

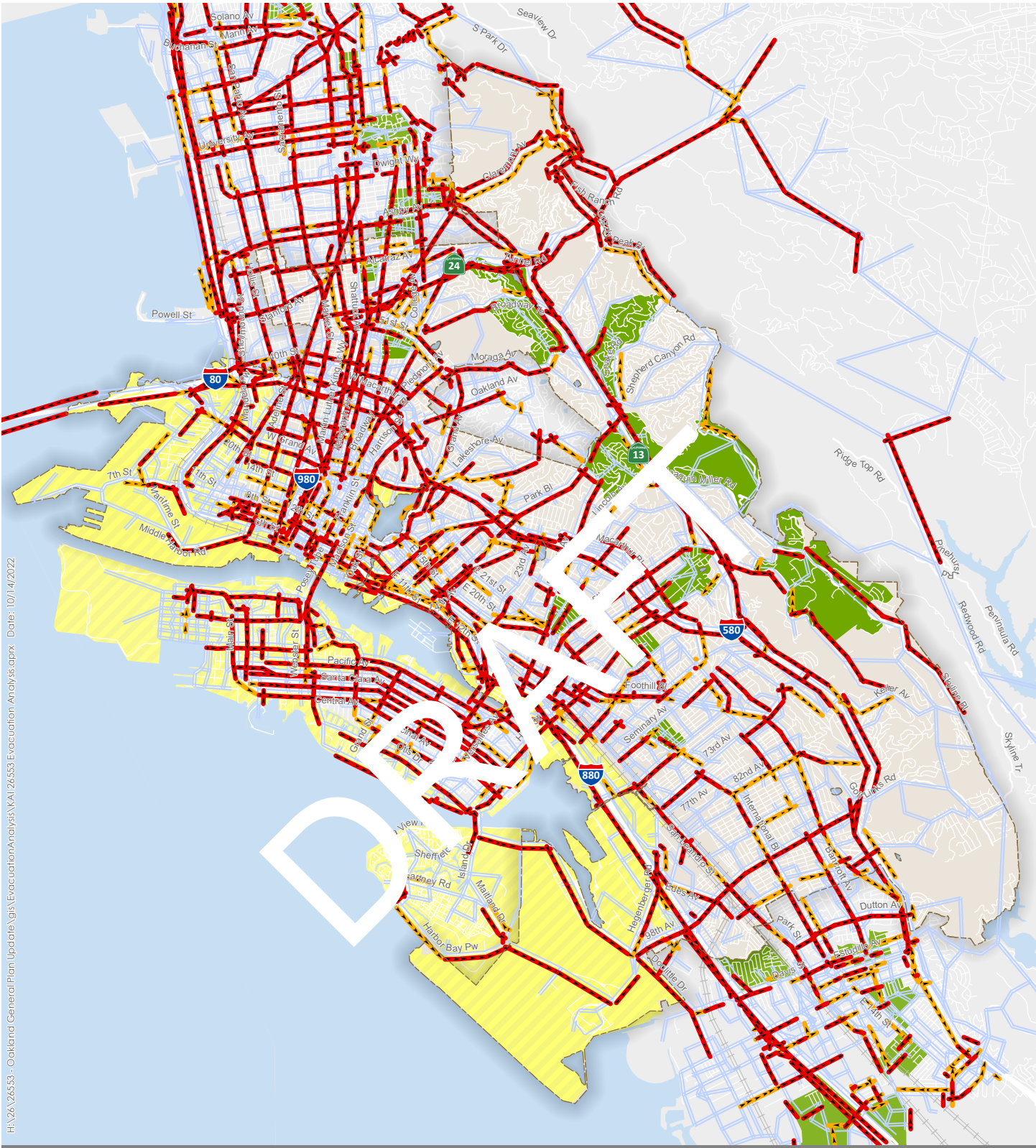
Evacuating TAZs	Households	Population	Employment	Trips
158	432	1,122	185	525
159	347	896	550	582
160	0	0	228	92
161	0	0	78	32
163	0	0	366	148
164	0	0	646	262
165	0	0	21	9
166	236	610	43	261
167	303	781	108	355
168	418	1,086	0	435
257	2	5	617	251
258	0	0	174	70
259	0	0	302	122
260	0	0	318	129
169	0	0	200	81
170	0	0	302	122
171	0	0	398	161
253	5	8	179	76
254	0	0	242	98
172	637	1,645	526	870
173	1	2	394	160
175	138	383	216	194
528	638	1,708	1,004	1,230
447	911	3,282	3,123	2,272
461	966	3,293	41	742
481	0	0	626	254
482	622	1872	375	786
483	193	582	1,013	607
487	157	378	984	590
484	6	17	438	185
488	117	281	747	444
489	0	0	194	79
490	257	616	1,458	902
491	960	2304	206	1,246
492	273	656	100	372
501	305	664	210	448
512	202	488	826	573
517	454	1,109	162	696
518	631	1,542	158	936
479	761	2,144	326	900
480	1,094	3,083	204	1,188
478	1,074	2,370	242	1,275
462	411	1,401	506	513
463	0	0	506	205
464	0	0	506	205
465	411	1,401	506	513
466	0	0	0	0
467	0	0	302	122
493	47	112	499	257
494	417	1,012	184	589

Evacuating TAZs	Households	Population	Employment	Trips
495	190	463	300	361
468	11	39	1,013	421
469	11	39	1,013	421
470	209	714	506	360
471	209	714	506	360
472	0	0	506	205
473	11	39	506	216
474	491	1,676	1,013	780
475	411	1,401	1,013	719
502	472	1,029	109	604
503	777	1,693	156	988
504	336	765	162	430
505	1,104	2,515	254	1,295
514	205	561	887	665
515	159	434	166	301
516	0	0	138	56
496	100	240	330	256
485	6	17	1,013	418
497	292	705	198	437
451	480	1,728	1,540	1,154
162	0	0	332	134
1401	0	0	219	89
248	8	15	1,194	494
1402	0	0	46	19
444	0	0	6,657	2,696
1403	0	0	54	22
381	451	1,577	1,302	1,044
453	0	1	1,012	410
315	63	193	550	282
316	174	532	258	271

SOURCE: ALAMEDA COUNTY TRAVEL DEMAND MODEL; KITTELSON & ASSOCIATES, INC., 2022

The model indicates substantial and immediate over capacity conditions throughout the City. The majority of evacuation trips travel out in all directions, i.e., to the north, south and east of the City in this scenario, worsening the congestion over the entire roadway network. The destinations for this evacuation scenario are located within the City as well as outside, in the City of San Leandro and the City of Berkeley.

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- Over Capacity (V/C > 1)
- Congested (V/C 0.9 to 1)
- Uncongested (V/C under 0.9)
- Destinations
- Evacuation Zones
- Oakland Boundary



Figure 6

Dam Failure Scenario

Under this scenario, the potential flooding from Chabot dam failure is assumed to affect the entire north and central portions of the City (see Figure 7 for the potential evacuation area for this scenario). Evacuation is expected to be primarily directed south of the City. The flooding would result in most of the City evacuating, and Table 6 shows the number of occupied households and employees and total estimated evacuation trips.

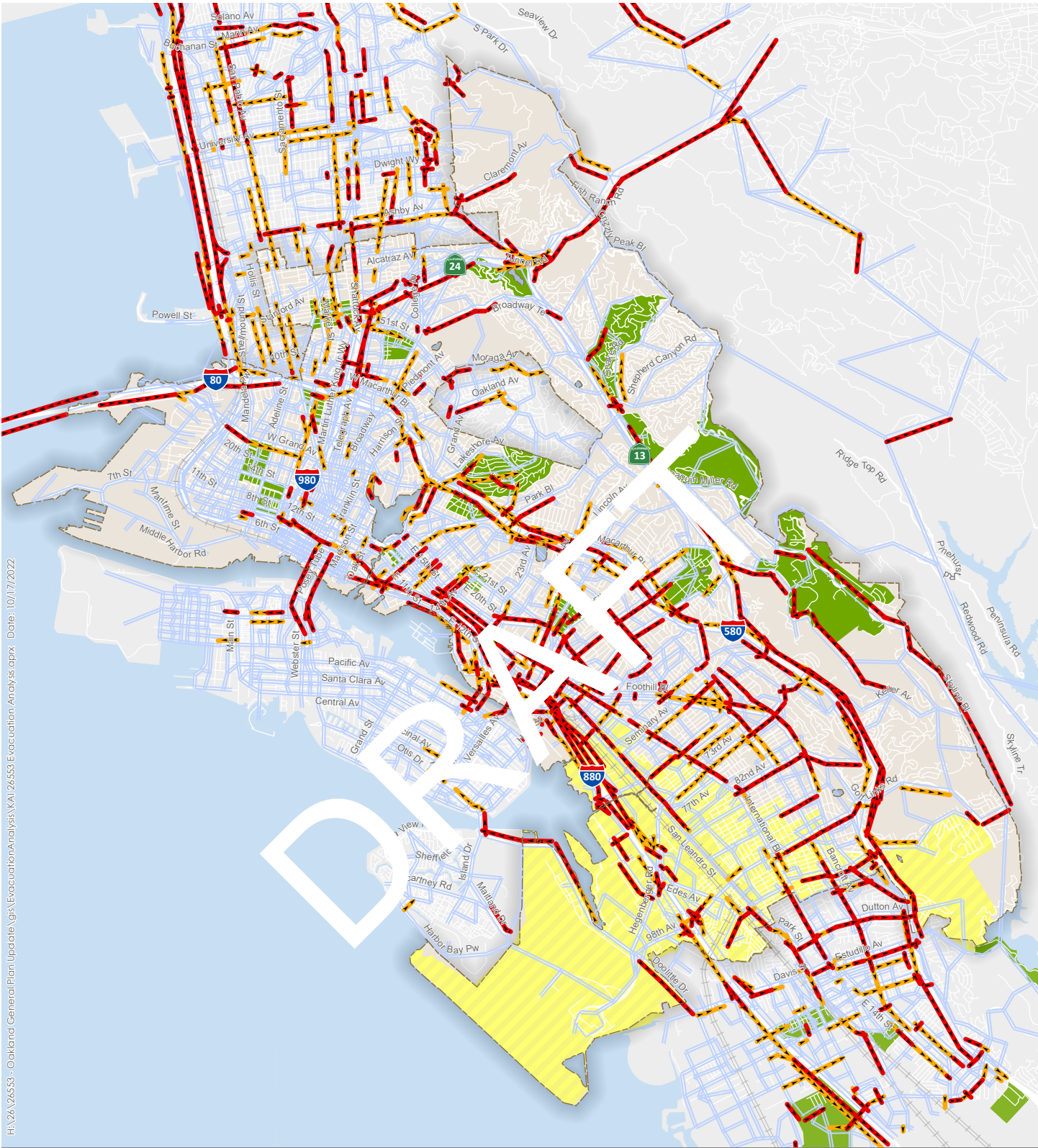
Table 6: Modeled Dam Failure Evacuation Trips for PM Peak Hour

Evacuating TAZs	Households	Population	Employment	Trips
379	183	660	704	452
381	451	1,577	1,302	919
382	284	1,024	254	362
384	217	728	448	324
385	1,412	4,776	820	1,264
386	498	1,674	56	351
387	183	665	862	504
388	516	1,874	20	453
389	475	1,730	14	416
390	425	1,689	918	742
391	287	1,142	16	256
392	354	1,409	63	335
393	1,122	4,512	1,130	1,745
394	417	1,679	30	484
395	229	924	30	271
396	393	1,451	19	444
398	352	1,305	188	471
421	457	1,152	739	1,048
422	413	1,039	18	686
424	265	726	576	588
427	360	1,100	0	429
428	390	1,189	300	586
429	477	1,455	28	579
430	393	1,594	2	444
431	270	1,096	291	424
432	203	824	2	230
433	308	1,253	446	531
434	1,085	3,419	534	1,525
435	355	1,114	8	429
436	293	919	37	368
437	440	1,606	18	512
438	545	1,995	36	642
439	314	1,147	192	439
440	378	1,378	808	760
441	896	3,450	334	1,200
442	648	2,492	147	755
443	37	124	25	54
444	0	0	6,657	2,696
445	0	1	2,146	869

Evacuating TAZs	Households	Population	Employment	Trips
446	33	118	1,160	506
447	911	3,282	3,123	2,272
448	382	1,378	1,669	1,100
449	451	1,624	76	528
450	6	21	1,708	697
451	480	1,728	1,540	1,154
452	141	509	36	171
453	0	1	1,012	410
454	2	7	898	366
1403	0	0	54	22
1404	3	10	202	83
1405	0	0	963	390
1462	48	176	334	178

SOURCE: ALAMEDA COUNTY TRAVEL DEMAND MODEL; KITTELSON & ASSOCIATES, INC., 2022

Figure 7 shows the volume to capacity ratio for the PM peak hour. The model indicates substantial and immediate over capacity conditions throughout the City. This is because a greater number of evacuation trips travel out to the south of the City in this scenario, worsening the congestion over the entire roadway network.



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- Over Capacity (V/C > 1)
- Congested (V/C 0.9 to 1)
- Uncongested (V/C under 0.9)
- Destinations
- Evacuation Zones
- Oakland Boundary



Figure 7

Flood Scenario

Under this scenario, flooding from heavy precipitation is assumed to affect the southern portions of the City (see Figure 8 for the potential evacuation area for this scenario). Evacuation is expected to be primarily directed east of the City. The flooding would result in most of the City evacuating, and Table 7 shows the number of occupied households and employees and total estimated evacuation trips.

Table 7: Modeled Flood Evacuation Trips for PM Peak Hour (Flood Scenario)

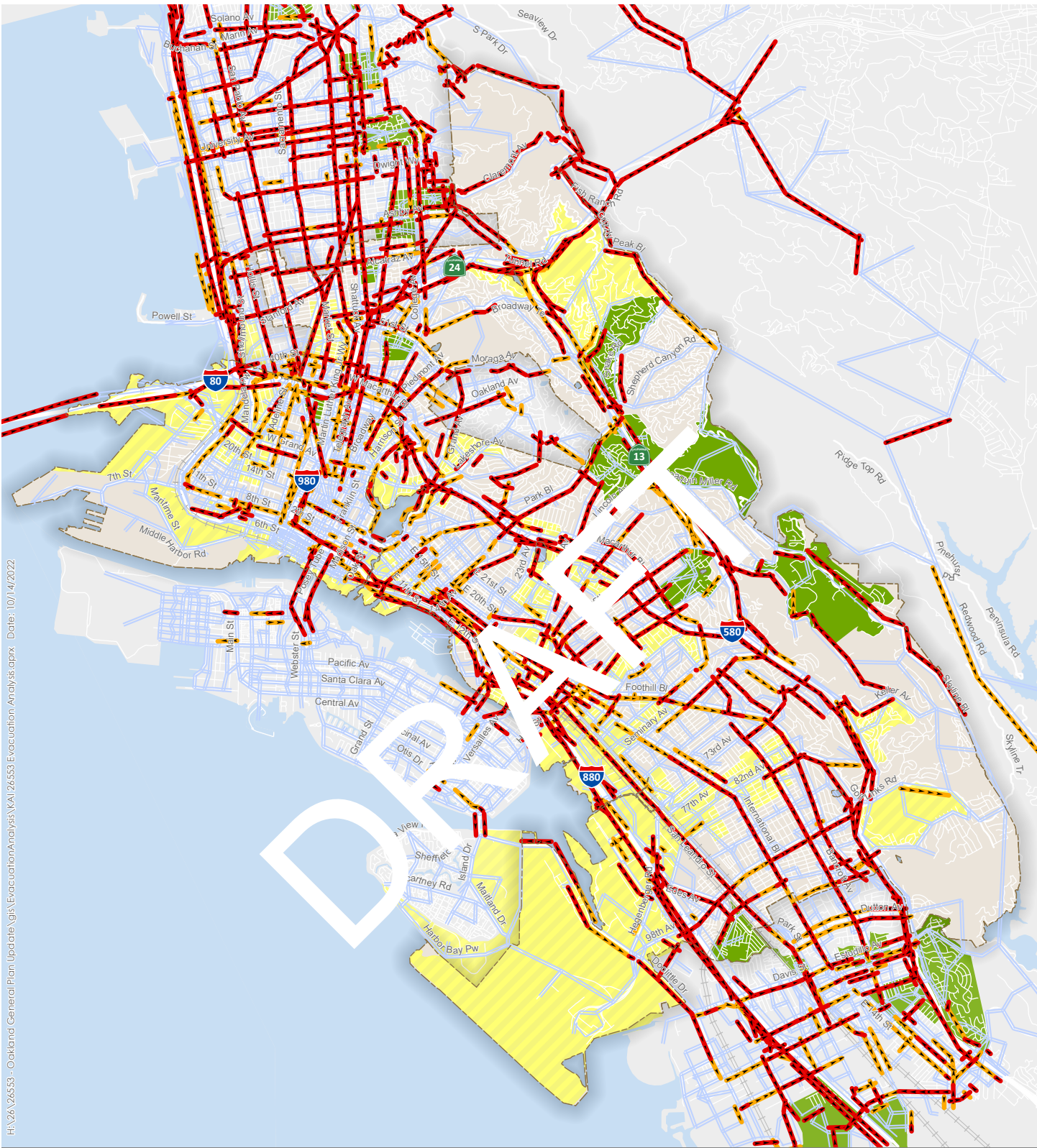
Evacuating TAZs	Households	Population	Employment	Trips
119	149	270	883	508
143	805	1977	484	1,088
153	219	632	1,044	590
155	0	0	92	37
156	0	0	4	2
157	12	30	606	256
158	432	1,122	185	525
159	347	896	550	582
160	0	0	228	92
161	0	0	78	32
162	0	0	332	134
163	0	0	366	148
170	0	0	302	122
171	0	0	398	161
172	637	1,645	526	870
173	1	2	394	160
175	138	383	216	209
178	193	488	2,398	1,116
194	289	715	391	499
196	604	1,489	1,786	1,302
216	1,781	3,118	617	2,012
218	825	1,444	183	889
246	334	576	268	470
247	185	338	358	354
248	8	15	1,194	494
250	0	1	852	345
251	34	64	98	62
253	5	8	179	76
255	3,521	10,605	1,064	3,547
257	2	5	617	251
262	859	1,996	1,838	1,419
263	29	58	238	121
264	401	929	884	662
265	2,638	6,135	508	2,328
268	17	38	1,372	568
270	493	990	199	464
272	30	59	156	87
274	1,601	3,238	982	1,624
278	3	4	578	238
284	974	1,908	634	1,491

Evacuating TAZs	Households	Population	Employment	Trips
286	1,534	2,434	841	1,698
287	1,263	2,003	1,157	1,515
290	1,896	3,612	1,486	2,970
309	656	2,068	454	895
310	1,268	4,406	482	1,507
313	706	2,636	412	988
314	138	514	502	363
316	174	532	258	271
317	399	1,226	450	560
319	255	779	224	333
320	779	2,386	874	1,093
321	742	2,762	478	989
322	595	2,214	370	789
325	1,066	3,018	194	1,392
327	957	2,141	534	1,334
336	374	920	124	640
337	2,532	6,026	550	3,990
355	802	2,445	199	1,020
356	832	2,536	282	1,087
360	749	2,709	161	972
374	406	1,365	20	439
375	652	2,190	287	806
377	551	2,065	198	667
378	4	15	1,700	691
379	183	660	704	452
380	147	531	740	434
381	451	1,577	1,302	919
382	284	1,024	254	362
385	1,412	4,776	820	1,264
387	183	665	862	504
388	516	1,874	20	453
389	475	1,730	14	416
390	425	1,689	918	742
397	413	1,526	13	463
399	397	1,467	30	456
400	439	1,515	565	693
402	370	1,273	42	405
404	676	2,126	167	643
408	368	1,232	264	493
418	374	930	724	925
420	293	732	210	582
443	37	124	25	54
444	0	0	6,657	2,696
445	0	1	2,146	869
446	33	118	1,160	506
447	911	3,282	3,123	2,272
450	6	21	1,708	697
451	480	1,728	1,540	1,154
453	0	1	1,012	410
454	2	7	898	366

Evacuating TAZs	Households	Population	Employment	Trips
514	205	561	887	665
516	0	0	138	56
1401	0	0	219	89
1403	0	0	54	22
1404	3	10	202	83
1405	0	0	963	390

SOURCE: ALAMEDA COUNTY TRAVEL DEMAND MODEL; KITTELSON & ASSOCIATES, INC., 2022

Figure 8 shows the volume to capacity ratio for the PM peak hour. The model indicates substantial and immediate over capacity conditions throughout the City. This is because majority of evacuation trips travel out in all directions, i.e., to the north, south and east of the City in this scenario, worsening the congestion over the entire roadway network. The destinations for this evacuation scenario are located within the City as well as outside, in the City of San Leandro and the City of Berkeley.



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- Over Capacity (V/C > 1)
- Congested (V/C 0.9 to 1)
- Uncongested (V/C under 0.9)
- + Destinations
- Evacuation Zones
- Oakland Boundary



Figure 8

EVACUATION PLANNING CONSIDERATIONS

This section describes evacuation planning considerations and strategies for improving the capacity and resilience of the City's roadway network to support future evacuation events. The strategies and considerations were identified based on previous congestion and evacuation studies, review of recent evacuation efforts, effective evacuation planning practices identified by US Department of Transportation (USDOT)² and Federal Highway Administration (FHWA)³, and staff feedback. The strategies are organized into five (5) categories:

1. Traffic Management
2. Communications
3. Vulnerable Populations
4. Public Education
5. Resource Management

Traffic Management

This section includes infrastructure-related strategies that will aid in efficient and expeditious flow of evacuation traffic, which is the most critical and challenging element in a successful evacuation. For each infrastructure-related treatments, it is necessary to consider downstream capacity limitations and identify if those limits nullify the potential benefits of the treatment. Table 8 outlines each of these strategies and provides a brief description of the strategy and desired outcomes.

Table 8: Roadway and Intersection Capacity and Resilience Related Strategies

Strategy	Description and Outcome
Limited contra flow on highways	Reverse one or more lanes of highway to accommodate an increased flow of traffic in one direction.
Unlimited contra flow on highways	Redirect all lanes of a designated evacuation route to accommodate rapid evacuation from a City or region.
Limited/unlimited contra flow on unlimited access arterials	Temporarily close inbound travel lanes on selected unlimited access arterials (such as parkways and boulevards) to allow outbound traffic to utilize these lanes during evacuation.
Phased releases at major parking centers	Implement a coordinated release of evacuation traffic from parking facilities that would reduce congestion on evacuation routes, especially in the downtown area. A phased release protocol would be developed for each parking facility, depending on size, location, and other relevant factors.

² *Using Highways During Evacuation Operations for Events with Advance Notice*, Routes to Effective Evacuation Planning Primer Series, USDOT, FHWA, Accessed August 2022.

³ *Using Highways for No-Notice Evacuations: Five Planning Considerations*, FHWA, Accessed August 2022.

Strategy	Description and Outcome
Closure of inbound lanes on selected roads and highways	Close inbound lanes on highways utilized for evacuation routes to prevent drivers on these routes from entering the City while evacuation is underway.
Restrict left-turn movements	Minimize left-turn movements along evacuation routes and on roads leading to evacuation routes.
Suspension of tolls	Consider coordinating suspension of tolls to encourage people to use toll roads to reduce bottlenecks at toll collection booths.
Signage	Use variable message board equipment and targeted installation of permanent dynamic message signs on evacuation routes to improve communication and reduce public confusion.
Stage tow trucks	Considers how to stage tow trucks at key bottleneck locations along evacuation routes to help detect and clear minor crashes and maintain traffic flow.
Adjust signal timing	Increase the green time and/or progression band for through movements leading out of an evacuation zone.
Signal operation during power outage	Install signal battery backups in case signal operations need to be maintained during a power outage. Consider using channeling devices, static signs, and coning strategies to manage intersection flow during power outage if the signals lack power.
Additional access routes	Identify and communicate with communities that have at least two access points. Prioritize adding additional access to communities which are currently served by only one or two access points.
Bus system	Develop transportation solutions such as the use of a bus system for evacuating individuals with special needs (such as those with mobility limitations).
Traffic control points	Establish traffic control points (i.e., locations along designated evacuation routes with emergency management personnel) to maintain a greater degree of evacuation management. These locations could enhance the efficiency of an evacuation, reduce public confusion, and allow increased operational flexibility during an evacuation.

Communications

This section describes communication strategies that address how information may be shared among agencies, organizations, and the general public for evacuations. During an emergency evacuation event, two types of communication take place: (1) communication among entities involved in the management of response, and (2) communication between the City and the general public. Table 9 outlines each of these strategies and provides a brief description of the strategy and desired outcomes.

Table 9: Communications Related Strategies

Strategy	Description and Outcome
Establish and maintain communications	Strengthen and maintain communication among coordinating emergency event agencies. This could be achieved through systems such as the Public Information Emergency System and Emergency Satellite Communications.
Vulnerable population communication plans	Identify vulnerable populations (see Vulnerable Populations subsection) that may require special assistance and develop population-specific communication plans to appropriately notify and support evacuations of these populations.
Traffic Control Center	Implement a traffic control center to coordinate all evacuation activities. This center would have up to the minute reports on traffic patterns and can communicate directly with the broadcast media to let drivers know about roadway congestion and conditions and direct them to alternate routes.
Traffic counters/CCTV cameras	Install counters and/or CCTV cameras to assess traffic flow, volume of vehicles evacuating, and monitor incidents.
Highway Advisory Radio	Develop communication plan to provide information regarding primary and secondary evacuation routes and incidents to the public.

Vulnerable Populations

This section identifies strategies specifically for evacuation of vulnerable populations⁴. The City can use demographic data and U.S. Census data to identify vulnerable population locations and communities. City staff and emergency response teams may work with specialized organizations such as hospitals, medical associations, public service organizations, public health staff, and other providers or community groups to identify relevant population segments and the types of assistance needed. Table 10 outlines considerations by need.

Table 10: Additional Steps for Evacuation of Vulnerable Populations

Special Need	Additional Steps/Considerations
Visually impaired	May be reluctant to leave familiar surroundings when the request for evacuation comes from a stranger. People who are blind or partially-sighted may have to depend on their guide dogs and/or others to lead them to safety.
Hearing impaired	May need to make special arrangements to receive evacuation warnings. Include visual aids such as pictures or maps to reinforce key messages
Mobility impaired	May need special assistance such as paratransit. Partner with neighboring cities/private/non-profit agencies to provide adequate paratransit services.
People without vehicles	Emphasize the importance of carpooling with neighbors or other community members. Provide information about public transit routes and services for evacuation, or other private sector transit services.
Non-English-speaking persons	Provide bilingual or multilingual materials to support communication with non-English speaking populations during evacuation.
People with medical conditions	Communicate in advance the location and availability of hospitals or facilities with emergency/life-sustaining medical equipment such as a dialysis machine
Unhoused (Homeless) population	Arrange for food, shelter, and transportation for unhoused (homeless) population. Offer age-appropriate emergency and evacuation information to homeless children.

Public Education

This section discusses the information that will be most beneficial in helping the general public preparing in advance of an evacuation. The public education process by the City should consider covering the following strategies as listed in Table 11:

⁴ *Using Highways for No-Notice Evacuations: Five Planning Considerations*, FHWA, Accessed August 2022.

Table 11: Strategies for Public Education

Strategy	Action Items
Meaning of different types of evacuation orders	Educate people of the California Standard Statewide Evacuation Terminology such as an Evacuation Order, Evacuation warning, Shelter in Place, Evacuation Order(s) Lifted, Hard Closure, Soft Closure, Resident Only Closure
Method of communicating evacuation orders to the public	<p>Tools to communicate evacuation orders include in-person events (briefings and public meetings), print media(newspapers), broadcast media (television and radio), mobiles, internet, and social media.</p> <p>The most appropriate and effective communication tool is one that reaches the target audience including people with special needs, gets timely information to the audience, delivers message reliably, and can be accessed within resource limitations</p>
Provide information on preparations to carry out in advance	<p>Encourage the creation of emergency evacuation checklists for residents which should include</p> <ul style="list-style-type: none"> • Emergency 'go' kit with water, non-perishable food items, first aid kit and prescription medicines • Cellphone, battery powered radio and flashlights • Special items for infants, elderly, or persons with disabilities • Pet supplies • Family and emergency contact information • Credit cards and cash
Creating and educating on Evacuation Maps	<ul style="list-style-type: none"> • Create static and interactive maps for the audience to know their evacuation zone, nearby emergency shelters and plan evacuation routes • Conduct public affairs campaign/events to provide information on understanding and using the evacuation maps • Highlight ADA accessible emergency public shelters and shelters closer to hospitals on the evacuation maps • Make sure the public knows outdoor assembly areas or public meeting points or temporary refuge areas in the neighborhood
Provide information on available transportation options, including for vulnerable populations	<ul style="list-style-type: none"> • Create maps showing emergency evacuation bus routes and bus stops • Establish a buddy system by assigning 2 or more neighbors to assist a person with disability during evacuation
Provide information on evacuation shelters and support services offered during evacuation	<ul style="list-style-type: none"> • Educate the public on the facilities available/to be expected from an emergency public shelter • Educate the individuals/families who choose not to evacuate on the support services that might/might not be available during the disaster

Resource Management

Evacuations are extremely resource-intensive events that require significant personnel, facilities, and equipment to implement successfully. The City should determine what resources they have available as well as what resources they will need to perform their allotted roles during an evacuation successfully, which can include the following as listed in Table 12:

Table 12: Strategies for Resource Management

Strategy	Action Items
Clarity on staff personnel's roles and expertise available	<ul style="list-style-type: none"> • Identify the public authority, e.g., city's emergency personnel, authorized to issue evacuation orders • Train staff personnel on their roles and responsibilities during an evacuation • Cross-train key individuals and develop strategies to backfill their roles
Facilities available	<ul style="list-style-type: none"> • Conduct evacuation drills with Traffic Control Center on the implementation of operating procedures, monitoring traffic congestion, coordination with other local agencies and infrastructure surveillance like maintaining emergency access or evacuation routes • Work with hospitals in the city to conduct a Hazard Vulnerability Analysis (HVA) which includes studying issues related but not limited to: <ul style="list-style-type: none"> ○ Types and volumes of supplies on hand/will they meet the need? ○ Staff availability ○ Availability of alternate sources for critical supplies/ services • Ensure gas stations keep more fuel in reserve for evacuations
Communication systems	<ul style="list-style-type: none"> • Several communication tools such as landlines, cell phones, two-way radio, and internet/email/social media can be used during an evacuation • Emergency plans by wireless providers do not always include backup power for cell towers • Landlines and two-way radio can thus be reliable and operate without external power supplies or communications infrastructure that cell phones rely on
Vehicles/transport	<ul style="list-style-type: none"> • Make separate transportation plans for evacuating schools, colleges, nursing homes, hospitals, and assisted-living communities • Determine mass transit resources or other modes of transportation (air, rail, water/boat) as appropriate to the incident • Review the transportation options and corridors for public transit in the areas at risk and identify possible alternative options • Estimate available personnel and equipment such as drivers, transit vehicles, tow-trucks, heavy equipment, traffic cones, channeling devices, static signs, etc., and fill the resource gaps where necessary
Evacuation management exercises	<ul style="list-style-type: none"> • Conduct evacuation management exercises to prepare for evacuation events and inform resource needs.

The City should review these potential strategies and conduct a needs assessment to identify what resources they have available as well as what resources they will need to perform their allotted roles, the quantity of resource required, when will the resource be required, the capability and limitations of a resource, and the cost of procuring or having the resource available. If critical resource gaps are identified,

the City is recommended to work with other evacuation entities to determine additional resources and needs. The City may also work with private sector to expand the resource base. Private service companies such as ambulance operators, and towing companies can provide additional assets during evacuation. These companies can clarify what is expected of them during a potential evacuation event to ensure their services are available, when needed.

NEXT STEPS

This memorandum describes the results of the evacuation analysis as well as evacuation planning considerations and strategies to help improve the capacity and resilience of the City's roadway network to support future evacuation events. This information will be used to frame supportive policies for the Safety Element update. These strategies and policies can be used to identify potential evacuation resiliency improvements throughout the City.