Prepared for

CITY OF OAKLAND
Department of Planning and Building

April 5, 2013

CENTRAL ESTUARY PLAN
A Vision for Oakland's Waterfront

CENTRAL ESTUARY AREA PLAN

Prepared by:

Community Design + Architecture

with

ARUP
Strategic Economics
Human Impact Partners
CirclePoint

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I. INTRODUCTION AND OVERVIEW

INTRODUCTION

PURPOSE & ROLE OF THE AREA PLAN

The City of Oakland Central Estuary Area Plan has been prepared to address issues and concerns that have arisen related to land use policy, the quality and character of new development, and the relationship of the Central Estuary shoreline with surrounding districts and neighborhoods.

This Area Plan is intended to support and enhance existing commercial and industrial businesses in the Central Estuary and to attract additional businesses and industries. The Central Estuary is a significant commercial and industrial hub for the City of Oakland, with many successful and growing businesses and industries, with clusters of specialty industries including food production, raw materials production and custom production. Many of these businesses chose to locate in the area due to its close proximity to various goods movement options, such as the I-880 freeway, active railroads for freight movement, and the waterfront for barge access. Coexisting with these vibrant business are a broad mix of housing types and regionally important waterfront open space and recreational amenities. The Central Estuary attracts business and residents with its eclectic, artistic nature, its proximity to BART, and the sense of spaciousness and calm afforded by its waterfront setting. The policies and strategies recommended in this Area Plan are intended to reinforce and enhance the Central Estuary as a commercial and industrial hub and to improve connections to the waterfront for residents of the greater Oakland area, particularly residents of the Fruitvale and East Oakland neighborhoods.

Figure I-1: Location of the Central Estuary Area Plan area within the greater San Francisco Bay

The Central Estuary Area Plan provides guidance for designated areas within the larger Central Estuary area where some land use change from existing conditions is anticipated. Concurrently with the Area Plan, new zoning will be adopted for the area consistent with direction from the Estuary Policy Plan (EPP), as well as General Plan Amendments to increase the allowable Floor Area Ratios (FARs) in most areas. In addition, the Area Plan includes a related document under separate cover that contains design guidelines and development standards for the various sub-districts.

The Central Estuary Area Plan is intended as a companion to the City of Oakland's 1999 Estuary Policy Plan (EPP). The EPP serves as part of the Oakland General Plan for pertinent areas. An "implementation guide" is called for in Policy MF-2 of the Estuary Policy Plan. The Area Plan identifies specific steps to be undertaken to implement the recommendations of the EPP. These include detailed strategies and work programs to create and implement projects, site design and development standards, funding and institutional strategies, and other administrative steps necessary to carry out EPP recommendations.

Compared to the Estuary Policy Plan, the Central Estuary Area Plan has a more focused geographic scope and is therefore more specific in nature. This Area Plan is accompanied by the Design Guidelines for the Central Estuary, both of which apply only to the Central Estuary Area.

ORGANIZATION OF THE AREA PLAN

The Central Estuary Area Plan presents recommendations related to land use, development, urban design, shoreline access, public spaces, regional circulation, and local street improvements for the Central Estuary waterfront and individual districts within it.

Section I includes introductory elements, which provide an overview and summary of the planning process, the planning area and surrounding context, as well as the vision for the Central Estuary and the goals and objectives established for implementation.

Section II describes the land use context and includes an overview of existing land uses, zoning, and General Plan designations, along with a discussion of planned land use changes and zoning and General Plan amendments.

Section III includes a review of existing transportation conditions and recommendations for near-term and long-term improvements, including an introduction to transportation policy and issues, explanation of existing and proposed streets, and the recommended roadway network improvements.

Section IV describes the existing conditions of infrastructure throughout the Central Estuary and provides recommendations for required upgrades that should occur along with new development in the area.

Appendix A provides policy-level recommendations for future transportation projects throughout the Central Estuary.

PLANNING CONTEXT

The Oakland Estuary waterfront is a significant city-wide and regional resource that connects the City of Oakland and the surrounding region to the San Francisco Bay. The Central Estuary, the focus of this study, is an area generally encompassed by 19th Ave. to the north, 54th Ave. to the south, I-880 to the east and the Oakland Estuary to the west (see Figure I-1). The landside portion of the Central Estuary area is roughly 416 acres, of which approximately 319 acres are made up of individual parcels and the remainder are public rights-of-way.

The Oakland Estuary waterfront has experienced significant development interest in recent years. However, a number of physical and policy challenges, including conflicting land use priorities and essential infrastructure deficiencies, have highlighted the need for a formal and district-wide planning process. A significant citywide challenge of the last decade has been the importance of preserving a healthy diversity of employment and industry in Oakland. Historically, many industries have depended on waterfront access for raw materials or distribution, and some of the industrial uses in the Estuary Area do to this day. As a result, the area was historically predominantly zoned for industrial use, and a number of well-established industrial uses remain. In recent years, residential development interests have focused on industrial areas throughout the City because of the relative affordability of large land parcels, and the Estuary waterfront has been particularly appealing because of its attractive views and central location. At the same time, the desire to increase public access to and recreational use of the City's waterfront adds another potentially conflicting demand on this area. The Central Estuary Area Plan (this Area Plan) is intended to address these many demands by clarifying stakeholder desires and City policy for this dynamic area.

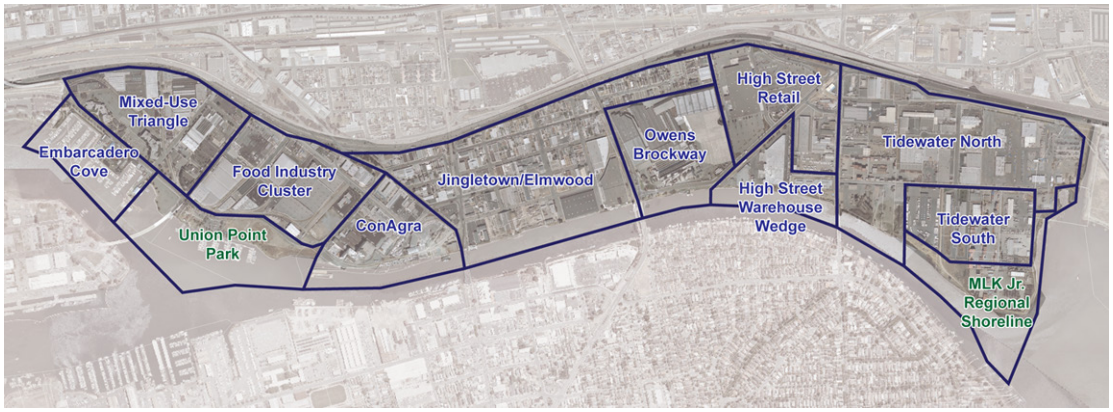


Figure I-2: The Central Estuary District is divided into ten (10) Sub-districts: (Embarcadero Cove, Mixed Use Triangle, Food Industry Cluster, ConAgra, Jingletown/Elmwood, Owens-Brockway, High Street Retail, High Street Warehouse Wedge, Tidewater North, and Tidewater South.)

Planning for the Central Estuary is further complicated by the complexity of the area, where conditions vary markedly by sub-district. For the purposes of this Area Plan, the area has been divided into 10 sub-districts, as delineated in the Sub-districts map shown in Figure I-2.

Source: CD+A, City of Oakland

EPP Land Use Designations

- General Commercial 1 (GC-1)
- Heavy Industry (HI)
- Light Industry 2 (LI-2)
- Light Industry 3 (LI-3)
- Parks
- Planned Waterfront Development 2 (PWD-2)
- Planned Waterfront Development 3 (PWD-3)
- Residential Mixed Use (RMU)
- Waterfront Commercial Recreation 2 (WCR-2)
- Estuary Policy Plan Objective SA-1: Create a clear and continuous system of public access along the Estuary shoreline

Figure I-3: Estuary Policy Plan Land Use Designations

EXISTING CITY OF OAKLAND PLANS, POLICIES AND REGULATIONS

Citywide policies, such as the City General Plan and zoning, as well as a number of other plans and studies that have focused on the Estuary area, define the potential future for the area.

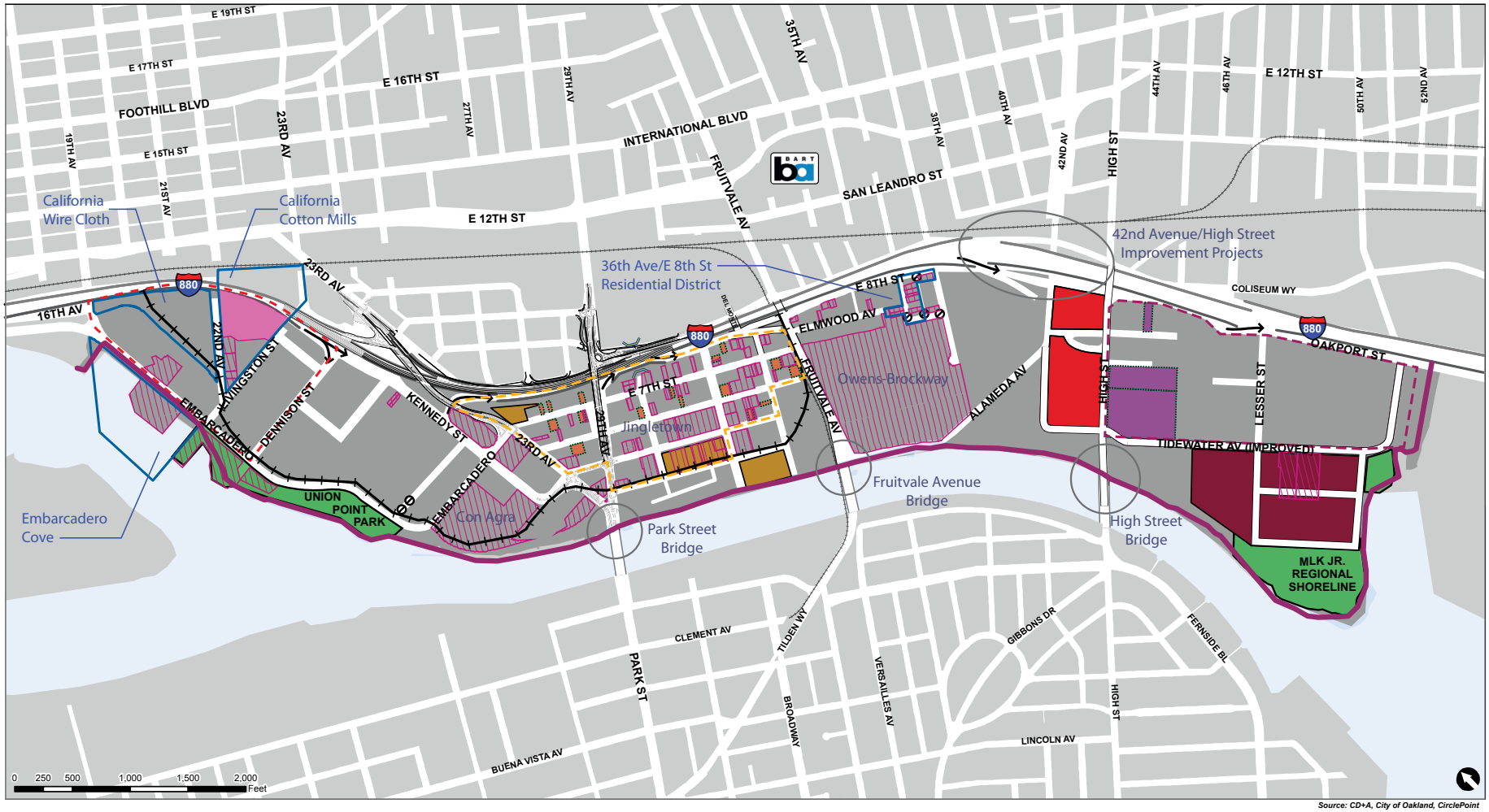
GENERAL PLAN AND ESTUARY POLICY PLAN

The **Land Use and Transportation Element (LUTE)** of the Oakland General Plan, entitled *Envision Oakland,* outlines a long-range vision for land use and transportation in the City of Oakland. Adopted in 1998, the General Plan LUTE was designed to emphasize integration of planning, economic development, and implementation, and spur a commitment to action while serving as the ongoing policy guide regarding physical development for the City. The LUTE defined a number of subsequent planning efforts that would be required to complete this process and further delineate the vision for certain areas, including the waterfront in particular. The General Plan LUTE includes policies and detail applicable the Central Estuary, most notably the recommendation for a subsequent planning effort that created the Estuary Policy Plan (see Figure I 3).

The General Plan LUTE also recommends that future residential growth in Oakland be targeted to areas with high transit connectivity (Transit Oriented Districts) and the waterfront, and suggests that land uses, densities, and transportation systems be planned to support increased development in these areas. It identifies the importance of regional commercial uses in Oakland's future, and suggests the waterfront as one opportune location for these uses. Key goals and policies address the importance of increasing public access to the waterfront and better connecting waterfront areas to the rest of the city, integration of mixed-use development with adjacent land uses, and defining the type, density, and quality of development that should be encouraged along the waterfront.

The City of Oakland's **Bicycle and Pedestrian Master Plans** provide important policy guidance for bike and pedestrian connections throughout the City. The Bicycle Master Plan includes policies and implementation measures to create safe bicycling opportunities. The Pedestrian Master Plan sets forth the policy, design standards and implementation plan to create a pedestrian friendly environment. Both of these plans contain recommendations applicable to the Central Estuary Area.

The ***Shoreline and Creeks*** section of the **Open Space and Conservation and Recreation (OSCAR) Element** of the Oakland General Plan includes policies and actions that emphasize the Jack London to High Street waterfront as an opportunity area for improved public access, recreational amenities, and land uses which capitalize on the waterfront's presence. This section recognizes two significant challenges to improving the waterfront: (1) the tenuous balance between the importance of increasing access to the waterfront without interrupting active and essential maritime uses, and (2) the challenge of creating linkages to bring the rest of the City to the waterfront. The section proposes the promotion of



Areas of Historic Sensitivity

- Areas of Secondary Importance
- Local Register of Historic Places
- Potential Designated Historic Property (PDHP)
- Likely Areas of Prehistoric and Historic Cultural Resources near Bayshore (graphic depiction is illustrative only)
- Southern Pacific Railroad Spur (Potential historic site)
- Archeologically Sensitive Areas

Potential Future Land Use

- Retail/Commercial
- Commercial-Industrial Mix
- Medium Density Res
- Parks
- Live/Work Infill Area
- LI / R&D Infill Area
- Mixed-use Infill Area
- Infill: Live/Work
- Infill: Light Industrial/R&D

Figure I-4: Cultural Resources

some beneficial waterfront uses, such as maritime industry, and coordinated waterfront planning in balance with the increased dedication of accessible shoreline.

Because of the long history of the Central Estuary as a vibrant industrial and residential district of the City, a number of policies of the **Historic Preservation Element** of the Oakland General Plan also apply to the area. The Historic Preservation Element envisions that preservation and enhancement of significant historic properties could contribute to Oakland's economy, affordable housing stock, overall image, and quality of life. Figure I-4 shows the identified cultural resources in the Central Estuary.

The General Plan LUTE established important general goals and policies for the waterfront and created a single broad land use designation, "Waterfront," which is applied to the entire Estuary waterfront, including the Central Estuary. **The Estuary Policy Plan** (EPP), adopted in June 1999, is an element of the General Plan that sets forth policies and principles to guide development in the Estuary area, refining and superseding the policy guidance for this area contained in the City's General Plan LUTE. Since the 1999 Estuary Policy Plan was adopted, two other districts included in the EPP, the Jack London District and Oak to Ninth, have undergone significant redevelopment and planning.

The Estuary Policy Plan (EPP) divided the Estuary Area into three districts: Jack London, Oak to Ninth, and 'San Antonio/Fruitvale' (since re-named the Central Estuary). The EPP also recommended nineteen unique land use designations for the Estuary Waterfront, which supersede and subdivide the broad Waterfront designation of the General Plan LUTE into more

Figure I-5: The Estuary Policy Planning Area Districts
Source: Estuary Policy Plan, 1999; Revised 2012

fine-grained land use areas. The existing EPP land use designations for the area consist of Light Industrial, Planned Waterfront Development, Residential Mixed Use, Heavy Industrial, and General Commercial and variations thereof.

Policy MF-2 of the Estuary Policy Plan included a recommendation to prepare an "implementation guide" to provide specific strategies and standards to guide the initiation and evaluation of waterfront-related projects. This document is intended to serve as that implementation guide for the Central Estuary waterfront area generally bounded by I-880, 19th and 54th Avenues.

Since the 1999 Estuary Policy Plan was adopted, the two other districts included in this planning effort, the Jack London District and Oak to Ninth, have undergone significant redevelopment and planning (see Figure I-5) The transformation of the Jack London district is well underway. The area is now home to a number of new residential, retail and mixed-use

developments, enjoys improved waterfront access, and has become a significant regional destination. Extensive planning for the Oak to Ninth district, which includes a number of industrial uses, has resulted in a formal development plan and supporting environmental documentation. The 64-acre project is envisioned as a vital pedestrian-oriented mixed-use neighborhood.

On December 9, 2008, the Oakland City Council initiated a planning process for the Central Estuary to develop a coordinated vision for the future development of the area that would address infrastructure deficiencies and conflicting land uses. This Area Plan and the related Supplemental Environmental Impact Report will provide the policy framework and for improving the area. Taken with the improvements to the Jack London District and planning for the Oak-to-Ninth District, the Area Plan for the Central Estuary District provides a critical link in transforming Oakland's waterfront into a vibrant destination for residents, visitors and businesses.

ZONING REGULATIONS

With the exception of the Housing and Business Mix (HBX-3) zone, adopted in 2006, much of the zoning for the Central Estuary, largely put in place in the 1960s, was never updated to be in conformance with the EPP land use designations. Prior to the adoption of this Plan, the existing zoning for the Central Estuary was primarily M-40, Heavy Industrial, with a small portion of M-30, General Industrial, with a designation of HBX-3, Housing and Business Mix, in the residential area known as Jingletown/ Elmwood.

The Housing and Business Mix (HBX-3) zone is intended to provide development standards for areas that have a mix of industrial, heavy commercial and higher density residential development. This zone is intended to promote housing with a strong presence of commercial and industrial activities and to allow for mixed use districts that recognize both residential and business activities.

CITYWIDE INDUSTRIAL LAND USE POLICY

As numerous areas throughout the region and the City have converted from industrial to residential use, industrial land has become both increasingly scarce and increasingly important to maintaining the city's diversity. In 2008 the City established a Citywide Industrial Land Use Policy, based on Council direction, aimed at preserving certain industrial areas and establishing a more integrated and predictable approach to the management of industrial lands in Oakland.

Both the City's Industrial Land Use Policy and the Estuary Policy Plan (EPP) provide flexible guidance on future land uses, which has resulted in conflicting opinions about how these policies might be interpreted. While the EPP suggested that many industrial areas might eventually change from industrial to other uses, such as residential or office, it also afforded the flexibility for existing industrial uses to stay and for other industrial uses to replace them. The Industrial Land Use Policy respects the prescriptions of the EPP, but the policy is structured to encourage preservation of remaining industrial lands, while calling for the development of a structured basis by which to ap-

proach decisions to allow conversions to other uses. The Central Estuary Area Plan (this Plan) is designed to develop the structured, or criteria-based, approach to making conversion decisions and to refine the EPP policies regarding which areas should remain industrial and which areas should convert to other uses, if and when the existing industrial uses depart.

In the recommendations of the Industrial Land Use Policy, the Central Estuary is divided between two different Policy Sub-Areas, 4 and 11a (see Figure I-6). Policy Sub-Area 4, which falls within the eastern portion of the Central Estuary, was identified in the Estuary Policy Plan (EPP) as moving towards industrial business park. The Industrial Land Use Policy, on the other hand, found that industrial uses on the upper part of High Street between Tidewater and the 1-880 will likely remain, as more intense uses including residential would further aggravate the existing traffic congestion at High Street and Interstate 880 caused by commuters crossing the High Street Bridge from the City of Alameda. The Industrial Land Use Policy also recommended that the Central Estuary retain the core industrial uses south of Embarcadero Cove through Jingletown/Elmwood north (Park Street Bridge), due to the importance of the area for the existing food production, warehousing and distribution sector, a strong and growing part of the Oakland industrial economy. It also cites the growing presence of craftsmen and artisans in the Jingletown/Elmwood area and their growing importance in Oakland, as well as the need for the material industries that support them.

In the final 2008 report recommending the adoption of the Industrial Land Use Policy, staff recommended that the City Council not make a recommendation about the future of the Policy Sub-Areas that falls within the Central Estuary, as this Central Estuary planning process would analyze them in depth and make recommendations regarding appropriate uses. Although the Industrial Land Use Policy was never formally adopted by City Council, it remains the City's only industrial land use guidance.

REGIONAL AND OTHER AGENCY REGULATION AND PLANNING EFFORTS

THE SAN FRANCISCO BAY TRAIL

One of the most significant current regional planning efforts, the creation of a continuous San Francisco Bay Trail, has many direct implications for the Central Estuary. The Bay Trail is intended to create not just a continuous transportation connection throughout the Bay Area, but also to provide better access to perhaps the Bay Area's greatest amenity, the San Francisco Bay waterfront. The *Oakland Waterfront Trail: Bay Trail Feasibility and Design Guidelines* (2003) includes a detailed feasibility study, site plans and design standards for development of a waterfront promenade and Bay Trail alignment along the

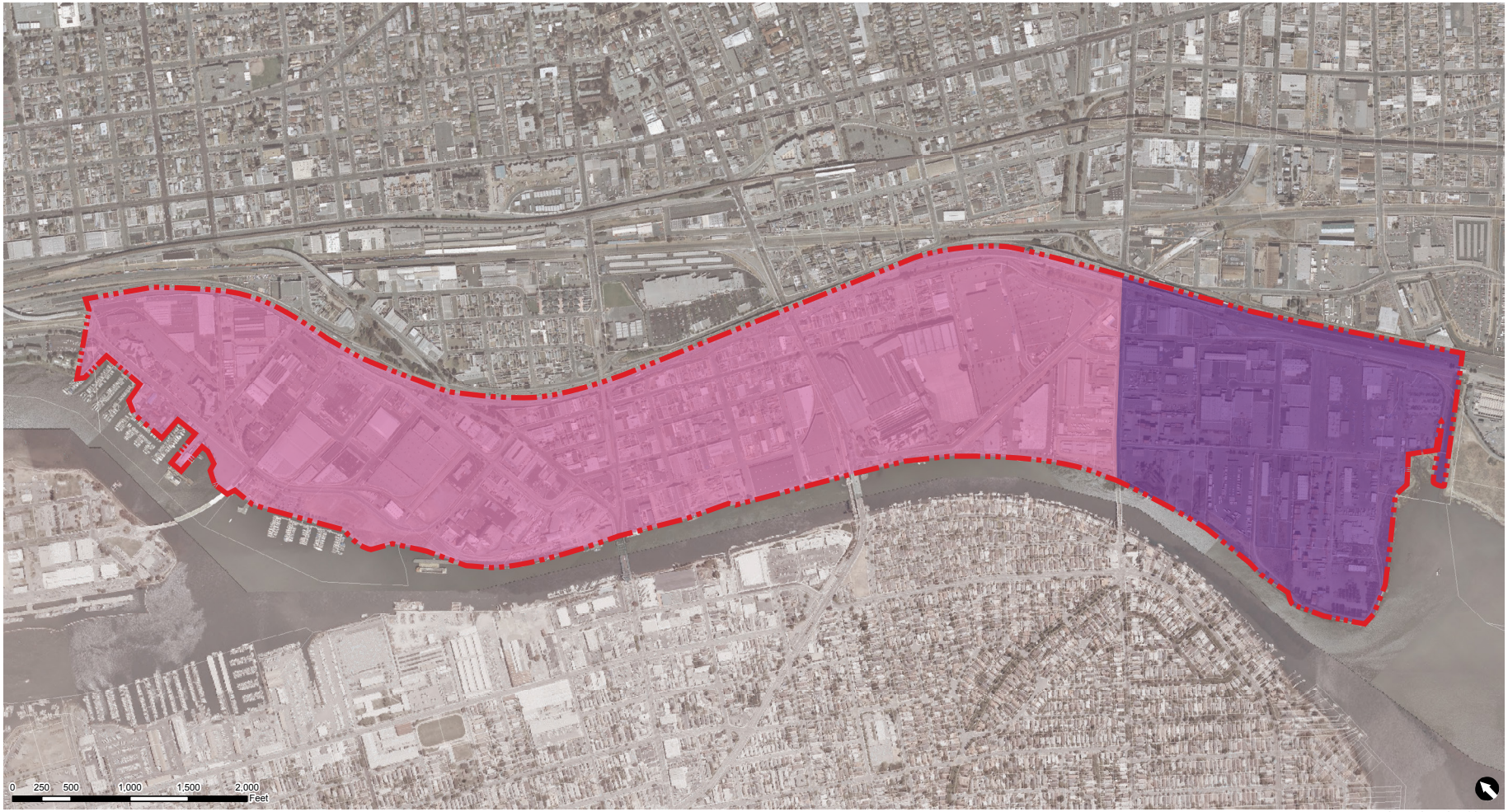


Figure I-6: Industrial Land Use Policy

Oakland Estuary shoreline. Significant resources were invested to develop and partially implement these improvements. Construction of new parks and trail connections is on-going throughout Oakland, but is particularly pronounced within the Central Estuary, as the waterfront is rapidly being transformed by new projects, as detailed under the Land Use and Urban Form chapter of this Area Plan. This Area Plan organizes and prioritizes the City's prior funding commitments to construct the Bay Trail, including Measure DD, the Oakland Trust for Clean Water and Safe Parks, a bond passed by voters in 2002 that is projected to provide $53 million in funding for activities related to the development of the Bay Trail. Bay Trail standards have been included in Chapter III of this Area Plan. Additionally, Appendix A recommends land uses and new streets that will complement and improve public access to the East Bay Regional Park District's waterfront park and boathouse at the tip of the Tidewater area.

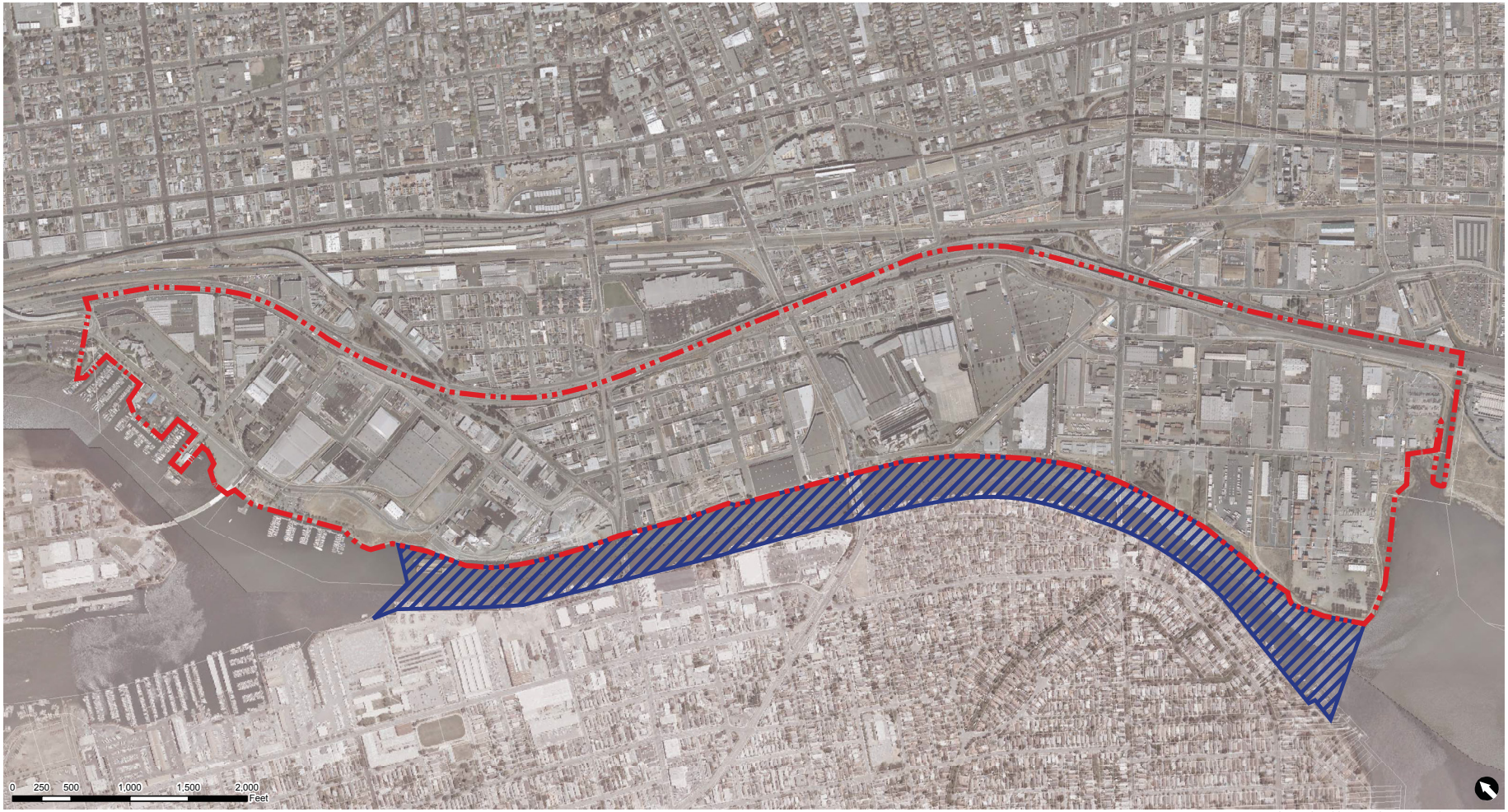
ABAG/MTC FOCUS PRIORITY DEVELOPMENT AREAS

The Central Estuary is part of the area of Oakland designated as a *Potential* Priority Development Area (PDA) as part of the regional effort led by the Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC) to promote a more compact land use pattern for the Bay Area. Potential PDAs are locally-identified, infill development opportunity areas where there is local commitment to developing more housing, along with amenities and services to meet the day-to-day needs of residents, in a pedestrian-friendly environment. Additionally, PDAs should be served by existing or planned fixed transit or comparable bus service. The City of Oakland has broadly identified all of the City's "Corridors & Station Areas" as a PDA or Potential PDA, which includes the areas within one half mile radius around the BART Stations in Oakland, and the area within one quarter mile of the major transportation corridors in and along the BART system tracks and the AC Transit routes on major arterials like San Pablo Ave., Telegraph Ave., and International Blvd. that connect to regional transportation corridors. Being designated as a PDA will allow the City to pursue various incentives offered by the regional agencies to local governments for meeting PDA goals.

MTC GOODS MOVEMENT/LAND USE PROJECT

The MTC Regional Goods Movement Study (2004) found that goods movement industries play a critical role in the Bay Area's economy. As the volume of population and business grow in the Bay Area, other land uses are displacing the infrastructure and space that the goods movement industry requires to efficiently support residents and businesses. The Goods Movement/Land Use Project (2008) followed the Goods Movement Study with more detailed analysis and recommendations about the importance of and challenges to goods movement in the Bay Area. Efficient goods movement ensures that businesses can operate efficiently, provides goods more affordably because less transport is necessary, creates a diversity of jobs, and decreases greenhouse gas emissions because goods transport is more efficient.

The Goods Movement Project found that the I-880 corridor is one of the most critical corridors for goods movement supporting business in the entire Bay Area and that its foremost challenge is the need to preserve central locations along the corridor where



Source: City of Oakland, US Army Corps of Engineers, 2006

Federal Ownership of Inner Harbor Tidal Canal (as of January 1, 2006)

Plan Area Boundary

Federally-owned Oakland Inner Harbor Tidal Canal (potentially to be transferred to Oakland and Alameda jurisdictions)

Note: The shape shown above is imprecise and does not represent exact ownership boundaries. The shape is based on low resolution maps and first-hand accounts provided by representatives of the USACE. This map should not be used for planning purposes.

Figure I-7: Federally-owned Oakland Inner Harbor Tidal Canal

land uses such as warehousing and distribution centers can support the goods movement industry. Additionally, the Project found that the "continuing viability of industrial areas along (I-880) will be enhanced where industrial operations are separated from nearby neighborhoods and commercial districts and are located in industrial districts that accommodate truck traffic and provide relatively direct access to the freeway network." In other words, the Project highlights the importance of maintaining and enhancing some of the industrial uses that have historically thrived and currently thrive in the Central Estuary Area, and that these areas need clear separation from residential and commercial areas to ensure that the specialized infrastructure and access needs can be efficiently met. The study cites the Central Estuary as important, due to its central location, but largely at risk of conversion.

ARMY CORPS OF ENGINEERS

The Oakland Inner Harbor Tidal Canal (OIHTC), which includes areas of the Estuary to the east of Coast Guard Island, is federal property governed by the United States Army Corps of Engineers (USACE) (see Figure I-7). Some additional waters of the Estuary not considered part of the OIHTC are still regulated by the USACE, though the federal government is not the owner. The USACE is responsible for overseeing, managing, developing and maintaining the nation's water and related environmental resources, including its navigable waterways. As such, any improvements to facilities that come into contact with the Estuary, such as bridges and piers, will require the cooperation of the USACE. Docks, piers and other structures abutting from private parcels along the Estuary are considered encroachments into federal property where they stretch into the OIHTC and require permits, called Section 404 Permits, and licensing from the USACE for repair, modification, or any new construction.

In August of 2007, The United States Army Corps of Engineers (USACE) notified the Bay Conservation and Development Commission (described below) of its intention to divest of its ownership and authority over the Oakland Inner Harbor Tidal Canal (OIHTC). The initial intention was that the federally owned waters would be divided into two parcels at the center of the canal and distributed to the adjacent cities of Oakland and Alameda. As of July 2009, negotiations were still underway and final resolution of this process was as yet undetermined.

BAY CONSERVATION AND DEVELOPMENT COMMISSION

Waterfront development in the Central Estuary, as throughout the Bay Area, is regulated by the San Francisco Bay Conservation and Development Commission (BCDC). BCDC is dedicated to the protection and enhancement of San Francisco Bay and to the encouragement of the Bay's responsible use, through governance of the Bay and its adjacent areas to ensure compliance with federal, State, and regional laws and policies governing the Bay. BCDC has review and permit authority over all land areas in the entire San Francisco Bay that lie within a 100-foot 'Shoreline Band.' Within the Shoreline Band, BCDC ensures that development is consistent with the *San Francisco Bay Plan* and *San Francisco Bay Area Seaport Plan,* as well as the Public Trust Doctrine. BCDC also works to improve public access to the waterfront and along the water's edge as waterfront projects are developed.

Source: Estuary Policy Plan, 1999

Agencies of Ownership

- Plan Area Boundary
- City of Oakland
- Port of Oakland
- East Bay Municipal Utility District
- East Bay Regional Park District
- Alameda County Flood Control District
- County of Alameda
- Regents of the University of California
- State of California

Figure I-8: Publicly Owned Parcels

THE PUBLIC TRUST DOCTRINE/TIDELANDS TRUST

The Public Trust Doctrine protects publicly-owned property rights in the tidal and submerged lands and navigable waters of the State on behalf of the people of California. The Doctrine, also referred to as the Tidelands Trust, is built on legal principles dating back millennia and established in the United States in the American Revolution, when states were designated the trustees of the navigable waterways within their boundaries for the common use of the people. These uses historically included water-related commerce and supporting facilities, navigation, and fishing, but have been extended to include open space, ecological preservation, scientific study, water-dependent or water-oriented recreation and facilities to serve waterfront visitors such as hotels, restaurants and parking lots. Uses that do not comply include residential, general commercial, retail that is not visitor serving, public schools or hospitals. Guidelines for compliance with the public trust include:

- The primary use must be water-dependant or water-related.
- The use must directly promote or support uses authorized by the Public Trust Doctrine and if the trust is managed by a local or regional governmental entity, be authorized by the statutory trust grant.
- The use must accommodate or enhance the statewide public's enjoyment or benefit from the trust lands, not merely provide a local or municipal public benefit.

Since 1938, the State Lands Commission, which consists of the Lieutenant Governor, State Controller and Director of Finance, has been the primary administrator of the Tidelands Trust. Agencies within the state that have jurisdiction over development or other activities that can impact public trust lands and resources are responsible for compliance. In the Bay Area, the Bay Conservation and Development Commission is the primary agency responsible for compliance, but all agencies with jurisdiction over waterfront lands, including the Port and the City of Oakland, are responsible for ensuring compliance.

PORT OF OAKLAND

The Port of Oakland is a major landowner in the Central Estuary (see Figure I-8). The Oakland City Charter gives the Port the responsibility to own, develop and manage lands along the Estuary on behalf of the California State Lands Commission under the Tidelands Trust. Through this role, the Port has the ability to plan for, permit, and manage development in parts of the Central Estuary governed by the Tidelands Trust. Specifically, the Port acts as the owner of Embarcadero Cove and areas on either side of Embarcadero to the west of Dennison Street. Also, the Port owns Union Point Park, including the Cryer Site Waterfront Park expansion; these properties are leased to the City of Oakland to provide this park.

Previous to the year 2000, the Port also had jurisdiction over much of the Central Estuary, including areas on the waterside of the Embarcadero and Glascock Street, Alameda Avenue, and nearly all of the area north and south of Tidewater Avenue. However, following the adoption of the Estuary Policy Plan, the Port transferred jurisdiction and land use authority over these areas to the City of Oakland.

OTHER PUBLIC LAND OWNERS

In addition to the Port, a number of City, Regional, and State agencies own properties in the Central Estuary. These parcels are highlighted in Figure I-8.

VISION

This Area Plan is intended to further a vision for the Central Estuary developed in previous plans and from community input. The vision statement follows:

DIVERSE AND VIBRANT MIX OF USES

The Central Estuary area has a diverse and vibrant mix of uses linked by waterfront open space. Its unique neighborhoods include artists and artisans, retail and civic uses, and businesses and industries that support the local economy and provide well-paying jobs to area residents. The land use pattern and development standards provide for appropriate integration of these diverse uses, as well as appropriate transitions between residential areas and freeways and industrial uses, creating a safe and healthy environment for residents, employees and visitors.

DESTINATION WATERFRONT

The Bay Trail and its connections create a regional and local destination, linking the area's diverse uses with continuous public open space and access along or near the waterfront. The Estuary waterfront is a focus of marine activity, boating and water recreation, with restaurants and retail uses that attract visitors and capitalize on the waterfront setting. Existing and new parks and open spaces along the Estuary include educational and interpretive opportunities and are linked to surrounding neighborhoods by open space, trails and walkable streets. Natural areas and wildlife habitat along the waterfront are preserved and enhanced.

COMPLETE, SAFE AND CLEAR TRANSPORTATION CONNECTIONS

Complete streets that provide for different modes of travel create safe, secure, attractive and comfortable pedestrian, bicycle and transit circulation within the Central Estuary area and connect across the Estuary to surrounding neighborhoods and destinations, including the City of Alameda and Fruitvale BART. Vehicular circulation for autos, trucks and railroads is safe, well connected and comprehensible.

INFRASTRUCTURE TO SUPPORT DEVELOPMENT

Improved, upgraded and well-maintained infrastructure supports both new development and the preservation and adaptive reuse of existing structures of historic value and architectural significance. New residential development is compatible with the existing neighborhood character and fosters a mix of housing options, including affordable housing. New industrial and commercial development emphasizes marine uses, food production, green technology and other industries important to the City's economy.

WATERFRONT AREA-WIDE OBJECTIVES

The following objectives and policies are a subset of those in the Estuary Policy Plan (EPP). The objectives are grouped into those that apply to the entire waterfront and those that are specific to the Central Estuary District. The objectives and policies have been amended to reflect changes in the on-the-ground conditions since adoption of the EPP, as well as to reflect the objectives discussed during the 2009 community visioning process.

LAND USE OBJECTIVES

Objectives for land use recognize the Estuary as an attractive location for development opportunities and intensification of a variety of activities. They are based on and reinforced by the objectives in the General Plan Elements addressing the Estuary waterfront (1999), Land Use & Transportation (1998), Open Space, Conservation & Recreation (OSCAR; 1996), Historic Preservation (1994) and Housing (2010).

OBJECTIVE LU-1: PROVIDE FOR A BROAD MIXTURE OF ACTIVITIES WITHIN THE ESTUARY AREA.

As the waterfront changes away from industrial, warehousing and maritime support uses, a broader range of new uses should be encouraged that are complementary with the existing uses that remain. Development should build upon the value of the waterfront as a community amenity and attraction.

A variety of uses can contribute in making the Estuary of value to Oakland's community and an attractive regional destination. A balance of uses and activities such as commercial, recreation, and residential—both traditional and non-traditional—will add to a dynamic waterfront. Additionally, innovative mixes of cultural arts, institutions, and events that entice people to experience and enjoy the waterfront in a variety of ways should be included. Measures should be established to protect against incompatibilities between diverse uses.

OBJECTIVE LU-2: PROVIDE FOR PUBLIC ACTIVITIES THAT ARE ORIENTED TO THE WATER.

The Estuary waterfront should be developed in keeping with the spirit of the public trust doctrine. This doctrine, established in constitutional law, provides certain public access rights and restrictions for waterways, tidelands, and lands created by filled waterways. The permitted uses of lands which come under the jurisdiction of the Public Trust are commerce, navigation, fisheries, ecological habitat protection, water-oriented recreation and preservation of land in its natural condition.

Oakland's waterfront includes several regions of filled land that are protected under the Public Trust. The Port of Oakland serves as trustee of these lands under authority granted by the California State Lands Commission, composed of the Lieutenant Governor, the State Controller and the Director of Finance.

OBJECTIVE LU-3: EXPAND OPPORTUNITIES AND ENHANCE THE ATTRACTIVENESS OF THE ESTUARY AS A PLACE TO LIVE.

The Estuary has been a place for people to live, with neighborhoods established close to jobs on inland sites. The mix of jobs and housing is characteristic of urban waterfront locations, and provides a precedent for modern day mixed use. It should remain so.

In the future, opportunities to develop housing, affordable to a variety of income levels, should be supported in the Estuary study area. An expanded residential population and associated services would support commercial and recreational uses, and over time generate neighborhoods. A larger day and night population would add to the safety and livability of the waterfront. Development should be designed to avoid the feeling of 'gated' or private communities.[1]

OBJECTIVE LU-4: DEVELOP THE ESTUARY AREA IN A WAY THAT ENHANCES OAKLAND'S LONG-TERM ECONOMIC DEVELOPMENT.

The waterfront has historically been, and continues to be, an important place to promote economic development and employment opportunity in Oakland.

Waterfront locations are attractive areas for businesses and commercial uses. Oakland's Estuary can accommodate a wide variety of uses which will add to the economic health and well being of the City. Opportunities range from hotels, restaurants, and entertainment venues to retail, general office space, cultural facilities, and business parks. At the same time, existing commercial and industrial uses that are already established and which also contribute to the City's tax and employment base should be encouraged to expand. These are all 'growth industries', which present the opportunity for Oakland's residents and business community to receive direct and indirect economic benefits.

Employment opportunities, the tax base, and spin-off activities should expand with the introduction of new waterfront developments. In addition, the tax revenue derived from new development will add to the ability to develop the open space and other amenities which are envisioned.

All of this economic activity will succeed in the Estuary area because of the unique business environment created by the waterfront's amenities. Strong economic links should be forged between the waterfront and the rest of the City, so that the benefits derived from waterfront development are realized in the Estuary study area and beyond.

1. See Oakland General Plan, Land Use Transportation Element, Policy W9.3.

OBJECTIVE LU-5: PROVIDE FOR THE ORDERLY TRANSFORMATION OF LAND USES WHILE ACKNOWLEDGING AND RESPECTING CULTURAL AND HISTORICAL RESOURCES.

Transformation of the Estuary should take place in an orderly fashion, incrementally, and in consideration of the long-range goals of the city.

The Estuary Policy Plan calls for changes in land use and new development projects that will be implemented over an extended time frame, within the context of a dynamic urban environment. Infill of vacant and underutilized parcels, as well as demolition or buildings adapted for reuse should occur while respecting cultural and historic resources.

The waterfront is one of the city's most historic areas. There are several districts, sites and/ or buildings of significance, which should be respected, assessed, and preserved.

OBJECTIVE LU-6: CREATE GREATER LAND USE CONTINUITY BETWEEN THE ESTUARY WATERFRONT AND ADJACENT INLAND DISTRICTS.

The historic development patterns in the Estuary study area have resulted in a unique juxtaposition of industrial, residential, and commercial uses, plus divisive transportation corridors. It is an objective of the Estuary Plan to minimize the adverse impacts associated with incompatible uses.

Currently, there is a break in the land use pattern as it meets the Estuary shoreline. Adjacent neighborhoods and districts are interrupted by transportation corridors, thus exaggerating the contrast between activities along the shoreline and those in inland areas of the city.

While the regional transportation corridors are here to stay, local-serving roadways and streets should be aligned and designed to enhance greater continuity of land use. This will allow the Estuary area to become a more integral part of the city. More specifically, Broadway, Webster, Fifth, 29th, Fruitvale, 42nd and High Streets should be assessed and carefully designed when they are reconstructed to promote clear and safe means of access from inland neighborhoods to the waterfront.

SHORELINE ACCESS & PUBLIC SPACE OBJECTIVES

Objectives for access and public spaces recognize the emerging role of the waterfront as a key place for open space and recreation within the city and region. It builds upon the objectives for public access, open space, and recreation articulated in various planning documents, most notably the Estuary Policy Plan (1999), Open Space, Conservation and Recreation Element (1996) and the Land Use and Transportation Element (1998) of the General Plan.

OBJECTIVE SA-1: CREATE A CLEAR AND CONTINUOUS SYSTEM OF PUBLIC ACCESS ALONG THE ESTUARY SHORELINE.

Provision of continuous shoreline access is an important goal embraced by both regional and local communities. Furthermore, it is a specific mission of

BCDC and ABAG's Bay Trail program, and a prime objective of the East Bay Regional Park District. In the Oakland segment, the intention is to provide a continuous system of public waterfront spaces, and to provide for a continuous open space network which connects all waterfront elements, which provides a variety of waterfront experiences.

Within the parameters of safety and security, development of public facilities should be undertaken according to site-specific standards, based on the physical capacities and programming needs of the particular site.

There is a diverse sequence of spaces along the shoreline, including the protected nature of the Lake Merritt Channel; the marshy habitat that extends to Damon Slough; the expansiveness of the Fifth Avenue Point shoreline edge; the sheltered character of the Embarcadero Cove, the Food Industry Cluster and Coast Guard Island; and the lively areas within the Jack London District. Each of these special qualities should be reflected in the design of parks, promenades, and open spaces.

General objectives for the provision/enhancement of open space and associated facilities at all locations include:

- Preservation and protection of the natural features, wildlife and vegetation;
- An easily identifiable standard sign system that can be implemented throughout the open space system, to provide directional/ orientation/interpretive information;
- Physical improvements to increase visitor comfort, safety, and pleasure (eg. separated paths, landscaping, lighting, observation pads, comfort stations, trash receptacles, furniture, emergency services, vehicular parking, etc.)

OBJECTIVE SA-2: PUNCTUATE THE SHORELINE PROMENADE WITH A SERIES OF PARKS AND LARGER OPEN SPACES.

A number of parks and larger open spaces are proposed that would build on the intrinsic character of the shoreline and provide for a wide range of recreational experiences. The intent is to create series of parks and other publicly accessible spaces, capable of accommodating a wide variety of recreational activity, connected by a shoreline promenade. These could include:

- A portion of the "Meadow" in front of the Port Building in Jack London Square;
- A new "Green" to anchor Phase 2 developments at Jack London Square;
- A new "Greenway" extending along Webster Street to connect Jack London Square to the inland neighborhoods;
- Expansion of Estuary Park;
- A series of parks in the 5th-9th Avenue area;
- A new park at Union Point; and
- Expanded and improved facilities along the MLK Regional Shoreline.

OBJECTIVE SA-3: EMPHASIZE VISUAL CORRIDORS AND OPEN SPACE LINKS TO SURROUNDING INLAND AREAS.

To make the Estuary shoreline more accessible, links to inland areas should be strengthened. Visual corridors and physical links to the water should be provided at regular intervals along the shoreline, using the grid of city streets in their full widths, to enhance the connection between inland areas and the water. In addition, the design of open spaces should promote opportunities to appreciate views and waterfront amenities from inland areas. At the same time, key corridors should be extended outward to the Estuary itself, to provide viewing experiences that are unique to the Estuary.

OBJECTIVE SA-4: DEVELOP OPPORTUNITIES FOR RECREATIONAL ACTIVITIES THAT ARE ORIENTED TO THE WATERFRONT AND SERVE IDENTIFIED NEIGHBORHOOD NEEDS.

Recreational areas along the waterfront should meet the needs of the region and the city as a whole, as well as specific adjacent neighborhoods and districts. Programming of larger recreational areas should be undertaken in conjunction with the EBRPD, neighborhood organizations and other interested parties to ensure that the recreational activities provided help to meet identified needs.

OBJECTIVE SA-5: ENHANCE NATURAL AREAS ALONG THE SHORELINE.

There are significant opportunities along the Estuary shoreline and Lake Merritt Channel to enhance remnant tidal marshes and other natural areas. These areas can add to the visual enjoyment and diversity of the shoreline, and expand wildlife habitat for birds and other species. They can also create outdoor areas for direct learning and experiences related to nature.

OBJECTIVE SA-6: ENCOURAGE THE DEVELOPMENT OF EDUCATIONAL AND CULTURAL PROGRAMS AND INTERPRETIVE FACILITIES THAT ENHANCE UNDERSTANDING OF THE WATERFRONT ENVIRONMENT.

The Estuary shoreline is an ideal site for learning about nature, the history of the city, the economic activities supporting it, and the unique recreational and leisure activities available to residents. In order to enhance public awareness and understanding of the contribution the Estuary makes to the quality of life in Oakland today, all waterfront facilities should be considered as potential visitor centers. To the extent feasible, significant historic sites and buildings should be preserved, adapted for reuse, and explained. Open space and shoreline access areas should be programmed to include educational and interpretive elements. Activities such as historic walks and self-guided tours should continue to be offered. Plaques or appropriate markers that recognize and commemorate the waterfront's history should be encouraged.[2]

2. See Oakland General Plan, OSCAR Element, OS 7.3.

To the extent feasible, significant historic sites and buildings should be preserved, adapted for re-use, and explained. Open space and shoreline access areas should be programmed to include educational and interpretive elements.

REGIONAL CIRCULATION & LOCAL STREET NETWORK OBJECTIVES

Objectives for regional circulation and local street networks recognize the importance of circulation and access to support the objectives for land use, public access and public spaces. These add specificity to a number of objectives reflected in the Estuary Policy Plan, General Plan Land Use & Transportation Element and Bicycle & Pedestrian Plan.

OBJECTIVE C-1: IMPROVE AND CLARIFY REGIONAL ACCESS TO OAKLAND'S WATERFRONT.

Interchanges along the I-880 freeway should be consolidated at arterial roadways and brought up to current standards to improve access to and within the Estuary area.

The I-980 connection to the Alameda Tubes at the Jackson Street off-ramp and the I-880 – 16th Street off ramp currently routes traffic through city streets, and should be improved to alleviate congestion on local streets and clarify access routes to Alameda and on Oakland local streets.

Improved freeway interchanges are currently under construction or planned at 23rd/29th Avenues and 42nd Avenue/High Street. These projects will improve local access and circulation and help reduce congestion on I-880. Additional improvements should be considered at 5th Avenue and Fruitvale Avenue. A new interchange should be investigated to provide direct access from I-880 to Jack London Square and downtown Oakland.

OBJECTIVE C-2: ESTABLISH A CONTINUOUS WATERFRONT ROADWAY SYSTEM; A SAFE PROMENADE FOR PEDESTRIANS, BICYCLES, AND SLOW-MOVING AUTOMOBILES.

For the most part, vehicular circulation should be accommodated on existing roadways. However, a continuous waterfront roadway system is a top priority in the Estuary Policy Plan. The waterfront roadway system should take advantage of the Embarcadero right-of-way, extending from Jack London Square to Park Street.

Beyond Park Street, it may be necessary to purchase additional right-of-way to allow the waterfront roadway system to be connected through to Fruitvale Avenue and beyond to Tidewater Avenue and 66th Street.

West of Oak Street, the waterfront roadway system should meet the city grid, providing several routes west to Mandela Parkway.

The configuration and cross-sectional character of the waterfront roadway system will likely vary, depending on availability of right-of-way, adjoining land uses, and traffic conditions. All waterfront roads should treated

with appropriate landscaping, lighting, signage, rest/overview areas, and, where appropriate, parking, and other features which provide a continuous character for pleasant driving, walking, and cycling. Waterfront roads should be slow-moving, and accompanied by separate or contiguous bicycling and pedestrian paths where feasible.

OBJECTIVE C-3: BALANCE THROUGH MOVEMENT WITH LOCAL ACCESS ALONG THE WATERFRONT.

In many urban waterfronts, shoreline transportation corridors have been allowed to become freeway-like environments, providing through movement at the expense of local access. The concept of the waterfront roadway system, described above, aims to properly balance local access with through movement.

Traffic-calming methods should be incorporated into roadway design throughout the study area, to ensure that vehicular movement is managed in consideration of recreational and aesthetic values. The waterfront roadway system should not become an overflow or alleviator route to the I- 880 freeway; however, it will remain part of the City's heavyweight truck route.

OBJECTIVE C-4: STRENGTHEN LOCAL CIRCULATION CONNECTIONS BETWEEN OAKLAND NEIGHBORHOODS AND THE WATERFRONT.

With anticipated improvements to the regional transportation system, better connections can be made between the waterfront and inland neighborhoods.

Specifically, emphasis should be placed on improving those connections which already exist: Washington, Broadway, Webster, Franklin, Oak, 5th, 16th, 23rd, 29th Avenues, Fruitvale and High Streets. These links can be strengthened through alterations of street alignments or extensions of existing roadways, relocating parking areas, and improving pedestrian facilities.

OBJECTIVE C-5: PROMOTE TRANSIT SERVICE TO AND ALONG THE WATERFRONT.

Land and water-based transit services should be extended to and along the waterfront. Transit services should be focused along Broadway, Washington, Franklin, Third, and Fruitvale.

A special transit loop linking Jack London Square with other significant activity centers (eg., Old Oakland, the Oakland Museum, and the Lake Merritt and City Center BART stations), should also be encouraged. High capacity transit service between Fruitvale BART and Alameda should be studied further.

Redevelopment on both the Oakland and Alameda sides of the Estuary may, in the future, warrant increased ferry and water taxi service. Water taxis can link activity centers on both sides of the Estuary, transforming the waterway into a viable boulevard that brings together the Oakland and Alameda waterfronts.

OBJECTIVE C-6: IMPROVE PEDESTRIAN AND BICYCLE CIRCULATION.

Bicycle and pedestrian networks should be extended throughout the waterfront. By enhancing the Embarcadero and the streets parallel to the waterfront, a continuous pedestrian path and bicycle route can be established along the waterfront. Links from the waterfront roadway system to upland neighborhoods are proposed along connecting routes, including Oak, Lake Merritt Channel, 2nd Street to 3rd Street, Fifth Street and Fifth Ave, Fruitvale, and Alameda Avenue to High Street, as well as the grid of streets in the Jack London District.

OBJECTIVE C-7: PROVIDE ADEQUATE PARKING WITHOUT DIMINISHING THE QUALITY OF THE URBAN ENVIRONMENT.

In the Jack London District in particular, provision of adequate parking is critical to accommodate both existing and future demands. Several sites currently used for surface parking are subject to future development. In addition, parked vehicles are 'spilling over' into pedestrian areas, to the detriment of the District's attractiveness. To resolve this, a comprehensive parking management strategy should be developed to plan for and provide adequate parking.

CENTRAL ESTUARY AREA POLICIES

LAND USE

The Estuary Policy Plan's land use policies for the Central Estuary are intended to establish a more compatible pattern of land uses that supports economic development, and at the same time enhance neighborhood amenities. The waterfront is a feature which binds disparate activities and provides a destination within these neighborhoods. Land use policies reinforce access to the waterfront, while promoting opportunities for neighborhood preservation and enhancement. Emphasis should be put on the reuse of existing structures of historic value and architectural significance.

For ease of discussion, the Central Estuary District has been subdivided into 10 sub-districts. Land use policies for the Central Estuary sub-districts are presented as follows:

EMBARCADERO COVE

POLICY CE-1: ENCOURAGE THE DEVELOPMENT OF WATER-ORIENTED COMMERCIAL USES WITHIN EMBARCADERO COVE.

Embarcadero Cove is bounded by the Ninth Avenue Terminal on the west, the Livingston Street pier on the east, and the Embarcadero. It is defined by the unique geography of a small bay, with an indented shoreline tracing a broad arc which surrounds Coast Guard Island. The combination of its distinctive shape and proximity to the freeway results in a very narrow and constricted shoreline, which averages about 200 feet in width to the Embarcadero. The narrow shoreline provides an opportunity for views to the water; this is the only area along the Estuary where the water can be seen from the freeway.

This is a highly visible portion of the waterfront, but it is narrow and constrained by the close proximity of the I-880 freeway. The waterfront orientation and constrained parcel depth make this area well suited for continued commercial-recreational and water-dependent uses.

New commercial uses within this sub-district should build upon the existing character and create connections to the water's edge. Improvements that maximize accessibility and visibility of the shoreline should be incorporated into new development through boardwalks, walkways and points of public access.

FOOD INDUSTRY CLUSTER

POLICY CE-2: MAINTAIN THE INDUSTRIAL CHARACTER AND ROLE OF THE FOOD INDUSTRY CLUSTER AS A PLACE FOR FOOD PROCESSING AND MANUFACTURING, AND RETAIN LIGHT INDUSTRIAL USES.

The Food Industry Cluster comprises the area south of Dennison Street and inland of Union Point Park, extending to East 7th Street. This area is generally characterized by light industrial and service uses, and larger scale food processing and food warehousing/distribution operations.

Food processing is a major source of employment in this portion of the waterfront, with some 450 individuals many in skilled positions. Within Oakland, relatively few sectors, particularly in new small to mid-sized companies, have generated a comparable level of employment. Significant activity is continuing within this sector of the economy, particularly in the area of niche/specialty markets.

The Food Industry Cluster is a place where manufacturing and food processing/distribution should be encouraged, both for incubator businesses as well as for established and growing concerns. While food processing and manufacturing/distribution continue to dominate uses within the area, existing light industrial uses should be maintained as well.

MIXED-USE TRIANGLE

POLICY CE-2.1: ENCOURAGE DEVELOPMENT OF COMPATIBLE INFILL OFFICE, SUPPORT COMMERCIAL, MULTI-FAMILY RESIDENTIAL, INSTITUTIONAL, AND LIGHT MANUFACTURING USES.

The Mixed-Use Triangle, bounded by the Embarcadero, Dennison Street and Highway 880, includes a mix of uses: offices housed in both mid-size 1970s buildings and remodeled Victorian-style houses, restaurants, artist studios, educational, office, and commercial uses. North of Dennison and along the waterfront, the pattern of land uses is relatively fine-grained, with some older structures and smaller increments of development oriented to the street. Additional adaptive reuse, and new educational, office and commercial uses should be encouraged, as well as multi-family residential and work/live units, where these uses would not create land use conflicts with existing industrial activities.

CON AGRA

POLICY CE-3: ALLOW HEAVY INDUSTRY IN THE VICINITY OF THE CON-AGRA PLANT TO CONTINUE, WHILE PROVIDING FOR THE TRANSITION TO A MIX OF NEW USES.

A portion of the Central Estuary District located between Diesel and the Park Street Bridge and south of 29th Street, is an area that is primarily in heavy industrial use.

It is dominated by the 11-acre Con-Agra facility, which mills grain for flour that in distributed throughout the Bay area and Northern California.

Cemex and Star Marine are two other large operators immediately adjacent to the Con-Agra facility.

While the area historically attracted construction-related uses because of barge access via the Estuary, these business operations remain in the area today largely because of its central location and good freeway accessibility, and because of investments in existing facilities. Nevertheless, Con-Agra has its own pier, and other companies maintain direct water access that could be used again if economic and market conditions change.

It is recognized, however, that market forces may go in a different direction as well, making these sites functionally obsolete and difficult to maintain. If this comes about, the City should be prepared to promote new uses for these valuable waterfront sites.

The area surrounding and including Con-Agra has long been in heavy industrial use related to the agricultural/food and construction/transportation sectors of the economy. It is not the intention of the *Estuary Policy Plan* to suggest displacement of these activities. Above all, this policy is intended to convey the importance of maintaining these labor-intensive industrial operations for as long as it is feasible for them to stay.

However, it is also recognized that some of these companies may wish to relocate on their own accord. In that event, new uses should be encouraged that build on the unique qualities of the waterfront location and promote public access to the Estuary shore and transportation access through the site.

CE-3.1: INITIATE MORE SPECIFIC PLANNING OF THE ENTIRE CON-AGRA AREA, IF AND WHEN INDUSTRIAL USES PHASE OUT OF THE AREA.

The Con-Agra reach of the waterfront, although composed of different businesses and ownerships, should be planned as an integral unit to create the most positive effect and the optimal relationship with the Estuary.

Planning should be based on the need to gradually transform the uses and intensities from heavy industrial to a mixture of commercial, light industrial, and residential uses. It should account for the need to maintain the operations of these businesses while planning and redevelopment activities are underway. Future development planning should incorporate the following principles:

CE-3.2: REDEVELOP THE AREA WITH A MIXTURE OF WATERFRONT-ORIENTED RESIDENTIAL AND/OR COMMERCIAL ACTIVITIES, WHICH ARE COMPATIBLE WITH THE SCALE AND CHARACTER OF SURROUNDING AREAS.

New uses that are compatible with the public nature of the waterfront and with the adjacent Jingletown/Elmwood residential neighborhood should be encouraged in this area, if and when industrial uses phase out.

Specific land uses which should be encouraged include residential, retail, restaurant, office, research and development, and light industrial uses that are configured to complement the waterfront orientation of the site.

New uses should be developed in a manner consistent with the surrounding character and scale of the area. Building mass, height, and all other design aspects should be subject to standards developed in conjunction with the preparation of a more specific development plan. Parking should be screened from view or contained within new buildings.

CE-3.3: PROVIDE FOR STRONG LINKS TO SURROUNDING AREAS, AND ORIENT NEW DEVELOPMENT TO THE WATER.

Development should be configured to provide at least two points of public access to the shoreline, and view corridors from Kennedy Street to the Estuary.

A publicly accessible and continuous waterfront open space should be developed along the shoreline. This open space should also be visible and accessible from Kennedy Street and if possible consider bicycle/pedestrian connection to the City of Alameda.

JINGLETOWN/ELMWOOD

POLICY CE-4: ENCOURAGE PRESERVATION AND EXPANSION OF THE AFFORDABLE RESIDENTIAL NEIGHBORHOOD IN THE JINGLETOWN/ELMWOOD SUB-DISTRICT.

The Jingletown/Elmwood neighborhood is a unique sub-district within the Central Estuary. It is a remnant of a once-more-cohesive urban neighborhood extending from Oakland into Alameda. Today, the area is predominantly occupied by a mix of residential, warehousing and service-oriented uses.

With recent development and new Bay Trail connections, waterfront access and visibility has increased significantly. The new lofts and condominium developments on Glascock Street include Bay Trail segments and access points, and a Bay Trail segment has been completed adjacent to the Oakland Museum Women's Board White Elephant warehouse. The Derby and Lancaster Street overlooks have also been improved.

Currently, there are several hundred housing units within the Jingletown/Elmwood, including work/live spaces in renovated warehouses as well as single-family bungalows, houses and more recently developed multi-family housing. In addition to this residential

development, there are a number of smaller scale industrial and commercial uses, creating a one-of-a-kind neighborhood.

The housing that exists in this area should be maintained, reinforced and promoted, despite the preponderance of non-residential uses. Special efforts should be undertaken to reinforce the integrity of the residential history of the sub-district.

CE-4.1: PROVIDE FOR A MIXTURE OF COMPATIBLE USES WITH EMPHASIS ON A VARIETY OF AFFORDABLE HOUSING TYPES, WHILE MAINTAINING THE AREA'S CHARACTER OF SMALL SCALE BUILDINGS.

A mixture of residential, work/live, light industrial and neighborhood-serving uses should be maintained in the future, with an emphasis on affordability, livability, and an enhanced relationship with the Estuary.

To maintain the attractive, small-scale character of the area, buildings should be constructed to complement the existing scale and massing of existing sites. Parcel size should not exceed the predominant pattern of existing parcels.

OWENS-BROCKWAY

POLICY CE-5: ALLOW THE EXISTING INDUSTRIAL USE OF THE OWENS-BROCKWAY SITE.

The Owens-Brockway site consists of approximately 28 acres of land devoted entirely to the business of glass recycling and manufacturing. These operations are expected to remain viable for the foreseeable future.

The company should be supported and encouraged to remain and expand.

CE-5.1: IMPROVE THE COMPATIBILITY BETWEEN INDUSTRIAL AND RESIDENTIAL USES, AND ENHANCE THE RELATIONSHIP OF THE OWENS-BROCKWAY PLANT WITH THE WATERFRONT.

Improvements along the edges of the Owens-Brockway plant should be undertaken to establish a more positive relationship with surrounding uses, including the neighborhood and the waterfront.

More specifically, a landscaped street edge on Fruitvale Avenue and Alameda Avenue should be developed to create a more attractive public environment around the plant. Measures such as landscape sound barriers should be investigated to reduce noise and visual conflicts with single-family houses along Elmwood Avenue.

HIGH STREET RETAIL AREA AND WAREHOUSE WEDGE

POLICY CE-6: ENCOURAGE THE REUSE OF EXISTING WAREHOUSE PROPERTIES SOUTH OF ALAMEDA AVENUE AND WEST OF HIGH STREET FOR HIGH-QUALITY RETAIL USES THAT COMPLEMENT ADJACENT COMMERCIAL USES.

The Home Depot, on a former cannery site, is a major presence within this sub-district, benefiting from its proximity to and visibility from the freeway and accessibility to the nearby populations in Oakland and Alameda.

On the east side of Alameda Avenue, the Brinks warehouse and a cluster of small-scale light industrial uses and warehouses are located along the Estuary, impeding public access opportunities. While Bay Trail segments have been completed along some of these uses, a portion of the waterfront remains inaccessible. Public access opportunities should be pursued over time along the shoreline.

CE-6.1: PROVIDE FOR NEW COMMERCIAL ACTIVITIES ADJACENT TO THE 42ND STREET INTERCHANGE.

At the 42nd Street interchange, there is the opportunity for the expansion and development of new commercial activities that are oriented to both regional and local markets. Commercial development and intensification of this area should be pursued.

Specific uses that should be encouraged in this area include region-serving retail, office, general commercial, and light industrial. Street-facing retail uses along High Street, and landscaping and streetscape improvements should be incorporated into all new development, subject to development standards and design guidelines developed for the Central Estuary Area.

TIDEWATER

POLICY CE-7: NORTH OF TIDEWATER AVENUE, MAINTAIN EXISTING VIABLE INDUSTRIAL AND SERVICE-ORIENTED USES, AND ENCOURAGE THE INTENSIFICATION OF UNDERUTILIZED AND VACANT PROPERTIES.

This portion of the Central Estuary District functions as a service support area, with links to the adjacent Coliseum area. It supports a number of different types of uses, including wholesale and retail businesses, container storage, and smaller industrial uses. In addition, Pacific Gas & Electric (PG&E) and East Bay Municipal Utility District (EBMUD) have service facilities within this area.

In areas north of Tidewater Avenue, current uses and activities should be maintained and encouraged. However, there are opportunities to intensify underutilized sites, now used for equipment and container storage.

These sites should be targeted for redevelopment as industrial and service-oriented uses, which would contribute to the overall viability of the area.

CE-7.1: SOUTH OF TIDEWATER AVENUE, PROVIDE FOR CONTINUED INDUSTRIAL USE, BUT ALSO ENCOURAGE NEW RESEARCH AND DEVELOPMENT AND LIGHT INDUSTRIAL ACTIVITIES WHICH ARE COMPATIBLE WITH THE ADJACENT EBMUD OAKPORT FACILITY AND EBRPD'S MARTIN LUTHER KING JR. REGIONAL SHORELINE PARK.

Economic development objectives for this sub-district can be realized by deemphasizing service, storage and heavy industry and focusing more on employment-intensive uses that are more complementary with the public nature of the waterfront.

This area is unique in that it adjoins Martin Luther King Jr. Regional Shoreline, one of the larger assemblies of waterfront open space within the Estuary. The East Bay Regional Parks District (EBRPD) continues to develop the MLK Regional Shoreline adjacent to and along both sides of East Creek, including the Tidewater Boating Center completed in 2011. EBRPD's parks and open spaces represent a valuable resource for the city—one that should be reinforced appropriately by adjacent development.

At the same time, the nearby Oakport Facility is EBMUD's primary infrastructure support base and maintenance center, serving the Estuary area and the city as a whole.

Successful development will require an effort to balance competing objectives brought about by the proximity of the sites to regional park and utility facilities. (See Policy CE-7.2)

CE-7.2: INITIATE MORE SPECIFIC PLANNING OF THE AREA SOUTH OF TIDEWATER AVENUE.

The area east of High Street and South of Tidewater Avenue should be comprehensively planned to ensure that all objectives are met. With the preparation of an Area Plan for the Central Estuary, this goal of the Estuary Policy Plan to plan for the area east of High Street and south of Tidewater Avenue has been achieved.

Planning for the area south of Tidewater has been based on the need to infuse the area with a more intense mix of office, R&D, commercial, and light industrial uses. It accounts for East Bay Municipal Utility District's (EBMUD's) expansion needs, and takes special consideration of East Bay Regional Park District's (EBRPD's) plans for MLK Regional Shoreline Park, and the Bay Conservation Development Commission's (BCDC's) 100' shoreline band, which will require that the shoreline be used for recreational purposes.

As this area redevelops, publicly accessible open space should be created with an emphasis on educational and interpretive experiences, including wildlife habitat in lowland or marshy areas and the development of recreation facilities in the uplands.

SHORELINE ACCESS AND PUBLIC SPACES

Compared to other areas of the Estuary, the Central Estuary District appears to have a relatively large supply of open space. Although there are several opportunities to approach and enjoy the shoreline, much of the existing open space is not highly utilized, relates poorly to its surroundings, and is generally fragmented and discontinuous.

The Martin Luther King, Jr. Regional Shoreline, which occupies approximately 22 acres north of Damon Slough, is a regional facility which is the primary waterfront recreational asset in the area. The Bay Trail, which is planned to ultimately connect around the entire bay shoreline, enters the study area at 66th Avenue, but abruptly ends approximately 7,000 feet westward. At the western end of the Central Estuary District, within Embarcadero Cove, there is a series of small public access improvements that were built as part of development projects, but these are also very limited in extent.

The access and open space policies for this district emphasize the continuation of a cohesive and interrelated waterfront system advocated by the previous chapters of this plan.

POLICY CE-8: DEVELOP A CONTINUOUSLY ACCESSIBLE SHORELINE, EXTENDING FROM NINTH AVENUE TO DAMON SLOUGH.

A continuous system of public open space and connecting networks to inland areas should be completed within this reach of the Estuary, extending from Ninth Avenue to Damon Slough. The system should link the Martin Luther King Jr. Regional Shoreline with the other elements of the waterfront system of open spaces proposed by this plan.

CE-8.1: EXTEND THE BAY TRAIL FROM EMBARCADERO COVE.

The Bay Trail should be incorporated as part of the continuous open space system along the water's edge. Gaps in the trail should be filled in, so as to achieve the continuity of the trail and provide better bicycle/pedestrian access to the expanded MLK Shoreline (See Policy CE-8.3).

While the developed portion of the Bay Trail currently combines both pedestrian and bicycle movement, it is recommended that separate bicycle and pedestrian paths be developed in other areas, with the pedestrian movement adjacent to the shoreline edge and the bicycle lane on the inland side of the open space. At each of the bridges, special provisions should be made to ensure continuity along the shoreline.

CE-8.2: DEVELOP A MAJOR NEW PUBLIC PARK AT UNION POINT.

With the construction of Union Point Park in 2005, this objective of the Estuary Policy Plan to develop a new park between Dennison Street and the existing Con-Agra facility, south of the Embarcadero at Union Point, has been met. The nine-acre Union Point Park is intended to serve the adjacent neighborhoods, as well as provide an important citywide amenity along the Estuary.

The design of the park provides for flexible use, including passive recreational activities as well as field sports and activities that take advantage of the water. A continuous pedestrian promenade is provided along the shoreline edge. A Class I or II bicycle path is incorporated within the park, where it can be separated form the Embarcadero. (See Policy CE-9).

CE-8.3: EXTEND THE MARTIN LUTHER KING, JR. REGIONAL SHORELINE.

The MLK Regional Shoreline should be extended from High Street to Damon Slough. Within this area, the existing public open space between the East Creek and Damon sloughs should be expanded westward to include existing industrial properties owned by EBRPD.

EBRPD's planning objectives identify this portion of the Estuary as an important component of the regional shoreline park system, as well as a potential open space resource for the adjacent Central East Oakland and Coliseum neighborhoods. It should be designed to preserve the significant wetlands between the Damon and East Creek sloughs. In addition, extending Tidewater Avenue across the East Creek Slough to the 66th Avenue interchange would significantly improve visibility and accessibility to the park. Recommended regional circulation and local street improvements are illustrated in Figure A-1 in Appendix A.

Areas on the shoreline side of the railroad tracks should be subject to a planning effort, coordinated among the City of Oakland, EBMUD, and the EBRPD, to address EBMUD expansion needs and the extension of the shoreline park. (See Policy CE-7.2).

REGIONAL CIRCULATION & LOCAL STREET IMPROVEMENTS

Objectives for regional circulation and local street networks recognize the importance of circulation and access to support the objectives for land use, public access and public spaces. These add specificity to a number of objectives reflected in the Estuary Policy Plan, General Plan Land Use & Transportation Element and the Bicycle & Pedestrian Master Plan. Recommended regional circulation and local street improvements are illustrated in Figure A-1 in Appendix A.

POLICY CE-9: PROVIDE FOR CONTINUOUS STREET CONNECTIONS FROM NINTH AVENUE TO DAMON SLOUGH.

Consistent with the Central Estuary Area Plan Appendix A, Recommendations for Future Transportation Projects, as individual properties are redeveloped, continuous street connections should be developed to parallel the entire shoreline; ultimately extending from Broadway to 66th Avenue. In the Central Estuary, the Embarcadero should be upgraded between Ninth Avenue and Kennedy Street, and Ford Street should be extended via a new right-of-way to connect to Fruitvale Avenue. If the Owens Brockway site is redeveloped, one or more street connections between Fruitvale Avenue and High Street should be created, with at least one new street connecting directly to Tidewater Avenue.

The proposed street connection points (see Appendix A) are illustrative only. Specific alignments (and their potential impacts on adjacent property owners) should be evaluated through a coordinated planning effort involving property owners, the City of Oakland, and the Port.

The streets adjacent to or paralleling the waterfront should provide access to the diverse waterfront experiences that exist in the Central Estuary. They should be designed to promote slow-moving vehicular access to the waterfront, and provide continuous sidewalks. They should not be designed as through-movement traffic carriers, or frontage-road relievers for I-880.

In addition, traffic management programs should be developed to protect the Jingletown/Elmwood neighborhood against unnecessary truck traffic.

CE-9.1: PROVIDE A CONTINUOUS BIKEWAY FROM NINTH AVENUE TO DAMON SLOUGH.

The Bay Trail should be extended and completed in this reach. Also, as streets are created or improved, provisions should be made to accommodate a continuous pedestrian trail and bikeway paralleling the shoreline.

A bikeway should be extended along the shoreline, ultimately connecting to the existing trail system in the MLK Regional Shoreline.

POLICY CE-10: WORK WITH CALTRANS, BART, AND OTHER TRANSPORTATION AGENCIES TO UPGRADE CONNECTING ROUTES BETWEEN INLAND NEIGHBORHOODS, I-880, AND LOCAL STREETS, TO ENHANCE EAST OAKLAND ACCESS TO THE WATERFRONT.

This segment of the I-880 freeway, between 66th Avenue and Oak Street, is substandard, with partial interchanges spaced at random intervals. Freeway on and off-ramps are difficult to find, and have no strong relationship with arterial roadways. As part of the I-880 Corridor Improvement Project, some freeway ramps are being reconfigured to improve operations and reduce impacts on adjacent neighborhoods.

As part of future projects, the freeway ramps should be modified in a manner that complements and reinforces the land use and open space objectives for the area and provides a more legible circulation system. All should

be investigated with Caltrans, to test the feasibility of redesigning the interchanges, and to insure that local access needs are also being addressed in Caltrans' upgrade efforts.

CE-10.1: IF FEASIBLE, CONSTRUCT A NEW FULL-MOVEMENT INTERCHANGE AT 23RD AVENUE, WITH DIRECT LINKAGES TO THE PARK AVENUE BRIDGE.

The upcoming I-880 Operational and Safety Improvements at 29th/23rd Avenue project will replace the existing overcrossings at both 23rd and 29th Avenues, and reconfigure the on and off-ramps serving northbound I-880. While this project does not create a full-movement interchange at 23rd Avenue, the project will provide various local circulation and safety benefits and will reduce congestion on I-880 by improving the spacing of freeway ramps.

CE-10.2: IF FEASIBLE, CONSTRUCT AN URBAN DIAMOND INTERCHANGE AT 42ND AVENUE, WITH FRONTAGE ROAD CONNECTIONS TO FRUITVALE.

With the seismic upgrade of the I-880 bridge over High Street that has created an urban diamond interchange with two new at-grade intersections at 42nd Avenue and frontage roads connecting to High Street, this goal has been partially met. The southbound off-ramp to Fruitvale Avenue remains. No extension of the frontage roads north from 42nd Avenue to Fruitvale Avenue is currently planned, but could be pursued in the future. The current project involves the extension of 42nd Avenue south, connecting to Alameda Avenue.

CE-10.3: ENHANCE 29TH AVENUE AS A LOCAL CONNECTING STREET.

The planned project to reconstruct the overcrossings at 23rd and 29th Avenues will utilize 29th Avenue as a partial freeway interchange. The new overcrossing at 29th Avenue will consist of three travel lanes, include wider sidewalks, and feature an off-ramp that will serve northbound traffic exiting I-880. The off-ramp will terminate at a new intersection on the overcrossing. The existing northbound off-ramp to East 8th Street/East 9th Street will be closed when the new off-ramp is constructed. This will improve circulation and reduce through traffic on local streets. The existing southbound on-ramp from 29th Avenue on the west side of the freeway will remain in operation. While 29th Avenue will still serve as a partial freeway interchange, the new overcrossing and ramp configuration will have local benefits.

CE-10.4: IMPROVE THE FRUITVALE AVENUE CORRIDOR AS A PEDESTRIAN AND TRANSIT LINK BETWEEN THE WATERFRONT AND THE FRUITVALE BART TRANSIT VILLAGE.

As industries that require rail spur access relocate or convert entirely to trucking, the existing rail corridor along Fruitvale Avenue should be converted to provide stronger pedestrian, transit or bicycle links between the Fruitvale BART transit village and the waterfront. In addition, the existing rail bridge parallel with the Fruitvale Avenue Bridge to Alameda should be investigated for transit and pedestrian/bicycle use.

The Fruitvale Avenue corridor should be improved to accommodate and enhance pedestrian circulation along both sides of the street. Class II bicycle lanes should be provided along Fruitvale Avenue to the waterfront and BART. The potential for high-capacity transit service connecting Alameda and the Estuary with BART service should also be considered.

CE-10.5: ENHANCE HIGH STREET AS A LOCAL CONNECTING STREET.

High Street should be enhanced with improved pedestrian and bicycle facilities. As part of redevelopment of the area south of I-880, pedestrian and bicycle facilities should also be extended along High Street to the shoreline trail and bridge to Alameda.

CE-10.6: IF FEASIBLE, CONSTRUCT A NEW CONNECTION BRIDGE AROUND 50TH AVENUE.

The new bridge would cross I-880 and provide a waterfront connection between the east-side neighborhoods and the estuary area.

II. LAND USE

Once a predominantly industrial waterfront, the Central Estuary area today has evolved into a more mixed-use group of unique districts. Although commercial and industrial uses occupy a significant amount of acreage in the Central Estuary area, residential neighborhoods continue to expand. Over the years, the development of work/live housing and artist studio space has been introduced into traditional commercial manufacturing and industrial areas, resulting in increasing diversity of uses, form, and character throughout the Central Estuary, a trend which is expected to continue.

SUBAREAS CONTEXT

This section of the Area Plan includes a summary of existing land uses within the four Subareas (groupings of sub-districts) in the Central Estuary, and goes on to identify the locations where land use policy changes are recommended to support the above-discussed goals and objectives established for future development throughout the area (see Figure II-1 for the 10 sub-districts grouped into subareas). This section closes with a discussion of the tools to implement land use policy changes, including updating General Plan designations and creating new zoning districts.

WEST SUBAREA

The West Subarea contains the following sub-districts: Embarcadero Cove, Mixed Use Triangle, Food Industry Cluster and ConAgra.

Existing land uses in the portion of the Central Estuary west of 23rd Avenue include a mix of well-established industrial uses and warehouses, more recent commercial activities and a sizeable waterfront park (see Figure II-2).

Embarcadero Cove, at the western end of the Central Estuary, currently includes a number of commercial and recreational uses, predominantly oriented to the waterfront. Among these are office spaces, commercial retail and services including Port of Oakland-owned offices and Quinn's Lighthouse. There are also a number of marine activity-related facilities as shown in Figure II-3.

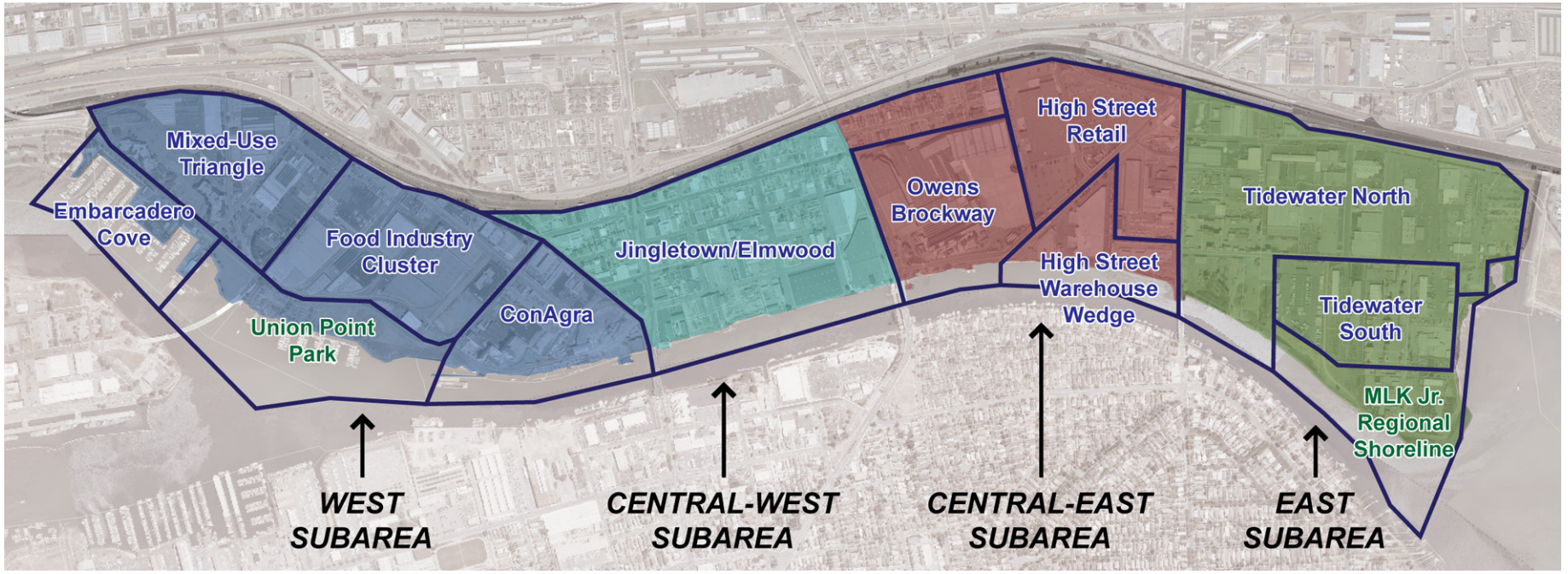
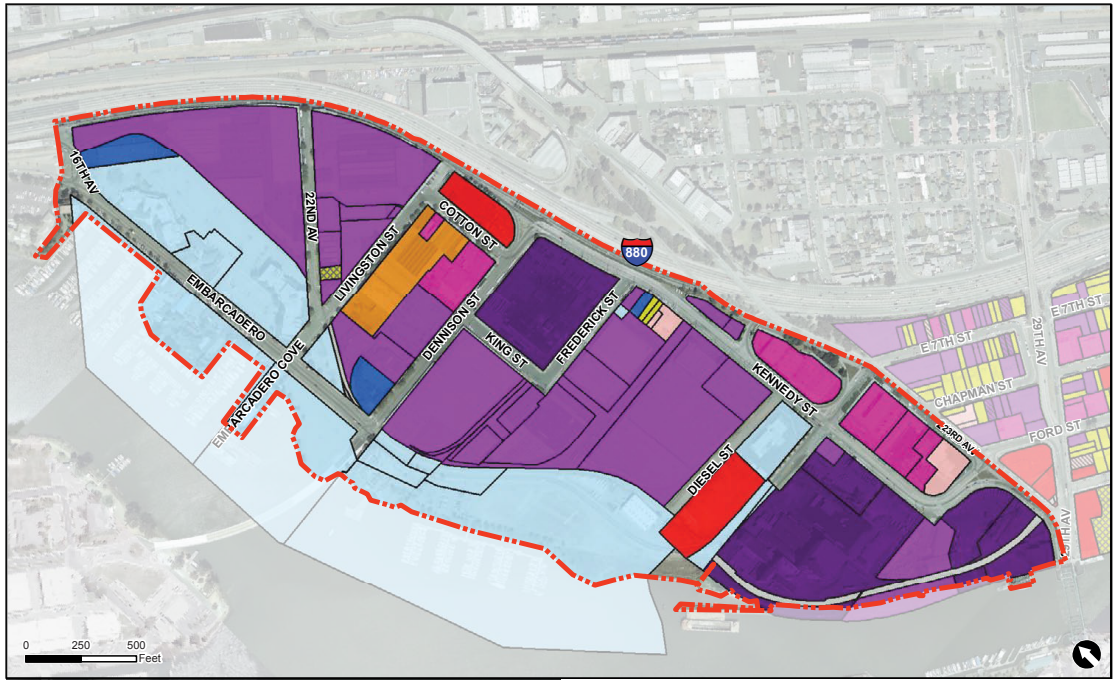


Figure II-1: The Central Estuary is divided into 10 sub-districts which have been grouped into four subareas.

Several larger industrial activities occur in the area, including the 11-acre Con-Agra industrial flour milling facility and a number of other food- and beverage-related producers and distributors. These industrial facilities comprise the dominant use by land area within the West Subarea.

Union Point Park is a 10-acre waterfront park that was completed in late 2005 and expanded in 2010, offering spectacular views of the marina and Estuary, waterfront access, park activities and open space (see Figure II-4).

Of all the subareas in the Central Estuary, the West Subarea has the strongest focus on the waterfront. This is largely due to the fact that the area's main thoroughfare, the Embarcadero, closely hugs the waterfront, forming a strong relationship between the waterfront and interior lands and giving high visibility to the waterfront, a characteristic that is not present in other parts of the Central Estuary. Reinforcing this relationship, are two distinctive features, Union Point Park, and the Embarcadero Cove Marina and associated commercial uses, which draw people to the waterfront with active uses, The other predominant characteristic of the West Subarea is its numerous industrial warehouses and manufacturing facilities, which house many food-related industries that have clustered around the Con-Agra facilities.



Source: Alameda County Assessor's Office win2data 2009

Existing Land Uses - West Subarea

Subarea Boundaries

Existing Land Use

- Industrial (Heavy)
- Industrial (Light)
- Industrial (Warehouse)
- Utilities
- Automotive
- Residential
- Condominium
- Mixed Use
- Retail/Commercial
- Office
- Institutional
- Publicly Owned
- Industrial Lot
- Commercial Lot
- Vacant Lot
- Parking Lot

Figure II-2: Existing Land Uses – West Subarea

Figure II-3: Marine related retail in Embarcadero Cove

Figure II-4: Young people playing soccer at the new Union Point Park, with the Con-Agra industrial facility in the background.

Many of the early industrial and warehouse buildings have remained intact in this area, salvaged by adaptive reuse into lofts, live-work, offices and educational facilities. They often directly address the street, with parking lots mainly at the sides or interior of sites.

Goals for the West Subarea include encouraging redevelopment that strengthens the uses currently found here, but at higher intensities and with greater focus towards the waterfront. The Estuary Policy Plan calls for improved access and business orientation to the waterfront, with water-oriented commercial uses concentrated in Embarcadero Cove; encourages additional light industry, especially food-related industry in the Food Industry Cluster sub-district area; and promotes compatible office, support commercial and institutional uses. Mixed-use infill development is encouraged, either through the adaptive reuse of existing structures, such as warehouses and other industrial buildings, or through the construction of new buildings on large surface parking lots and other underutilized sites. New development should be focused on streets and open spaces, with parking facilities located to the rear or side of buildings or otherwise screened from view.

CENTRAL-WEST SUBAREA

The Central-West Subarea encompasses the Jingletown/Elmwood sub-district, between 23rd and Fruitvale Avenues, is unique within the Central Estuary, as it includes a substantial amount of residential mixed in with lower-intensity industrial use (see Figure II-5). The area is home to an increasingly vibrant residential and artist population and is the site of significant new residential development and community reinvestment including live/work space as seen in Figure II-7. The area is also the home of the Voila Juice factory outlet and café and the Institute of Mosaic Art.

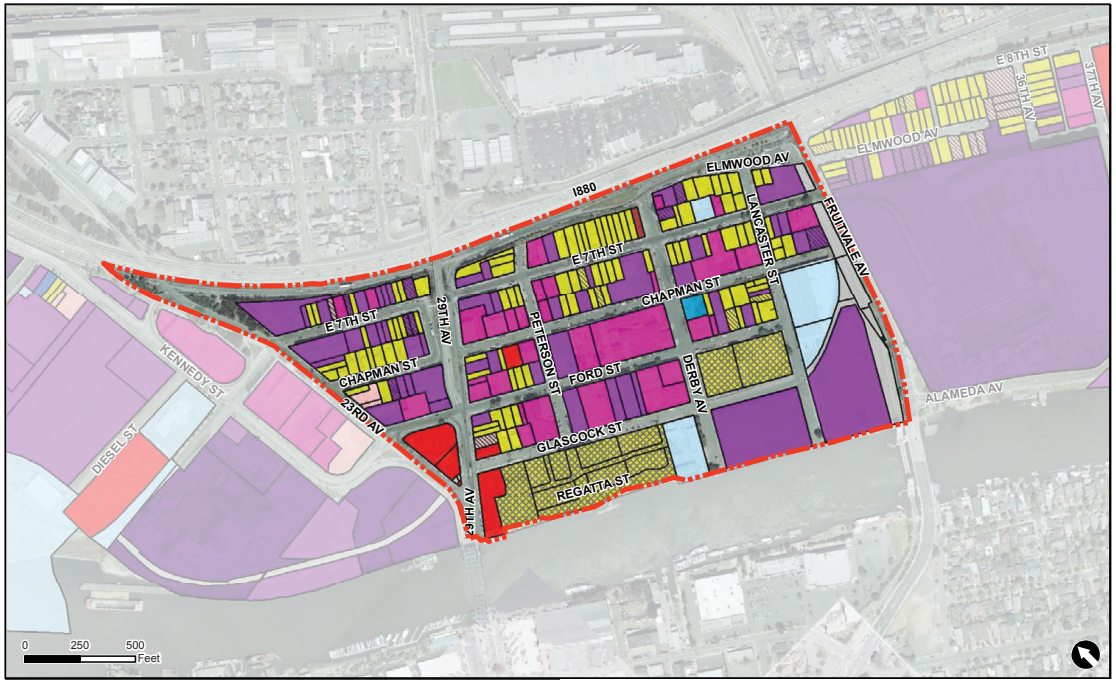
The waterfront itself is an evolving model of the kind of access and open space that is envisioned for the whole Estuary waterfront, with a well-developed and attractively landscaped stretch of the Bay Trail that was completed with the construction of condominiums and a new boathouse for the University of Berkeley. Two segments of the Bay Trail have also been built on piers over the banks of the Estuary, adjacent to industrial warehouses in this Subarea.

The Central-West Subarea has the potential to be the most pedestrian-friendly district within the Central Estuary. To a high degree, it has retained its historic, well-connected and compact street grid and a fine-grained fabric of development. Lots are smaller in size, as is the scale of buildings, which tend to address the street directly, typically with little or no setback.

These characteristics coupled with an eclectic mix of building types and the area's relative affordability, have kept many residents in the neighborhood and has attracted artists, who often reuse the small-scale warehouses as live-work space. Artists have also contributed to the neighborhood's livability by introducing a lively and "funky" presence, as seen on the facades of buildings such as the Institute of Mosaic Art (Figure II-7) and small businesses like Voila Juice, the many public art installations on walls and roadways, and the unconventional artwork embellishing the occasional building frontage. All of these factors are contributing to a

more dynamic neighborhood. What is left of the more industrial uses could be redeveloped or enhanced with more engaging frontage treatments.

The desired future character of this subarea is a continuation and extension of its existing character: a diverse and eclectic mix of uses and building forms that add to the area's growing artistic nature. New development should incorporate artistic elements reflective of the neighborhood character, such as murals or mosaic art. Adaptive reuse of industrial structures is encouraged, as is the development of new live/work units and smaller multi-family buildings on smaller lots scattered throughout the area. Certain larger warehouse and industrial parcels may be suited to the development of new multi-family housing to take advantage of the existing mixed-use context and proximity to Fruitvale BART. Waterfront access and public open space should be provided as part of any waterfront development project.



Source: Alameda County Assessor's Office win2data 2009

Existing Land Uses - Central West Subarea

Subarea Boundaries

Existing Land Use

- Industrial (Heavy)
- Industrial (Light)
- Industrial (Warehouse)
- Utilities
- Automotive
- Residential
- Condominium
- Mixed Use
- Retail/Commercial
- Office
- Institutional
- Publicly Owned
- Industrial Lot
- Commercial Lot
- Vacant Lot
- Parking Lot

Figure II-5: Existing Land Uses – Central-West Subarea

Figure II-6: A typical Central-West Subarea industrial warehouse converted to live/work space

Figure II-7: The Institute of Mosaic Art

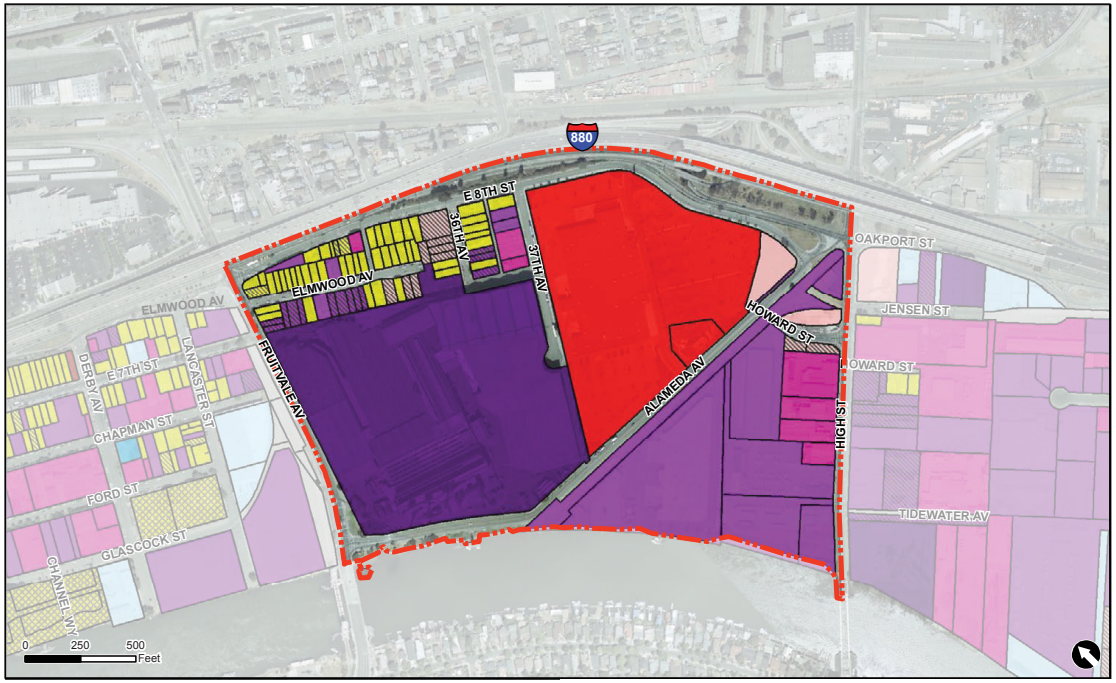
CENTRAL-EAST SUBAREA

The Central-East Subarea, between Fruitvale Avenue and High Street, has perhaps the most diverse mix of uses, including a small extension of the Jingletown residential neighborhood; heavy industry centered on the large Owens Brockway facility; a major commercial center, and a large area of light industrial uses and warehousing (see Figure II-8). This area includes the following sub-districts: a small segment of Jingletown/Elmwood, Owens-Brockway, High Street Retail Area and High Street Warehouse Wedge.

Another large parcel in this subarea is the commercial center that includes a Home Depot and various other commercial uses, including a sports club. This is a relatively successful regional commercial destination that capitalizes on its close proximity to the I-880 and High Street, capturing traffic from both the Estuary area and Alameda.

The Owens Brockway glass recycling facility dominates much of this subarea, as it consumes a large part of its geography (see Figure II-9). These operations are expected to remain viable for the foreseeable future. Second to the Owens Brockway plant in size and presence is the Home Depot site, which fronts its surrounding streets with a large parking lot. Wedged between the Owens Brockway plant and the I-880 freeway is the Elmwood district, a peninsula of what remains of the Jingletown/Elmwood neighborhood east of Fruitvale Avenue. Though much more eroded than the portion west of Fruitvale, the configuration and character of streets, blocks and homes is still apparent and it still serves as home to many residents. East of Alameda Avenue are mid-sized light industrial and warehouse uses, vacant parcels and a popular car wash located on a triangular site fronting Howard Street between Alameda Avenue and High Street.

Goals for the Central-East subarea include strengthening the residential character of the Elmwood district, such as by infilling vacant lots with new or relocated historic residential structures; improving the public faces of the Owens Brockway site, for example through murals, public art, landscaping, and improved sidewalks along Fruitvale and Alameda Avenues; and accommodating the potential development of additional regional-serving retail uses along High Street that could help to implement Oakland's citywide retail strategy and take advantage of the area's proximity to the City of Alameda and the rebuilt I-880 interchange.



Source: Alameda County Assessor's Office win2data 2009

Existing Land Uses - Central East Subarea

Subarea Boundaries

Existing Land Use

- Industrial (Heavy)
- Industrial (Light)
- Industrial (Warehouse)
- Utilities
- Automotive
- Residential
- Condominium
- Mixed Use
- Retail/Commercial
- Office
- Institutional
- Publicly Owned
- Industrial Lot
- Commercial Lot
- Vacant Lot
- Parking Lot

Figure II-8 Existing Land Uses – Central-East Subarea

Figure II-9: Owens Brockway Industrial Facility

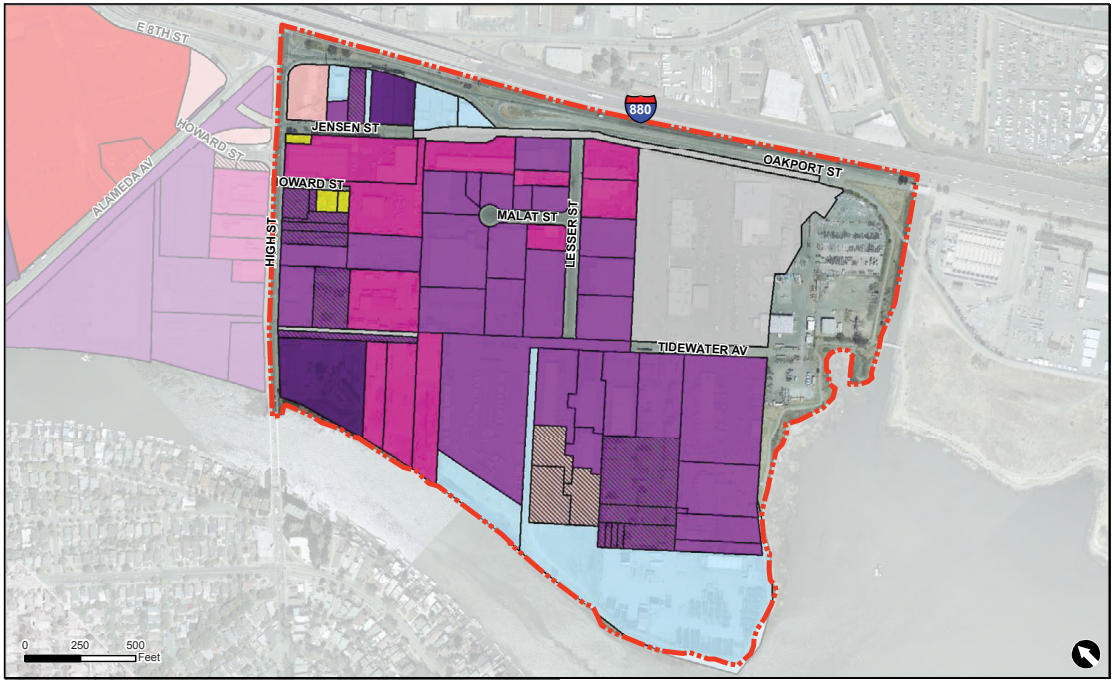
EAST SUBAREA

The East Subarea (Figure II-10) consists of the portion of the Central Estuary east of High Street, and encompasses the Tidewater North and Tidewater South sub-districts. The East Subarea contains a number of businesses in the manufacturing and construction sectors, including two sizable aggregate producers of fill materials for public roads (see Figure II-12), a hardwood lumber company, and mini-storage and trucking uses. These businesses benefit from close proximity to major transportation routes, including I-880 and the Bay for transporting raw materials by barge. The Malat/Lesser Street area has a significant supply of relatively new warehouses and light manufacturing uses.

The East Bay Regional Park District (EBRPD) is developing a waterfront park along the waterfront from on the southern point of the Central Estuary. The inland portion of the land owned by the Park District is currently leased for outdoor trailer storage.

Pacific Gas & Electric (PG&E) owns a 13.6-acre site at the eastern edge of this Subarea which is used as a local operations center, including a vehicle yard, dispatch, and customer service facilities.

The primary goal for the East subarea is to retain and encourage employment uses, including both the existing manufacturing and construction-related industries located in the area, as well as new and more intensive office and research and development (R&D) uses that can capitalize on the waterfront setting and the area's recreational amenities, including the expansion of the Martin Luther King, Jr. Regional Shoreline being developed by the East Bay Regional Park District, the Tidewater Boating Center, and the Bay Trail.



Source: Alameda County Assessor's Office win2data 2009

Existing Land Uses - East Subarea

Subarea Boundaries

Existing Land Use

- Industrial (Heavy)
- Industrial (Light)
- Industrial (Warehouse)
- Utilities
- Automotive
- Residential
- Condominium
- Mixed Use
- Retail/Commercial
- Office
- Institutional
- Publicly Owned
- Industrial Lot
- Commercial Lot
- Vacant Lot
- Parking Lot

Figure II-10 Existing Land Uses – East Planning Area

Figure II-11: Hanson Aggregate's facility in the East Subarea

ANTICIPATED LAND USE CHANGE

In keeping with the desire to maintain and enhance the Central Estuary as a commercial and industrial hub, while improving connections to the waterfront for residents of the greater Oakland area, particularly residents of the Fruitvale and East Oakland neighborhoods, and taking advantage of the area's artistic nature and varied character, some changes in land use and additional development are anticipated under this Area Plan. Because the area is largely built out, the anticipated new development would generally replace existing uses with different or more intensive uses, adding to the area's job base and providing new opportunities for housing and recreation.

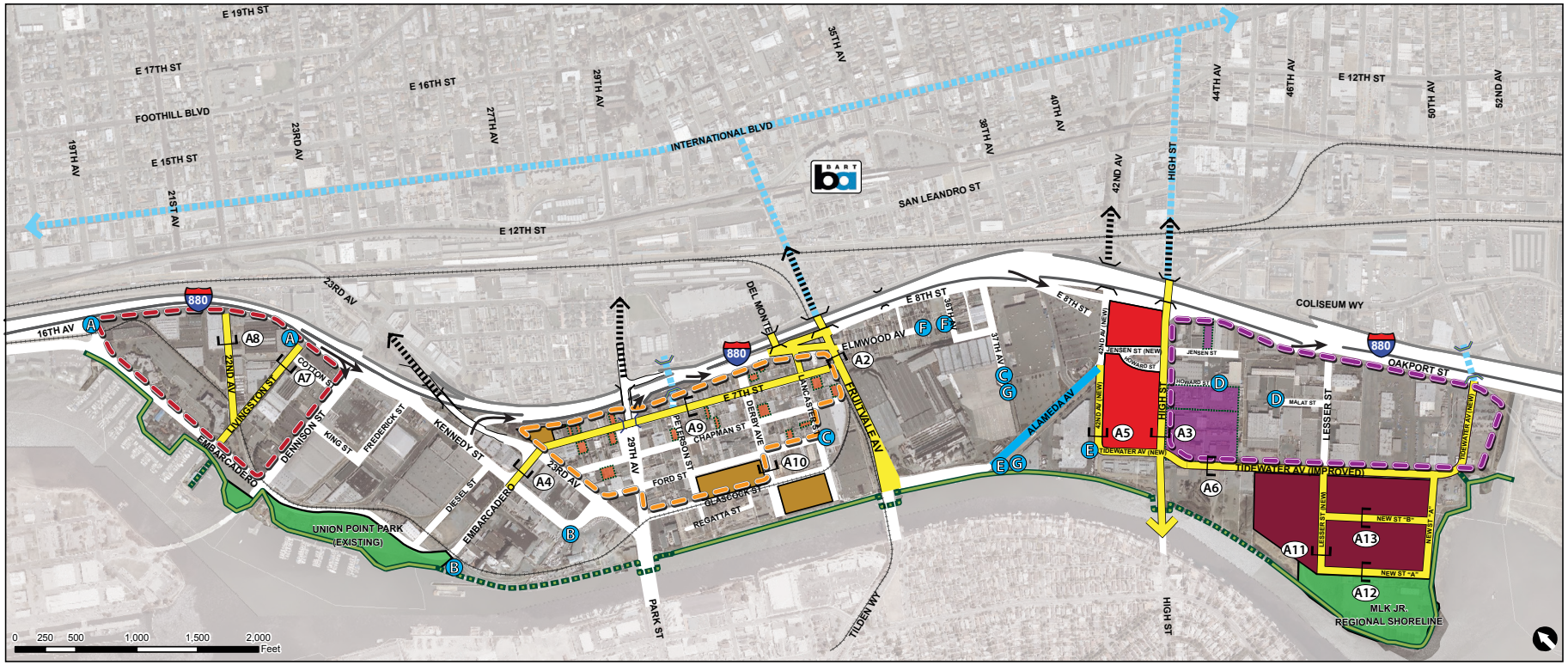
Opportunity sites with the potential for change exist throughout the Plan area, but their scale and distribution reflect the varied character of the Central Estuary's diverse subareas. In the West subarea, there is potential for additional mixed-use development through adaptive reuse of existing buildings and infill development on surface parking lots. In the Central-West subarea, there is potential for some additional infill development on scattered small sites, as well as potential for some additional larger-scale multi-family residential development on larger sites. While the East subarea is dominated by the 28-acre Owens Brockway site, where the existing industrial use is expected to remain for the foreseeable future, there is also potential for additional regional-serving retail uses along High Street that could help to implement Oakland's citywide retail strategy and take advantage of area's proximity to the City of Alameda and the rebuilt I-880 interchange. In the East subarea, which is targeted for industrial and employment uses, opportunities exist to take advantage of the unique waterfront setting and new waterfront recreation facilities by introducing new higher-intensity office and R&D uses that can coexist with the existing heavy industrial uses.

New park spaces would be created on waterfront land targeted by public agencies for park use, including a portion of a capped former brownfield site in the West subarea in the Central-West subarea, and approximately 9 acres of land in the East Subarea that is owned by the East Bay Regional Park District and currently leased for outdoor trailer storage.

The anticipated potential net increase in development and park space is illustrated in Figure II-12 and is as follows:

Table II-1: Anticipated Development Potential (Net increase over existing development)

LAND USE	NUMBER OF UNITS/AREA
Residential	391 dwelling units
Live/Work	31 dwelling units
Retail	268,071 square feet
Office/R&D	443,950 square feet
Industrial	374,857 square feet
Park space	9.7 acres



Source: CD+A, City of Oakland

Potential Future Street Network

- Recommended Mid-term Improvements (Improvements and New Streets) [1]
- Potential Long-Term Projects Beyond Project Boundary [1]
- Bay Trail (proposed)
- Bay Trail (existing)
- Gated or closed street
- I-880 On/Off Ramps
- Underpass - Existing
- Ped/Bike Underpass - Future
- Connections to existing neighborhoods
- Street Section Numbers (see Appendix A for Street Section Figures)
- Future Roadway Policy Connection Points [1]
- Street segment to be removed from network after completion of potential future E-E policy connection [1]

Potential Future Land Use

- Retail/Commercial
- Commercial-Industrial Mix
- Medium Density Res
- Parks
- Infill: Live/Work
- Infill: Light Industrial/R&D
- Area of Live/Work Infill
- Area of Light Industrial Infill
- Area of Mixed-use Infill

1 The recommended transportation improvements (including mid-term improvements and new streets, long-term projects beyond the project boundary, future roadway policy connection points, and street segments to be removed from network after completion of potential policy connections) shown on this map are unapproved and unfunded. As such, they were excluded from the main body of the Supplemental Environmental Impact Report (SEIR) prepared for this project. However, they were studied at a qualitative level, as part of the Maximum Infrastructure Alternative #5 in the EIR's analysis. Any future transportation improvement project will be subject to appropriate CEQA review. These projects are detailed in Appendix A of the CEAP.

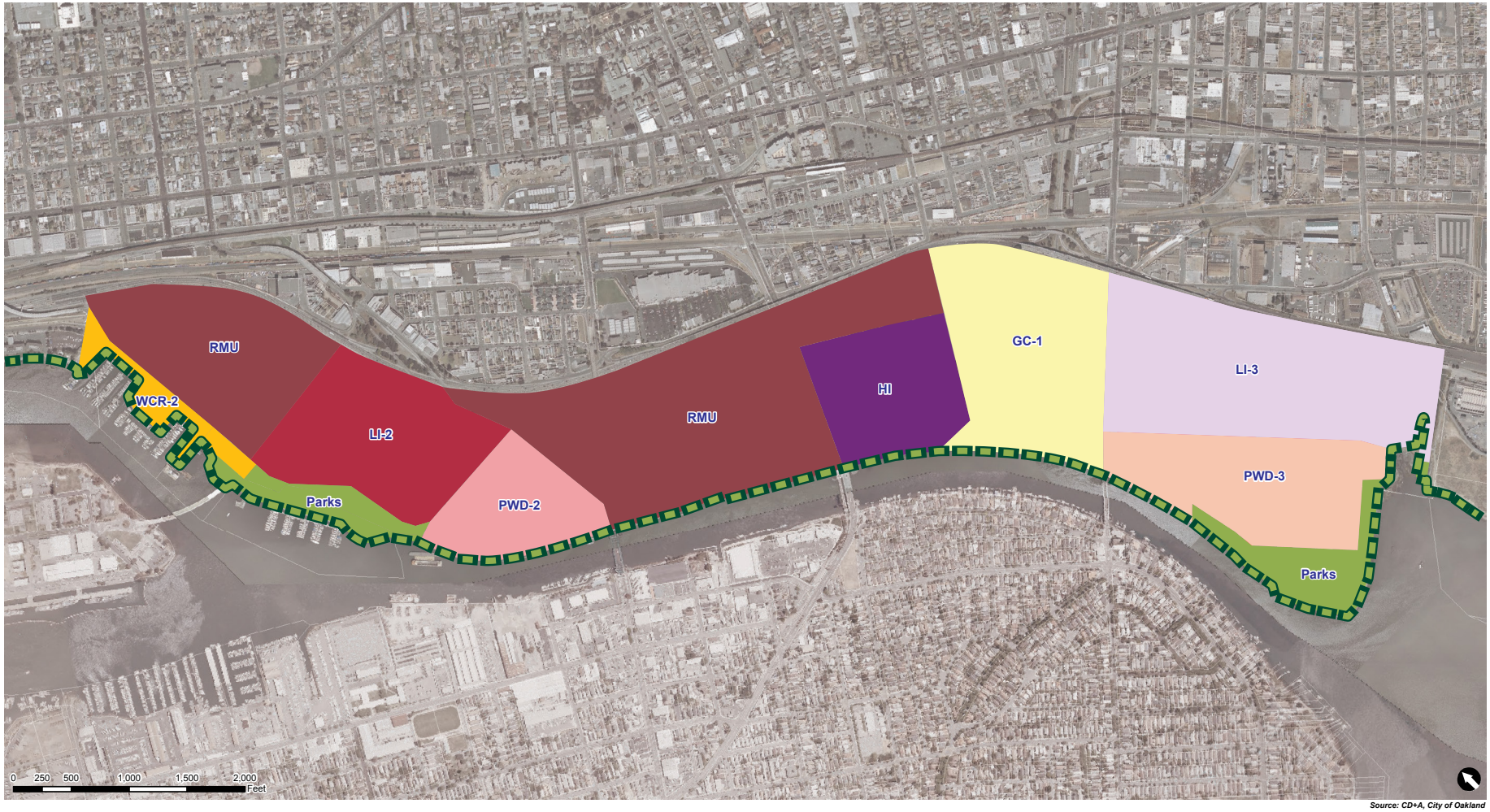
Figure II-12: Anticipated Land Use Change

LAND USE POLICY CHANGE IMPLEMENTATION TOOLS

The land use policy framework outlined in Chapter I is illustrated in the map on the following page. The land use designations presented will guide development and contribute towards achieving the vision described in this document. This guidance will have to be closely coordinated with the transportation improvements envisioned for the area presented in Chapter III and Appendix A.

The Estuary Policy Plan provides eight (8) land use designations for the Central Estuary Area which depict the type and intensity of allowable future development. These designations may be used to evaluate future development because they reflect the on-the-ground conditions, areas identified for greater intensity and areas slated for infill development. Taken together the eight land use designations describe the development pattern for the Central Estuary. See Table II-1 for a description of each land use designation. The zoning ordinance implements the direction of the land use designations by establishing maximum densities for individual properties.

ESTUARY POLICY PLAN



Source: CD+A, City of Oakland

EPP Land Use Designations

- General Commercial 1 (GC-1)
- Heavy Industry (HI)
- Light Industry 2 (LI-2)
- Light Industry 3 (LI-3)
- Parks
- Planned Waterfront Development 2 (PWD-2)
- Planned Waterfront Development 3 (PWD-3)
- Residential Mixed Use (RMU)
- Waterfront Commercial Recreation 2 (WCR-2)
- Estuary Policy Plan Objective SA-1: Create a clear and continuous system of public access along the Estuary shoreline

Figure II-13: Estuary Policy Plan Designations

Table II-2: Estuary Policy Plan Land Use Classifications

LAND USE CLASSIFICATION	INTENT	DESIRED CHARACTER	MAXIMUM INTENSITY
PWD-1: Planned Waterfront Development (Estuary Park to 9th Ave)	Provide for the transformation of maritime and marine industrial uses into a public-oriented waterfront district that encourages significant public access and open space opportunities. Encourage a unique mix of light industrial, manufacturing, artist lofts and workshops, hotel, commercial recreation, cultural uses, and water-oriented uses that complement the recreational and open space character of the waterfront.	Future development in this area should be primarily public recreational uses including boating clubs, community and cultural uses, parks, and public open spaces; with primary uses including light industrial, manufacturing, assembly, artist workshops, cultural, work/live studios, offices, neighborhood commercial, and restaurants; and including hotel, conference, restaurant, commercial-recreational, and cultural. Water uses also included.	FAR of 1.0 and 30 units per gross acre for privately owned parcels. Average FAR over entire area of 1.0. Average 30 units per gross acre.
WCR-2 : Waterfront Commercial Recreation (Embarcadero Cove)	Encourage a mix of hotel, commercial-recreational and water-oriented uses that complement the recreation and open space character of the waterfront, enhance public access, and take advantage of highway visibility.	Future development in this area should be primarily hotel, restaurant, retail, marine services and boat repair, boat sales, upper level office, parks and public open paces with water uses	Average FAR over entire area of 2.0
RMU: Residential Mixed Use (Mixed Use Triangle)	Create, maintain and enhance areas of the Central Estuary that have a mix of industrial and heavy commercial activities. Higher density residential development is also appropriate in this zone.	Additional educational, office and commercial uses should be encouraged, as well as multi-family residential and work/live units or adaptive reuse, where these uses would not create land use conflicts with existing industrial activities.	FAR of 3.0 per parcel, 60 units per gross acre.

Table II-2 (cont.): Estuary Policy Plan Land Use Classifications

LAND USE CLASSIFICATION	INTENT	DESIRED CHARACTER	MAXIMUM INTENSITY
LI-2 : Light Industrial (Food Industry Cluster)	Maintain light industrial, food processing and manufacturing uses, allowing a limited amount of office, residential, institutional or commercial uses.	Future development in this area should be primarily light industrial, food processing, wholesale, distribution, work/live, residential, parks and public open spaces	FAR of 3.0 per parcel, 30 units per gross acre.
PWD-2 : Planned Waterfront Development (Con-Agra)	Provide for the continuation of existing industrial uses, allowing for their future transition to a higher density mix of urban uses if the existing uses prove to be no longer viable in this area.	Future development in this area should be primarily industrial, manufacturing in nature, and other uses that support the existing industrial uses.	FAR of 2.0 per parcel. 40 units per gross acre.
RMU: Residential Mixed Use (Jingletown/Elmwood)	Enhance and strengthen the viability and attractiveness of the Jingletown/Elmwood as a mixed use residential neighborhood of low to medium-density housing within a fine-grained fabric of commercial and light industrial uses.	Future development in this area should be primarily residential, work/live, light industrial, neighborhood-serving retail, offices, public parks, and open spaces.	FAR of 3.0 per parcel. 60 units per gross acre.
HI: Heavy Industrial (Owens-Brockway)	Allow the existing glass recycling and manufacturing functions within this area, and promote an enhanced relationship with the adjoining Jingletown/Elmwood neighborhood, Fruitvale Avenue, and the waterfront	Future development in this area should be primarily heavy industrial uses.	FAR of 2.0 per parcel.

Table II-2 (cont.): Estuary Policy Plan Land Use Classifications

LAND USE CLASSIFICATION	INTENT	DESIRED CHARACTER	MAXIMUM INTENSITY
GC-1: General Commercial (High Street Retail Area and Warehouse Wedge)	Provide for the expansion of regional-serving retail and commercial uses that can benefit from freeway accessibility.	Future development in this area should be primarily retail, office, general commercial, hotel, light industrial, parks, and public open spaces.	FAR of 3.0 per parcel.
LI-3: Light Industrial (Tidewater North)	Maintain light industrial, wholesale/retail, manufacturing, and public utility uses while providing for enhancement of the waterfront environment.	Future development in this area should be primarily industrial, manufacturing, commercial, and a variety of other uses.	FAR of 2.0 per parcel.
PWD-3: Planned Waterfront District (Tidewater South)	Provide for the continuation of existing industrial uses on properties south of Tidewater Avenue, allowing for their transition to light industrial, research and development, and office uses in a waterfront business park setting.	Future development in this area should be primarily industrial, manufacturing, commercial, office, research and development, public parks, and open spaces.	FAR of 3.0 per parcel.
GC-2: General Commercial (from Oakport site to 66th Ave)	Provide for commercial or light industrial uses that are sensitive to the area's proximity to the Martin Luther King Jr. Shoreline Park, the I-880, 66th Avenue, sports fields, and adjacent industrial facilities.	Future development should be primarily light industrial, commercial, public utilities, park, or open space.	FAR of 1.0 per parcel.

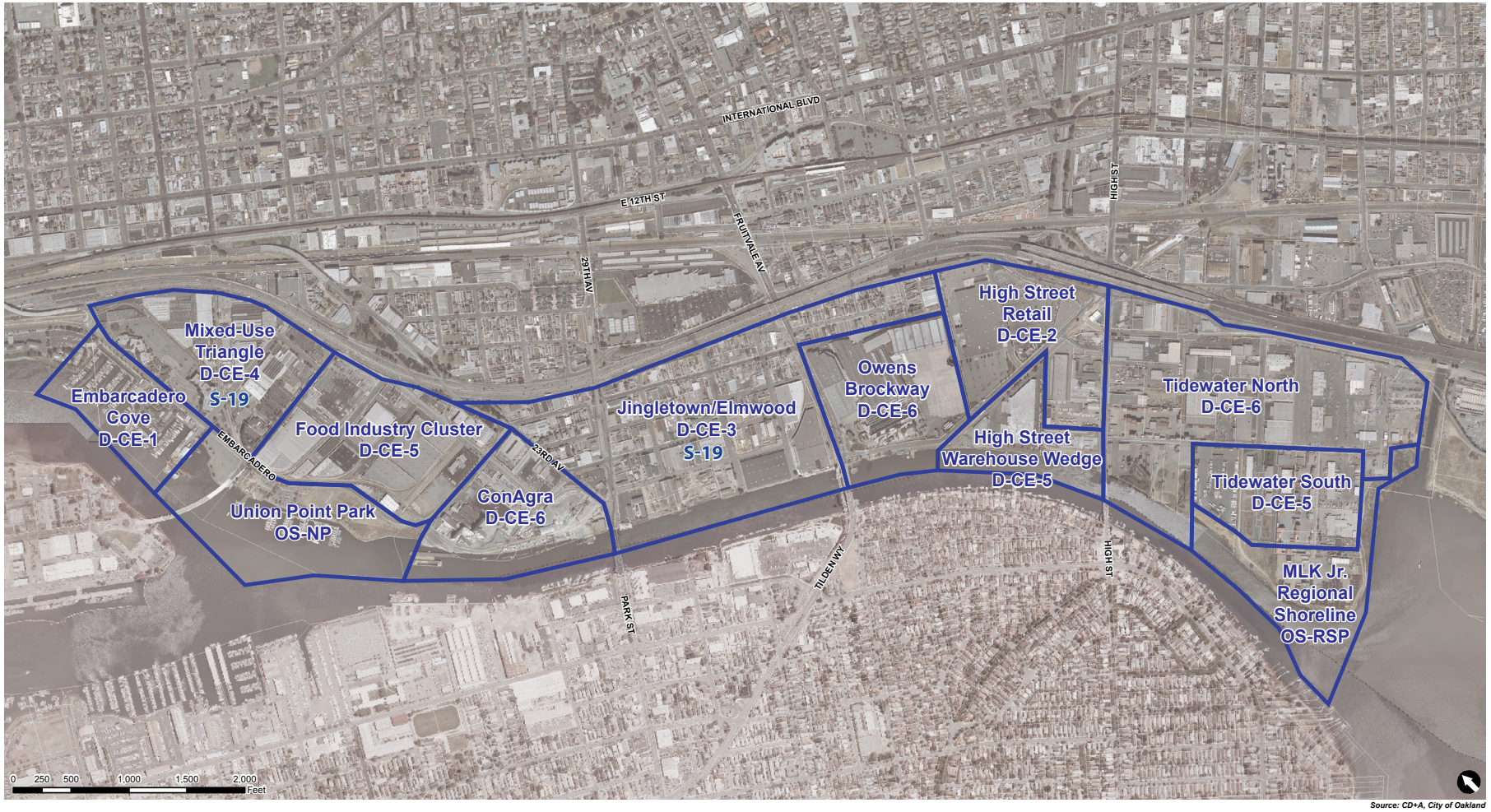
ZONING

The Zoning Ordinance will regulate densities, intensities and allowed activities (such as residential, commercial and industrial uses). Zoning will further refine direction provided by the eight EPP land use designations by determining which activities are permitted as-of-right, and which will be permitted conditionally with careful consideration of possible impacts to adjacent properties. Limitations on uses have been designed to reduce the impacts on more sensitive residential uses in the Jingletown/Elmwood area, while providing maximum flexibility for operations in more heavy industrial areas such as in the Tidewater area. Zoning also establishes detailed development standards (such as height limits and permitted and conditionally permitted density, etc.). Refer to the Design Guidelines for the Central Estuary for additional design guidance.

The zoning designations within the Central Estuary are contained in a Chapter 17.101E of the Oakland Zoning Code. The intent of each zone is described below. Refer to Figure II-14*: Zoning* for the location of each zoning district within the Central Estuary.

The applicable zones follow:

- **D-CE-1** (Embarcadero Cove**)** – The D-CE-1 zone is intended to create, maintain, and enhance the marine, office and other commercial uses in the Central Estuary area.
- **D-CE-2** (High Street Retail) – The D-CE-2 zone is intended to create, maintain, and enhance areas of the Central Estuary with a wide range of commercial uses with direct street frontage and access to the freeway.
- **D-CE-3** (Jingletown/Elmwood) – The D-CE-3 zone is intended to provide development standards for areas of the Central Estuary that have a mix of industrial, heavy commercial and residential development. This zone is intended to promote housing with a strong presence of commercial and industrial activities.
- **D-CE-4** (Mixed Use Triangle). The D-CE-4 zone is intended to create, maintain and enhance areas of the Central Estuary that have a mix of industrial and heavy commercial activities. Higher density residential development is also appropriate in this zone.
- **D-CE-5** (Food Industry Cluster, High Street Warehouse Wedge, Tidewater South) – The D-CE-5 zone is intended to create, preserve, and enhance areas of the Central Estuary that are appropriate for a wide variety of heavy commercial and industrial establishments. Uses with greater off-site impacts may be permitted provided they meet specific performance standards.



Zoning

Zoning Boundaries

See Planning Department for latest zoning information

Figure II-14: Zoning

- **D-CE-6** (Con Agra, Owens Brockway, Tidewater North) – The D-CE-6 zone is intended to create, preserve and enhance areas of the Central Estuary that are appropriate for a wide variety of businesses and related commercial and industrial establishments that may have the potential to generate off-site impacts such as noise, light/glare, odor, and traffic. This zone allows heavy industrial and manufacturing uses, transportation facilities, warehousing and distribution, and similar related supporting uses. Uses that may inhibit such uses, or the expansion thereof, are prohibited. This district is applied to areas with good freeway, rail, seaport, and/or airport access.
- **OS-NP** (Union Point Park) – The OS-NP zone is intended to create, preserve, and enhance land for permanent open space to meet the active and passive recreational needs of Oakland residents and to promote park uses which are compatible with surrounding land uses and the city's natural environment.
- **OS-RSP** (Martin Luther King Jr. Regional Shoreline Park) – The OS-RSP zone is intended to create, preserve, and enhance land for permanent open space to meet the active and passive recreational needs of Oakland residents and to promote park uses which are compatible with surrounding land uses and the city's natural environment.

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III. TRANSPORTATION

This section of the Area Plan includes the following:

- A description of the existing transportation network components, including regional and local components and transit, pedestrian and bicycle components.
- A discussion of transportation issues, constraints, and opportunities.
- A description of the planned transportation network for the Central Estuary. The transportation network includes planned streets and pedestrian/bicycle facilities to fulfill the objectives and actions set forth in the EPP. Parking strategies are also included.
- Standards for the Bay Trail/Oakland Waterfront Trail.

Appendix A provides a list and map of recommended future transportation projects that would improve connectivity and travel choices within the Central Estuary. This appendix provides the City with a set of additional projects that could be explored to help serve proposed developments or if additional transportation funding becomes available.

REGIONAL AND LOCAL TRANSPORTATION COMPONENTS

The Central Estuary and the surrounding regions of Oakland and Alameda are centrally located within a robust network of regional and local transportation infrastructure. Interstate 880 (I-880), critical local transportation corridors such as International Boulevard, major freight rail tracks, and a wide range of public transit options serve the study area and its environs.

The *Oakland General Plan LUTE – Transportation Diagram* (City of Oakland, 1998) segments the transportation system into two components:

Figure III-1: A wide freight rail right-of-way running parallel to Fruitvale Avenue contributes to a poor pedestrian environment

- Facilities serving "Local Access" needs
  - Streets and roads ranging from the classic urban grid downtown to winding hilly roads
  - Pedestrian and bicycle facilities from the Oakland hills stairways to waterfront promenades
- Facilities serving "Regional Access" needs
  - Public transit centering on the AC Transit system hub and confluence of BART routes
  - Regional Bikeways System
  - Passenger ferry service to Alameda and San Francisco
  - Freeways providing access north via I-80, south via I-880, west to San Francisco and Peninsula via the Bay Bridge, and east via State Route 24 and I-580

The major transportation facilities in the vicinity of the Central Estuary are summarized below:

- **Interstate 880**: I-880 is a critical component of the Bay Area freeway network that links the communities of the East Bay from Oakland to San Jose. Within the study area, I-880 is an eight-lane access controlled freeway with several closely spaced sub-standard interchanges and ramp junctions. I-880 provides access to downtown Oakland, the Port of Oakland, Oakland International Airport, and major industrial and distribution centers throughout the East Bay. The I-880 corridor traverses many densely populated residential areas and serves several large office and retail centers.
- **International Boulevard**: International Boulevard is a four-lane arterial roadway that parallels I-880 and E 12th Street and stretches from E 14th Street in downtown Oakland to the City of Hayward. It is an important north-south connection that also serves many heavily used AC Transit bus routes, including the 1 Rapid bus line. International Boulevard is also an important commercial corridor for many neighborhoods in East Oakland.
- **East 12th Street**: East 12th Street (E. 12th Street) is a four to six-lane arterial roadway that travels parallel to I-880 and International Boulevard from downtown Oakland to just west of the Coliseum. E. 12th Street predominately serves industrial and warehouse land uses and has much less transit service and commercial activity than International Boulevard. For these reasons, E. 12th Street is characterized by higher speeds and less pedestrian activity. E. 12th Street's greater capacity, fewer pedestrians, and higher speeds results in traffic volumes (west of Fruitvale Avenue) that are approximately 5 to 10 percent higher than International Boulevard.
- **Fruitvale Avenue**: Fruitvale Avenue is a major east-west arterial that stretches from I-580 and MacArthur Boulevard in East Oakland to the Fruitvale Avenue Bridge and Tilden Way in Alameda. Throughout most of the Central Estuary, Fruitvale Avenue has two westbound lanes and one eastbound lane. Outside of the

Central Estuary, Fruitvale Avenue is a four-lane roadway. Fruitvale Avenue provides one of the three bridge crossings of the Oakland Estuary. Fruitvale Avenue has no direct freeway access to I-880 and very little transit service. Only two AC Transit bus routes serve Fruitvale Avenue within the Central Estuary limits. See Figure III-1.

- **High Street**: High Street is a major four-lane east-west arterial roadway that runs from I-580 to Alameda and parallels Fruitvale Avenue. High Street traverses major industrial sections of the study area and therefore handles a large amount of trucks and other heavy vehicles. High Street provides access to I-880 via the 42nd Avenue ramps. High Street also provides another bridge connection across the Estuary.
- **16th, 23rd, and 29th Avenues**: These three roadways provide critical east-west connections from Oakland to Alameda through the Central Estuary. All three of these facilities have bridges that span I-880 and the freight rail tracks just east of the freeway. Ramps to/from I-880 are provided at 23rd Avenue. At 29th Avenue, an indirect set of on and off-ramps provide access to I-880 through the residential neighborhoods east of the freeway. The 23rd and 29th Avenue bridges have sub-standard vertical clearances over the I-880 road surface. 23rd and 29th Avenues also make up part of the "Park Street Triangle", which is a complex one-way system of three intersections at the heart of the Central Estuary (see Figure III-2). 23rd and 29th Avenues converge at the Park Street bridge, which provides another Estuary crossing.
- **42nd Avenue**: 42nd Avenue (State Route 77) is a four-lane State designated highway that serves as a direct ramp connection from I-880 to International Boulevard and East 12th Street.
- **Public Transit**: BART's Fruitvale station is located approximately 1/4-mile from the edge of the Central Estuary. International Boulevard, which is a major service corridor for several AC Transit bus routes, is less than 1/2-mile. The Central Estuary itself is served directly by only a few bus routes (three local and one Transbay route).
- **Bay Trail**: The regional Bay Trail for bicycles and pedestrians follows an alignment along the Estuary shoreline through approximately half of the Central Estuary (see Figure III-3).

Despite the close proximity of the Central Estuary to these major transportation facilities, the access to these facilities and their overall quality of service is poor. In particular, I-880 and the freight rail tracks serve as a major physical barrier between the study area and adjacent neighborhoods, BART, the International Boulevard transit corridor, and the local Oakland street grid. The design and alignment of I-880 utilizes a system of local interchanges with confusing and inefficient ramps. The substandard nature of the interchange and ramp designs translates into an inefficient local street network.

Figure III-2: The 29th Avenue overcrossing leads to the Park Street Triangle

Figure III-3: The Bay Trail follows the shoreline behind a commercial facility near the Fruitvale Bridge

BICYCLE AND PEDESTRIAN COMPONENTS

Bicycle facilities include any dedicated off-street paths where bicycles are permitted and all local streets and public rights-of-way. There are three primary classes of bicycle infrastructure in Oakland defined in the *City of Oakland Bike Master Plan* (City of Oakland, December 2007):

- **Bicycle Paths (Class 1)** are off-street paths that are available for use by cyclists. They are typically shared with pedestrians and often called mixed-use paths. They are often located in parks, along waterways, former railways and freeways.
- **Bicycle Lanes (Class 2)** are on-street lanes, designated for exclusive use by cyclists. Bicycle lanes are often installed on arterial and collector roads that have relatively high vehicle volumes and speeds.
- **Bicycle Routes (Class 3)** are streets that provide signage, but no dedicated space for cyclists. Instead, cyclists share a mixed use lane with other traffic. Streets with Class 3 bicycle routes usually have relatively low levels of auto traffic and may be provided with traffic calming or other physical measures to support bicycle travel.

Two types of Class 3 bike lanes used in Oakland that incorporate enhanced bicycle amenities include:

- Arterial Bicycle Routes (Class 3A): Bicycle routes may be used on some arterial streets where bicycle lanes are not feasible and parallel streets do not provide adequate connectivity. These streets should promote shared use with lower posted speed limits (preferably 25mph), shared lane bicycle stencils, wide curb lanes, and signage.
- Bicycle Boulevards (Class 3B): Bicycle boulevards are bicycle routes on residential streets that prioritize through trips for bicyclists. The route should appeal to cyclists of varied skill levels by providing direct connections on streets with low traffic volumes. The route should reduce delay to bicyclists by assigning right-of-way to travel on the route. Traffic calming should be introduced as needed to discourage drivers from using the boulevard as a through route. Intersections with major streets should be controlled by traffic signals with bicycle actuation.

The *City of Oakland's Pedestrian Master Plan* (City of Oakland, 2002) designated certain pedestrian routes of significance at the citywide level. The Pedestrian Master Plan identifies International Boulevard as the primary pedestrian corridor in the study area, along with a section of Fruitvale Avenue and Foothill Boulevard. Other designated routes include High Street, San Leandro Street, and adjacent sections of Foothill Boulevard and Fruitvale Avenue. District level routes of relevance include Park Street-29th Avenue and E. 12th Street. The Bay Trail is also identified as a regional pedestrian facility.

TRANSPORTATION ISSUES, CONSTRAINTS, AND OPPORTUNITIES

The following list provides more detail on the existing transportation issues:

- On many segments of I-880, traffic volumes exceed the design capacity during peak hours of travel. This results in significant congestion and travel time delays along the entire corridor. In the AM peak hour, the major bottlenecks exist at the western approaches to the Bay Bridge. Bottlenecks also occur on northbound I-880 near the 23rd Avenue interchange and on southbound I-880 near the San Mateo Bridge. I-880 through many sections of Oakland is not built to current geometric standards, which results in lower capacity.
- I-880 within the study area has several closely spaced interchanges. Closely spaced ramps result in many potentially unsafe merging/diverging and weaving maneuvers as vehicles enter and exit the mainline traffic stream on I-880. In addition to safety, the closely spaced ramps also degrade freeway capacity. The on and off-ramps serving I-880 at 23rd Avenue, 29th Avenue, and 42nd Avenue/High Street also have very short acceleration/deceleration lanes. Short acceleration and deceleration lanes pose a safety issue for vehicles entering and exiting I-880.
- There are only five north-south connections through the Central Estuary: 16th, 23rd, 29th, Fruitvale, and High Street. These five connections funnel traffic through the Central Estuary and onto the three bridges that cross the Estuary to the City of Alameda. Closely spaced intersections with non-standard geometries and many driveway curb cuts reduce capacity and degrade traffic flow along these roadways. The substandard interchange configurations throughout the study area put additional pressure on the roadway network at locations where local streets provide access to the I-880 ramps.
- The local street grid is confusing and difficult to navigate. The Park Street Triangle is an excellent example of this (see Figure III-4). The Park Street Triangle consists of three closely spaced intersections that force traffic into a counter-clockwise one-way traffic flow. A traffic signal at the 23rd Avenue / Ford Street / Kennedy Street intersection helps to regulate traffic flow through the triangle. However, a number of uncontrolled "free" movements and the need to weave across one or two lanes of traffic to exit the Triangle, creates a confusing situation that can be difficult to navigate. The Central Estuary lacks a continuous east-west roadway connection. All users trying to navigate the study area in a east-west direction must utilize an indirect route along several different streets.

Figure III-4: Park Street Triangle presents a confusing traffic configuration to motorists

Figure III-5: The Bay Trail is discontinuous within the Central Estuary, often interrupted by existing industrial uses that require access to the waterway

Figure III-6 The Central Estuary includes many local streets with poor pedestrian and cycling facilities

- There is a lack of vehicular access to the Estuary waterfront. The lack of a continuous pedestrian, bicycle, and vehicle travel way abutting the Estuary shoreline is a major deficiency within the study area.
- The Bay Trail is an enormous asset for bicyclists and pedestrians throughout the Bay Area. However, the Bay Trail is discontinuous and difficult to access within the Central Estuary (see Figure III-5). This forces Bay Trail users to follow an indirect route through the Central Estuary on local streets.

The overall pedestrian and bicycle environment throughout the study area is poor (see Figure III-6). Local streets and the bridges crossing the Estuary lack dedicated bike lanes and many street segments lack sidewalks. Several signalized intersections have prohibited pedestrian crossings, and many lack amenities such as striped pedestrian crosswalks with pedestrian signal heads and push buttons. The long distances required to cross I-880 and the freight rail tracks, combined with the poor physical condition of the sidewalks and streets that traverse these barriers, contribute to the poor pedestrian and bicycle environment.

Table III-1 summarizes the transportation issues by mode and includes traffic (which includes automobile circulation), transit, bicycle / pedestrian, and freight (which includes truck and rail users):

Table III-1: Transportation Issues by Mode

TRAFFIC (AUTO)		
ISSUE	**CONSTRAINTS**	**OPPORTUNITIES**
High Street Congestion: High traffic volumes (including a large number of trucks) and closely-spaced intersections on High St from I-880 to the Oakland Estuary results in traffic congestion and queuing along this segment of the street network.	Existing land uses, right-of-way (ROW) limitations, and Caltrans control of much of the ROW limits the options for widening or improving High St.	Take advantage of Caltrans' pending High Street Overhead Retrofit project and the City's High Street Access Improvements project to improve circulation.
Freeway and Freight Tracks as a Barrier: I-880 and the freight rail tracks east of the freeway are a significant physical barrier that limits North-South connectivity.	Caltrans and Union Pacific Railroad (UPRR) controlled ROW limit the options for spanning these barriers. Also, the need to attain sufficient vertical clearance over or under these facilities results in significant cost.	Take advantage of pending projects at High Street and 29th/23rd Avenue to improve north-south connectivity for all travel modes. Look for additional opportunities to improve existing crossing points.
Freeway Access: The access to and from I-880 is confusing. The ramp locations and configurations are sub-standard, which affects freeway traffic flow and local circulation. Also, ramps connect directly to local streets.	Caltrans controlled ROW, the existing alignment of I-880, and the adjacent communities all limit the options for providing additional freeway ramps.	The pending projects at High Street and 29th/23rd Avenue will provide improved freeway access that is safer and limits the impacts on local streets. Potential to improve ramp terminal intersections.
Lack of East-West Connectivity: There is no direct east-west connection through the study area. All of the east-west streets create barriers that are difficult to cross.	Existing land uses, the complex street network, and the high traffic volumes on the existing east-west streets (23rd/29th, Fruitvale, and High) are a constraint to providing more east-west connections.	Look for an opportunity to extend Embarcadero east to the Park Street Triangle. An additional east-west connection could exist at E 7th St under the 29th Ave overcrossing.
Confusing Street Network: The existing street grid is complex and difficult to navigate. Many travel paths take motorists through residential neighborhoods to access I-880.	Existing uses, I-880, the freight rail tracks, and the Estuary all limit the ability to rationalize the street grid.	Take advantage of the various freeway projects and any redevelopment to add new street segments and connections.
Intersection Safety: Within the study area, collisions are an issue at the Park Street Triangle, Fruitvale Ave, and High St.	Limited ROW constrains the options for making intersection geometric upgrades.	Apply street standards that address vehicle access, sight distance, and intersection traffic control. The Park Street Triangle is being studied and improved as part of the 29th/23rd Avenue project.
Through Traffic From Alameda: The three Oakland Estuary bridges within the study area carry a considerable amount of Alameda traffic through the site.	Competing users with different objectives: Alameda motorists want fast reliable access to I-880; study area residents want safe streets; industrial users want adequate access to their businesses	The projects at High Street and 29th/23rd will provide opportunities to improve circulation for all users. Additional street improvements at the Park Street Triangle and High Street would better serve all users.
Parking Discipline and Conflicts: The mix of users within the study area can create parking issues, particularly in the mixed residential/light industrial Jingletown area.	Existing uses and a lack of consistent street designs and standards results in parking conflicts and a lack of on-street parking in the Jingletown/Elmwood area.	Look for opportunities to provide additional on-street parking that addresses the needs of industry, commerce and residents

Table III-1 (cont.): Transportation Issues by Mode

TRANSIT		
ISSUE	**CONSTRAINTS**	**OPPORTUNITIES**
Lack of Transit Service: The overall quality of the transit service is poor. Only a few bus routes serve the study area directly. The entire study area only has five bus stops, and the bus stop amenities are lacking. Also, there is no direct late-night route that serves the study area.	Lack of existing ridership and development densities within the study area reduces the likelihood of additional service.	Increase densities and transit supportive uses. Locate new residential and commercial developments close to the existing transit routes to maximize ridership.
Transit Operations and Reliability: The freeway and street grid issues discussed in the Traffic section degrades transit operations and reliability.	The large number of closely spaced signalized intersections within the study area makes signal coordination and bus signal priority difficult.	The planned Bus Rapid Transit service on International Blvd. Improved AC Transit Line 51 service to and from the City of Alameda.
No Direct East-West Service: Most bus service through the study area connects to the Fruitvale BART station or follows a circuitous route through Alameda. The existing east-west routes all run along International Blvd.	Lack of existing ridership and development densities within the study area reduces the likelihood of additional service.	If justified by future land uses, use Embarcadero for a new east-west bus route that connects the study area to the Oak to Ninth development and Jack London Square. Locate new uses near Embarcadero to maximize transit ridership on this potential route.
Poor Pedestrian Environment: The overall poor pedestrian environment and lack of direct routes makes walking to transit less attractive.	The industrial character of the area and the I-880/freight rail tracks create a significant deterrent to walking.	Take advantage of the High St and 29th/23rd Ave projects to improve pedestrian access across I-880 to BART and the International Blvd. transit corridor. Improve other existing freeway crossing points.

Table III-1 (cont.): Transportation Issues by Mode

BICYCLE/PEDESTRIAN		
ISSUE	**CONSTRAINTS**	**OPPORTUNITIES**
Poor Bicycle and Pedestrian Environment: Narrow sidewalks, gaps in the sidewalk network, lack of crosswalks, prohibited pedestrian crossings at some intersections, and many curb cuts produce an overall environment that is not friendly for bikes and pedestrians.	Existing land uses, ROW limitations, and competition from auto and truck users limits the options for improving the overall pedestrian and bicycle environment.	Use the City's Transportation Services Division street design guidelines and standards that promote bicycle and pedestrian users. Take advantage of the High St and 29th/23rd Ave projects to improve pedestrian connectivity.
Access Across the I-880/Freight Rail Tracks: The existing north-south connections are not bicycle and pedestrian-friendly. The grades on the I-880 overcrossings at 23rd and 29th Aves are steep. The Fruitvale Ave and High St crossings lack adequate bike lanes and sidewalks.	Existing land uses, ROW limitations, and the Caltrans and UPRR control of the ROW limits the ability to provide additional bike and pedestrian-friendly crossings.	Use the 29th/23rd Avenue and the Fruitvale Ave and High St seismic retrofits to provide better north-south bike and pedestrian connectivity. Improve other existing freeway crossing points.
Bay Trail Gaps: Several gaps exist in the Bay Trail shoreline alignment at existing land uses and the three Estuary bridges.	Many of the businesses in the study area require direct access to the water. Accommodating water and trail users will be difficult. Constructing trail segments under the Park, Fruitvale, and High St bridges will require permission from the Army Corps of Engineers. The vertical clearance under the bridges is also a constraint.	Continue to negotiate with the interested parties along the shoreline to obtain permission to route the Bay Trail through their properties. The seismic retrofitting of the three bridges provides an opportunity to evaluate options for continuing the Bay Trail under the structures.
Access Across the Estuary: The three bridges have narrow pathways for bicyclists and pedestrians. No dedicated bike lanes are provided on the bridges.	There are no current plans to redesign the pedestrian sidewalks or restripe the bridge decks to better accommodate bicyclists and pedestrians.	The pending bridge seismic retrofits provide an opportunity to stripe bike lanes, particularly on the Fruitvale Ave bridge.
Park Street Triangle Bike and Pedestrian Access: The Park Street Triangle provides a formidable obstacle for bicyclists and pedestrians traveling east and west through the study area.	The Park Street Triangle's design, the lack of traffic control at two of the Triangle's three intersections, and the free-flow nature of traffic all limit the ability to provide better bike and pedestrian access.	Improvements to the intersections on Ford St, which include a traffic signal at 29th Ave / Ford St, provide an opportunity to locate better east-west crosswalks. The Park Street Triangle is being studied and will be improved as part of the 29th/23rd project.

Table III-1 (cont.): Transportation Issues by Mode

FREIGHT		
ISSUE	**CONSTRAINTS**	**OPPORTUNITIES**
Truck Routes are Poorly Designed: The defined truck routes within the study area, most notably High St from I-880 to the Estuary, are not designed to handle the high volume of trucks.	Existing land uses, ROW limitations, and competition from other users (autos, bike, and pedestrians) limit the ability to provide facilities that better serve trucks and rail.	Use the City's Transportation Services Division street design guidelines and standards that clearly define the needs of trucks (e.g., wider turning radius, areas for trucks to queue) will help accommodate the study area's industrial users.
Freight Rail Conflicts: Provide direct rail connections to existing and future industrial users within the study area that does not disrupt other land uses.	The existing rail ROW and the limited number of rail connections to the major lines north of I-880. The closing of the 5th Ave spur is a major constraint.	Use City's Standard Conditions of Approval for addressing rail crossing conflicts. Work with Union Pacific Railroad and California Public Utilities Commission to improve the crossings.
Source: Arup, 2009		

PENDING AND PROPOSED TRANSPORTATION PROJECTS

Pending and proposed projects in or near the Central Estuary are listed below in Table III-2:

Table III-2: Pending and Proposed Projects In or Near the Central Estuary

PROJECT NAME, AGENCY, AND ESTIMATED COMPLETION DATE	PROJECT DESCRIPTION	POTENTIAL EFFECTS ON THE CENTRAL ESTUARY AREA PLAN
1. I-880 Operational and Safety Improvements at the 29th and 23rd Ave Overcrossings ACCMA, Caltrans Est. Completion: 2012 Funding: Fully funded	Remove and reconstruct the overcrossing structures at 23rd and 29th Avenues, reconfigure several on/off ramps, and extend the NB aux lane.	The project will improve access to and from NB I-880 by combining and closing ramps at both 23rd and 29th Avenues. Local circulation is improved by simplifying some intersections and providing interim improvements at the base of the 29th Avenue bridge where it intersects the Park Street Triangle.
2. Park Street Triangle Improvements City of Oakland Est. Completion: n/a Funding: Fully Funded	Reconstruct the three intersections in the Park Street Triangle on 23rd Avenue, 29th Avenue, and Ford Street.	The overcrossing improvements at 29th Avenue described in #1 will include improvements to the Triangle.
3. High Street Overhead Seismic Retrofit Project Caltrans Est. Completion: 2012/2013 Funding: Fully funded	Replace the overhead structures on I-880 from Fruitvale Avenue to south of High Street and reconfigure the I-880 / SR 77 / 42nd Avenue interchange.	The project will reconfigure the ramps at 42nd Avenue to create two at-grade intersections on 42nd Avenue that serve the NB 880 on-ramp and SB 880 off-ramp. The E 8th Street frontage road will terminate south of 37th Avenue to accommodate the retrofit.
4. 42nd Avenue/High Street Access Improvements City of Oakland Est. Completion: 2015+ Funding: Fully funded	This project will follow on the heels of #3 and includes extending 42nd Avenue south from 880 to intersect Jensen Street and widening High Street under 880.	This project, when combined with the 42nd Avenue interchange improvements included as part of #3, will improve the overall east-west street connectivity across I-880. These changes will result in 42nd Avenue serving as a parallel route to High Street that connects to Alameda Avenue. The bridge work in #3 will allow High Street to be widened to eight lanes under 880. This will allow for two full left-turn lanes in both directions and two through travel lanes.

Table III-2 (cont.): Pending and Proposed Projects In or Near the Central Estuary

PROJECT NAME, AGENCY, AND ESTIMATED COMPLETION DATE	PROJECT DESCRIPTION	POTENTIAL EFFECTS ON THE CENTRAL ESTUARY AREA PLAN
5. Citywide Intelligent Transportation System Program City of Oakland Est. Completion: 2009 – 2012 Funding: Fully funded for this portion	Install cameras and detectors to monitor and manage traffic and transit on major corridors throughout the city.	The cameras and detectors are planned for segments of High Street and Fruitvale Avenue within the study area.
6. AC Transit East Bay Bus Rapid Transit (BRT) AC Transit Est. Completion: 2014-2016 Funding: Partially funded	BRT service would be introduced along the Broadway, International, and E 14th Street corridor between 20th Street in Oakland and San Leandro BART. The project includes new stations, vehicles, bus signal priority, and dedicated bus-only lanes, as well as bicycle and pedestrian improvements.	BRT would not directly serve the Central Estuary, but could travel along International Boulevard less than one-half mile from the Central Estuary boundary. The enhanced frequency, speed, and quality of the BRT service could make transit a much more attractive mode to reach destinations in downtown Oakland and areas to the south. There is the potential that one travel lane along International Boulevard in each direction could be dedicated to BRT service. This would potentially reduce auto travel lanes and parking in certain areas.
7. Bay Trail/Waterfront Trail Projects City of Oakland, ABAG Est. Completion: Ongoing Funding: Partially funded	There are a series of pedestrian and bicycle trail projects within the Central Estuary study area that are funded by the City of Oakland's Measure DD bond measure.	Projects where easement agreements have been reached and design is ongoing include the Cryer Site (SW corner of Embarcadero/ Dennison St), and the US Audio / NEU site (south of Alameda Ave). Additional sites to complete the shoreline alignment have been studied, but no agreements have been reached. Challenges include bridge crossings at the Park Street, Fruitvale and High Street Bridges.
8. Seismic Retrofit of the Three Estuary Bridges Alameda County Est. Completion: 2010 Funding: "No Collapse" fully funded; "Lifeline" partially funded	Phase 1: "No Collapse" retrofits of the Park St, and High St bridges crossing the Estuary. Phase 2: "Lifeline" retrofit of the Fruitvale Ave bridge.	The "No Collapse" retrofits are funded and currently in design. A "No Collapse" retrofit ensures that the bridge will not collapse. However, it may not be functional for a long time. A "Lifeline" retrofit ensures that a bridge will sustain only minimal damage and it may be functional with a short time. The retrofits do not provide any additional capacity for autos, bicycles, or pedestrians.

Table III-2 (cont.) : Pending and Proposed Projects In or Near the Central Estuary

PROJECT NAME, AGENCY, AND ESTIMATED COMPLETION DATE	PROJECT DESCRIPTION	POTENTIAL EFFECTS ON THE CENTRAL ESTUARY AREA PLAN
9. Estuary Crossing Study City of Alameda Est. Completion: Complete Funding: No funding for implementation	Developed estuary crossing alternatives to the existing Posey Tube. The boundaries of the study area are outside the Central Estuary area.	The report documents the lack of adequate crossings for pedestrians and bicyclists. Improving these connections across the three bridges is a key goal of this Guide.
10. Fruitvale Alive! Master Transportation Plan City of Oakland Est. Completion: Complete Funding: No funding	The Fruitvale Alive! Plan was funded by a Caltrans Environmental Justice Grant. The Plan identifies pedestrian, bicycle, traffic, transit, and parking improvements in the Dimond and Fruitvale Districts in Oakland.	The Fruitvale Alive! study area extends along Fruitvale Avenue to the edge of the Central Estuary at E 9th Street. The recommendations include a number of corridor-wide pedestrian crosswalk enhancements, bulbouts, improved signal coordination, and focused improvements at several intersections. Most of these improvements would fall outside the Central Estuary and are not currently funded.
11. Measure DD Projects City of Oakland Est. Completion: ongoing Funding: Partially funded	The City's Measure DD program financed the Union Point Park project and is working to fill in the Bay Trail gaps through the Central Estuary.	Measure DD funding will support completion of some Bay Trail gaps.
12. E 12th St Bikeway City of Oakland Est. Completion: 2011 Funding: Fully funded	Add bike lanes on E 12th Street from 2nd Avenue to Fruitvale Avenue.	The new bike lanes along E 12th Street will improve east-west connectivity from the Central Estuary to downtown Oakland.
Source: As noted in the table. Compiled by Arup.		

OFF-STREET PARKING

As development occurs within the Central Estuary, off-street parking should be provided in accordance with City regulations. Table III-3 provides a qualitative summary of the current on and off-street parking supply within each Central Estuary sub-area.

Table III-3: Parking Supply

CENTRAL ESTUARY SUB-AREA	PARKING SUPPLY	PARKING DEMAND
West	▪ 60 spaces of diagonal parking provided along the west side of Embarcadero (16th Ave to Livingston St) ▪ 40 spaces of perpendicular parking provided on the south side of Denison St (Embarcadero to King St) ▪ Union Point Park has 67 dedicated off-street spaces in a lot on the north end of the Park and 48 spaces in a lot at the south end ▪ Office buildings in the Embarcadero Cove area have large off-street lots containing several hundred parking spaces ▪ Parallel on-street parking spaces are provided along Embarcadero, Livingston St, Kennedy St, and 23rd Ave	▪ Based on information obtained during field observation during multiple site visits, the existing supply appears adequate to meet parking demand on most streets. ▪ Based on information obtained during field observation during multiple site visits, the off-street lots serving the Embarcadero Cove office complex are typically not filled to capacity.
Central-West	▪ The Jingletown/Elmwood area has on-street parking on all block faces. Approximately 40 perpendicular parking spaces are provided on Glascock St (Derby Ave to Lancaster St), and 15 perpendicular spaces are provided on Derby Ave (Glascock St to the Estuary) ▪ The area is characterized by a mix of land uses including residential, light industrial, institutional (e.g., School of Mosaic Arts), and some retail	▪ The existing land uses generate considerable parking demand that is not fully accommodated by existing off-street lots. ▪ Near businesses that require frequent truck access, the various parking demands and vehicle types (cars versus trucks) compete for the available on-street spaces ▪ A lack of parking restrictions and informal use of setbacks for parking can result in a somewhat chaotic parking situation

Table III-3 (cont.): Parking Supply

CENTRAL ESTUARY SUB-AREA	PARKING SUPPLY	PARKING DEMAND
Central-East	▪ This area consists mostly by large industrial users and the Home Depot. The large industrial users have dedicated off-street parking. ▪ The Home Depot has a large off-street lot with several hundred spaces. ▪ The sub-area's small residential section has on-street parking along most block faces.	▪ Based on information obtained during field observation during multiple site visits, the existing supply appears adequate to meet the parking demands at the industrial sites and at Home Depot.
East	▪ This area's industrial users have large off-street parking areas for employees and large trucks.	▪ The parking supply appears adequate to meet demand.
Source: Arup, 2009		

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IV. INFRASTRUCTURE

The infrastructure section provides guidance on utility requirements within the Central Estuary study area. The Estuary Policy Plan (EPP) calls for the Central Estuary and its surrounding areas to gradually transform its land uses from heavy industrial to a mixture of commercial, light industrial, and residential uses. This process will have an impact on the utility demand as uses redevelop and will provide various opportunities for improving the existing utility infrastructure.

The EPP does not provide specific policies related to utility infrastructure. However, a number of other guiding documents have been adopted by the City that address issues related to storm water, solid waste, and energy usage. The infrastructure improvements should be consistent with all existing City policies and standards.

The infrastructure plan includes the following components:

- A discussion of the existing context and City policies guiding utility infrastructure, the projected utility demand, and issues, constraints, and opportunities
- A discussion of storm drainage, sanitary sewer, water, electricity, gas and telecommunications infrastructure
- The infrastructure cost estimate in the Area Plan assumes a series of utility upgrades required to serve the additional land use program. The type, quantity, and estimated cost for major utility categories is provided in the cost estimate.

UTILITY DEMAND

The land use changes associated with the EPP will likely require improvements to storm drainage, sanitary sewer, water, electricity, gas and telecommunications infrastructure. Table IV-1 compares the water, natural gas, and electricity demand estimates for the existing land uses and a reasonably foreseeable development scenario (illustrated in Figure A-1 in Appendix A). The existing calculations for the utility demands do not represent actual usage,

but represent the potential demand for the existing zoning within the Central Estuary. The utility demand calculations with the development scenario apply the same demand rates used in the existing utility estimate. This assumes that the future utility demand rates do not incorporate any reductions associated with conservation or efficiency programs. The calculations are intended for comparative purposes only.

The development of the Central Estuary is not expected to negatively impact existing infrastructure systems with the study area. The development should incorporate infrastructure improvements that are consistent with City standards and the City of Oakland's Sustainable Community Development Initiative. The extent of the infrastructure improvements is anticipated to be proportional to the size of the development.

Table IV-1: Utility Demand

UTILITY DEMAND ESTIMATES	EXISTING	EPP	DIFFERENCE	
Indoor Water Demand (mgd)[1]	0.28	0.45	0.18	(63%)
Irrigation Water Demand (mgd)	0.12	0.13	0.01	(6%)
Waste-water (mgd) [peak wet weather flow] [2]	0.53	0.86	0.33	(63%)
Natural Gas Demand (Therm/yr)3	1,278,000	1,721,000	443,000	(35%)
Electricity Demand (MW)[4]	22.3	27.3	5.0	(22%)
Electricity Consumption (MWh/yr)[5]	83,000	114,000	31,000	(37%)
Solid Waste Demand (Tons/yr)	5,700	10,400	4,700	(82%)

Notes:

(1) mgd = millions gallons per day

(2) Assumed wet weather flow peaking factor (PF) = 2. Peak Wet Weather Flow = PF * Average Daily Dry Weather Flow.

(3) Therm/yr = thermal units per year

(4) MW = megawatts

(5) MWh/yr =megawatt-hours per year

Source: Arup, 2011

ISSUES, CONSTRAINTS, AND OPPORTUNITIES

Table IV-2 summarizes the infrastructure issues, constraints, and potential opportunities associated with the redevelopment of the Central Estuary.

Table IV-2: Issues, Constraints, and Opportunities

STORM DRAINAGE		
ISSUE	**CONSTRAINTS**	**OPPORTUNITIES**
Storm Drainage Capacity: Two existing major storm drainage lines, along Fruitvale Ave and 37th Ave, conveying storm water from offsite watersheds, are near capacity.	▪ The two existing storm drains cannot take additional run-off from plan area. ▪ The City's Storm Drain Master Plan recommends upgrades to the two major storm drainage lines to improve storm drainage capacity. ▪ The Fruitvale Ave drain belongs to Alameda County Flood Control and Water Conservation District (ACFCWCD).	▪ Upgrading the two existing storm drainage lines may provide opportunities for creek regeneration/improvement (e.g., day-lighting Sausal Creek) to improve storm drain capacity while restoring natural habitat and providing public recreation opportunities. ▪ The volume of run-off from plan area will likely be reduced due to a likely increase in permeable surface area and due to new regulations and storm drainage guidelines.
Impaired Waterbodies: Run-off from the existing watersheds draining into Oakland Estuary, including the plan area, is sufficiently contaminated to result in the Oakland Estuary being listed as an impaired water body in the 2006 303(d) list prepared by the State Water Resources Control Board. Sausal Creek and Damon Slough were recently added to the list of impaired water bodies due to trash.	▪ Most of the existing watershed cannot be directly influenced by the redevelopment of the plan area. ▪ Certain pollutants are being monitored and their discharge to the Oakland Estuary is being restricted. ▪ The plan area may continue be a contributor of pollutants of concern, due to historical and existing industrial land uses. ▪ Portions of development sites may require to be cleaned up if they are identified as the sources of contaminants. ▪ Development will be required to comply with new Municipal Regional Permit (MRP) regulations including: providing 100% trash control into waterbodies by 2020, providing bio-based storm water treatment, and meeting numerical standards for storm water treatment.	▪ New development that creates or replaces 10,000 SF or more of impervious surface is required to implement storm water treatment measures in accordance to provision C.3 of the City of Oakland's National Pollutant Discharge Elimination System (NPDES) permit. ▪ Development will be required to comply with new storm water regulations stated in the Municipal Regional Permit (MRP). ▪ New development will provide opportunities for improving the quality of stormwater run-off from the plan area discharging into the Oakland Estuary, e.g. installing trash screens, green roofs, creating wetlands, ponds, biofiltration planters, raingardens, swales, etc. ▪ If new on-site wetlands are created, these may be able to improve the quality of water entering the plan area from off-site, upstream sources.

Table IV-2 (cont.): Issues, Constraints, and Opportunities

SANITARY SEWER		
ISSUE	**CONSTRAINTS**	**OPPORTUNITIES**
Wet Weather Flows: Groundwater infiltration and rainfall-dependent inflow (I/I) entering the existing sanitary sewer system significantly impacts the water quality in the Bay due to partially treated sewage being discharged.	▪ EBMUD has to meet the requirements from the new NDPES Wet Weather Discharge Permit to reduce the I/I flows during wet weather events. ▪ EBMUD recommends that new developments be responsible for the rehabilitation of existing sanitary sewer pipes or installation of new pipes to reduce I/I.	▪ Use of high efficiency fixtures and appliances would mitigate the volume of sanitary sewage discharges and reduce the impact on peak wet weather flows. ▪ Minimize potable/irrigation water use to decrease impact on sanitary sewer mains.
Sanitary Sewer Discharge Demand: The existing land uses within the plan area are mainly industrial. Depending on the amount of additional program planned, the redevelopment may increase the volume of sewage being generated in the plan area.	▪ The discharge limit and water quality constituent limits stated on EBMUD's and the City's NPDES permits may limit the allowable increase of sanitary sewage from the plan area. This may limit the amount of additional program permitted within the plan area, or require the permits to be amended. ▪ The existing flow capacities of EBMUD South Interceptors and the City's sewer collection system have a limited additional capacity. ▪ The development in the plan area may require upsizing of existing sanitary sewer mains and interceptors.	▪ Use high efficiency fixtures and appliances to reduce the rate and volume of sanitary sewage entering the sewer system. ▪ Should upsizing of existing pipes be required, this will likely reduce I/I and hence peak wet weather flows.

Table IV-2 (cont.): Issues, Constraints, and Opportunities

WATER		
ISSUE	**CONSTRAINTS**	**OPPORTUNITIES**
Water Demand: New development program within the plan area may increase the demand for water.	▪ The East Bay Municipal Utility District (EBMUD) performed a Water Supply Assessment (WSA) in July 2012 for the Central Estuary Area Plan. The WSA determined that the water demand for the land use changes proposed in the plan are accounted for in the water demand projections published in EBMUD's 2010 Urban Water Management Plan (UWMP). Therefore, the plan will not impact water supplies. ▪ Cost associated with providing additional water supply and upgrading the water distribution system.	▪ Minimize potable/irrigation water use to decrease impact on water mains and the plan area's water demand (e.g. utilize high efficiency fixtures and irrigation systems, utilize water-wise landscaping techniques,). ▪ Future potable water demands may be reduced by providing alternative water supply sources, e.g. rainwater harvesting, use of recycled water for irrigation and toilet flushing.
Recycled Water Demand: If the future potable water demand in the plan area is significantly greater than the existing demand, use of recycled water may be desirable.	▪ There is no existing recycled water service within the vicinity of the plan area. ▪ New on-site and off-site recycled water infrastructure would be required. ▪ Cost of installation recycled water distribution system and connecting to existing facilities.	▪ Recycled water could be supplied from the closest existing recycled water facility at the north near Laney College. ▪ Use of recycled water would mitigate potable water demands and reduce the impact on potable water distribution system. ▪ Recycled water could be integrated with on-site district heating / cooling system if appropriate. ▪ An on-site recycled water system may be feasible provided sufficient water is available for recycling.

Table IV-2 (cont.): Issues, Constraints, and Opportunities

GAS, ELECTRICITY, OIL PIPELINES		
ISSUE	**CONSTRAINTS**	**OPPORTUNITIES**
Gas Demand: Future development may increase gas demand. The need to upgrade is to be determined.	▪ Cost of installation	▪ Development within the plan area could be an opportunity to upgrade or relocate the existing gas mains to improve the overall gas distribution system reliability.
Electricity Demand: Future development may increase electricity demand.	▪ Electricity is transmitted by overhead cables at most of the site, which may restrict future development unless moved or undergrounded. ▪ The capacity of existing electrical equipment may be limited. The development of the plan area may require the installation of additional facilities, e.g. substations, transformers, switchgear, upgrading or relocation of existing cable/conduit ▪ Cost of installation	▪ New development may provide opportunities for undergrounding electrical cables to improve the reliability of electrical transmission system and quality of the streetscape. ▪ The upgrading and installation of electrical equipment may improve the reliability of the electrical transmission system. ▪ Development may incorporate district systems, creating significant efficiency improvements and limiting potential demand increases. ▪ The feasibility of implementing a renewable energy generation systems that utilizes solar or biomass/organic waste may be considered.
Existing Abandoned Petroleum and Oil Transmission Pipelines: There are two Shell oil pipelines, probably abandoned, running across the site.	▪ If the pipelines cannot be removed, their easements may constrain development unless moved. ▪ If the pipelines are being used, special precautions may be needed during adjacent construction operations. ▪ If the pipelines have been abandoned, care should be taken during the removal process to minimize the risks of ground contamination or explosions.	▪ If the pipelines can be removed / abandoned, their easements should be quitclaimed so that development improvements are not constrained.
Source: Arup, 2009		

TRANSPORTATION INFRASTRUCTURE CARRYING CAPACITY AND COSTS

The process of creating this Area Plan included an assessment in an approximate way of the extent to which it is likely that future development in the Central Estuary would be able to carry the cost burden of needed transportation improvements. This assessment was based on a reasonably foreseeable potential development scenario and this Area Plan's recommendations for midterm transportation network enhancements, both of which are illustrated in Figure A-1 in Appendix A of this Area Plan.

The cost of road improvements only for the recommended midterm network enhancements was compared to the total market value of potential development on the sites considered likely candidates for new development. The cost of utility improvements was assumed to be handled by the city and/or utilities, and only the currently unfunded street improvements in areas where development was assumed to occur were assumed to be allocated to development. See the Implementation Section in Appendix A for further detail on these cost estimates. The results of this initial assessment were that the cost of midterm network improvements in these areas (labeled as Recommended Midterm Improvements in Figure A-1 in Appendix A) is estimated at $15 million. This figure is about 3 percent of the potential value of the development ($515 million). This amount is less than the rule-of-thumb for the amount that a developer can pay for infrastructure costs, which assumes that a 5 percent cost burden is the maximum that new development can carry. Therefore, it is assumed that new midterm infrastructure improvements could be financed by new development.

It should be noted that this evaluation did not include the costs for utilities or parks improvements – it was assumed that those costs will not be borne by the new development. This initial evaluation was based on the market values for development and is in nominal dollars. It did not take into consideration any phasing of development or the infrastructure improvements.

DESIGN GUIDELINES FOR THE CENTRAL ESTUARY (UNDER SEPARATE COVER)

An illustrated layout of the Design Guidelines has been provided as a separate document.

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APPENDIX A – RECOMMENDATIONS FOR FUTURE TRANSPORTATION PROJECTS

INTRODUCTION

As discussed in Chapter III of this Area Plan, improvements are currently underway that will improve transportation connections between the Central Estuary and I-880 (specifically the 42nd Avenue/High Street Access Improvements and the I-880 Operational and Safety Improvements at the 29th and 23rd Ave Overcrossings), as well as neighborhoods and destinations north of the freeway.

This appendix discusses additional recommended network, multimodal, and streetscape improvements that go beyond the already funded and approved projects described in Chapter III. The provided recommendations are intended for consideration as funding for additional improvements becomes available and the land use changes described in the Estuary Policy Plan (EPP) and this Area Plan occur over time. Any future transportation improvement project will be subject to appropriate CEQA review.

The aim of these recommended network and street improvements is to:

- Build on the already funded and approved improvements mentioned in Chapter III;
- Further address deficiencies and issues identified in the Estuary Policy Plan and the Existing Conditions Report for the Central Estuary Area Plan;
- Provide initial design guidance for new streets and the enhancement of existing streets associated with future land use changes indentified in the EPP and this Area Plan;
- Provide an initial discussion of the general location and design parameters of "policy connections" – future new streets desirable to further enhance multimodal connectivity whose implementation currently is not feasible due to conflicts of the alignment of such streets with economically viable uses.

RECOMMENDATIONS FOR FUTURE TRANSPORTATION NETWORK ENHANCEMENTS

Recommendations in this section are intended to address the shortcomings of the Central Estuary's existing circulation network identified in Chapter III, including poor connectivity to the waterfront, lack of direct routes parallel to the waterfront, and the generally poor connectivity among local streets. The recommendations are separated into two categories:

1. **Mid-term network enhancements**, which are contingent on the potential development of sites considered likely candidates for new uses or structures.

2. **Long-term network enhancements,** which are deemed desirable at the transportation network policy level but are contingent on the future development of sites occupied by currently economically viable uses.

MID-TERM NETWORK ENHANCEMENTS

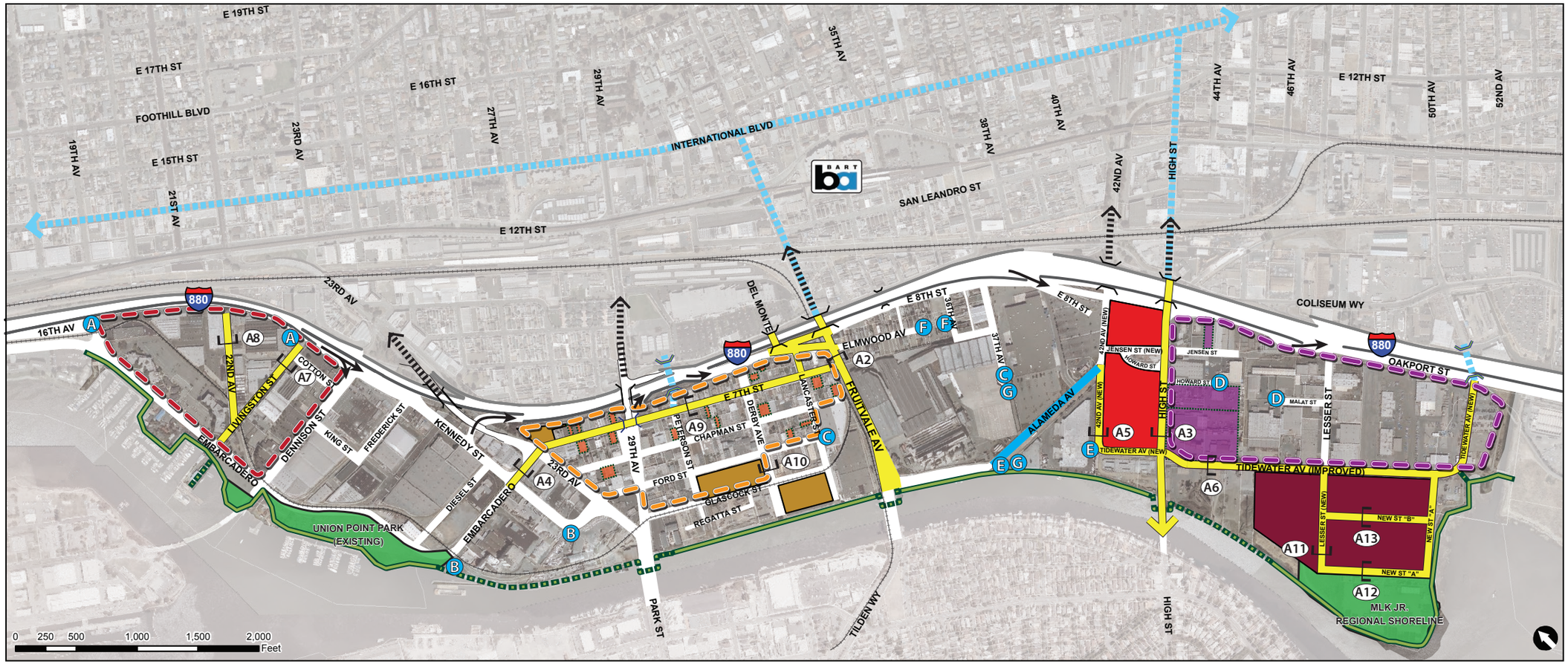
This section discusses enhancements to the Central Estuary's local street network that are closely associated with potential future land use changes and development activity on sites considered to be likely candidates for new development. Specifics associated with the design of these new street segments and enhancements of existing rights-of-way are discussed further in the *Description of Recommended Improvements* section of this Appendix. These enhancements are shown in yellow on Figure A-1, which is a pull-out map.

42ND AVENUE EXTENSION AND TIDEWATER AVENUE EXTENSION (WEST)

This recommended new street would consist of a southern extension of 42nd Avenue and western extension of Tidewater Avenue.

Implementation of this connection would:

- Provide important multimodal circulation around and access to potential future development on properties west of Howard Street and north of High Street.
- Provide relief to High Street by providing a parallel route for traffic to and from the Tidewater area.
- Provide the eastern tie-in point for Policy Connection E-E (see following section).



Source: CD+A, City of Oakland

Potential Future Street Network

- Recommended Mid-term Improvements (Improvements and New Streets)[1]
- Potential Long-Term Projects Beyond Project Boundary[1]
- Bay Trail (proposed)
- Bay Trail (existing)
- Gated or closed street
- I-880 On/Off Ramps
- Underpass - Existing
- Ped/Bike Underpass - Future
- Connections to existing neighborhoods
- Street Section Numbers (see Appendix A for Street Section Figures)
- Future Roadway Policy Connection Points[1]
- Street segment to be removed from network after completion of potential future E-E policy connection[1]

Potential Future Land Use

- Retail/Commercial
- Commercial-Industrial Mix
- Medium Density Res
- Parks
- Infill: Live/Work
- Infill: Light Industrial/R&D
- Area of Live/Work Infill
- Area of Light Industrial Infill
- Area of Mixed-use Infill

1 The recommended transportation improvements (including mid-term improvements and new streets, long-term projects beyond the project boundary, future roadway policy connection points, and street segments to be removed from network after completion of potential policy connections) shown on this map are unapproved and unfunded. As such, they were excluded from the main body of the Supplemental Environmental Impact Report (SEIR) prepared for this project. However, they were studied at a qualitative level, as part of the Maximum Infrastructure Alternative #5 in the EIR's analysis. Any future transportation improvement project will be subject to appropriate CEQA review. These projects are detailed in Appendix A of the CEAP.

Figure A-1: Potential Future Land Use and Street Network

TIDEWATER AVENUE EXTENSION (EAST)

This new network segment would extend the eastern end of Tidewater Avenue to Oakport Street at the location of a potential future pedestrian/bicycle crossing of I-880, connecting to 50th Avenue.

Implementation of this connection would:

- Change Tidewater Avenue from a cul-de-sac into a through street;
- Enhance emergency access;
- Provide relief to High Street by creating a loop road (with Oakport Street) that creates an alternative ingress/egress route for traffic to and from existing and potential future development in the Tidewater area; and,
- Create an opportunity for providing enhanced non-vehicular access to places of employment and the Martin Luther King Jr. Regional Shoreline from the neighborhoods across I-880 by a potential pedestrian/bicycle crossing that could be implemented in the future (see Figure A-1).

LONG-TERM NETWORK ENHANCEMENTS

The following paragraphs describe policy-level recommendations for future enhancements to the Central Estuary's local street network that are contingent on major, long-term changes in existing land uses currently occupied by economically viable uses, such as Con-Agra or Owens-Brockway. Figure A-1 illustrates these long-term network enhancements by identifying recommended connection points. These points are represented by pairs of letters, e.g. location 'A' would be connected to the other location denoted by 'A,' 'B' to 'B,' and so on.

The term "policy connection" (or "policy-level connection") was chosen in order to convey that a street connection between two points would significantly advance the goal of enhancing the Central Estuary's transportation network, while at the same time acknowledging that no specific alignment is suggested at this time, because the required right-of-way for such connections would cross private property occupied by currently viable businesses. No specific timeline can therefore be given for when the recommended connections can be implemented. The alignment, configuration, and design of each of these new network segments would require further study in the future on a case-by-case basis.

POLICY CONNECTION A – A

Policy Connection A – A: from the southern end of the Avenue Overpass to the northern end of Livingston Street. Potential addition to the local street network in the Mixed-Use Infill area at the western end of the Central Estuary. Requires right-of-way acquisition or negotiation of an easement.

Implementation of this connection would:

- Change 22nd Avenue from a cul-de-sac into a street with an outlet;
- Enhance emergency access;

- Add choices for local access to the infill area and therefore divert some traffic from the Embarcadero;
- Enhance access to new development and parking in rear of development fronting onto 22nd Avenue, Livingston Street, the Embarcadero and this new street.

POLICY CONNECTION B – B

Policy Connection B – B: from the Embarcadero rail crossing at the southern end of Union Point Park to Kennedy Street just southwest of the Park Street Triangle. Requires right-of-way acquisition.

Implementation of this connection would:

- Constitute a new segment of the waterfront roadway system envisioned in the Estuary Policy Plan.
- Enhance multimodal access to the Central Estuary waterfront.

POLICY CONNECTION C – C

Policy Connection C – C: from the eastern end of Ford Street to the southwestern end of 37th Avenue. Requires right-of-way acquisition.

Implementation of this connection would:

- Provide a central connector between Fruitvale Avenue and 37th Avenue from which new development could be accessed if large-scale properties in the area were to develop in the future.

POLICY CONNECTION D – D

Policy Connection D – D: from the eastern end of Howard Street to the western end of Malat Street. Potential addition to the local street network in the Light Industrial Infill area south of High Street. Requires right-of-way acquisition or negotiation of an easement.

Implementation of this connection would:

- Change Howard Street and Malat Street from cul-de-sacs to through streets;
- Enhance emergency access;
- Enhance general accessibility of properties located in the infill area.

POLICY CONNECTION E – E

Policy Connection E – E: from the eastern end of the segment of Alameda Avenue that parallels the Estuary to the western end of the recommended extension of Tidewater Avenue. Requires right-of-way acquisition.

Implementation of this connection would:

- Constitute a new segment of the waterfront roadway system envisioned in the Estuary Policy Plan;
- Enhance multimodal access to the Central Estuary's waterfront.

POLICY CONNECTION F – F

Policy Connection F – F: from the eastern end of Elmwood Avenue to 36th Avenue. Requires right-of-way acquisition or negotiation of an easement.

Implementation of this connection would:

- Change Elmwood Avenue and 36th Avenue from cul-de-sacs into through streets;
- Enhance emergency access;
- Enhance local connectivity and access.

POLICY CONNECTION G – G

Policy Connection G – G: from the southeastern end of 37th Avenue to Alameda Avenue (or Policy Connection E – E, when this is implemented). Requires right-of-way acquisition or negotiation of an easement.

Implementation of this connection would:

- Change 37th Avenue from a cul-de-sac into a through street;
- Enhance emergency access;
- Enhance local connectivity and access (if implemented prior to Policy Connection C – C);
- Provide access to new development if large-scale properties in the area were to develop in the future (if implemented in conjunction with Policy Connection C – C)

PARTIAL REMOVAL OF ALAMEDA AVENUE

Partial Removal of Alameda Avenue: Alameda Avenue from its eastern end to the western terminus of Policy Connection E – E. Contingent on completion of Policy Connection E – E and construction of the extensions of 42nd and Tidewater Avenues (see Figure A-1).

Abandonment of this street right-of-way would:

- Allow for more efficient land use in the area currently bisected by the diagonal alignment of Alameda Avenue;
- Eliminate redundant access function of this street with the recommended implementation of a 42nd Avenue Extension.

INITIAL RECOMMENDATIONS FOR MID-TERM IMPROVEMENTS TO SELECTED EXISTING AND NEW STREETS

INTRODUCTION

This section provides initial recommendations for improvements to selected existing and potential future streets in the Central Estuary. The streets for which recommendations are provided were selected based on the following criteria:

1. New street is likely needed to serve sites considered likely candidates for development;

2. Existing street should be redesigned to enhance pedestrian and bicycle safety and comfort in light of the potential future mix of existing and new land uses and expected additional pedestrians and bicyclists;

3. Existing street should be improved to enhance pedestrian and bicycle safety and comfort in light of its importance within the pedestrian/bicycle circulation network in the Central Estuary; and

4. Existing street can be enhanced to better accommodate on-street parking for residential, commercial or industrial uses, as appropriate.

   Note – consult with the City's Public Works Agency regarding the current specific design requirements.

Based on the above, this section of the appendix provides recommendations for the following streets:

1. New street is likely needed to serve sites considered likely candidates for development:

   - 42nd Avenue Extension (South)
   - Tidewater Avenue Extension (West)
   - Lesser Street Extension
   - New Street "A"
   - New Street "B"
   - Tidewater Extension (East)

2. Existing street should be redesigned to enhance pedestrian and bicycle safety and comfort in light of the potential future mix of existing and new land uses and the resulting additional pedestrians and bicyclists:

   - 22nd Avenue in the Mixed-Use Infill Area
   - Livingston Street in the Mixed-Use Infill Area
   - High Street (also see 3.)
   - Tidewater Avenue (also see 3.)

3. Existing street should be improved to enhance pedestrian and bicycle safety and comfort in light of its importance within the pedestrian/bicycle circulation network in the Central Estuary:

   - East 7th Street east of 23rd Avenue
   - East 7th Street in the Live/Work Infill Area
   - High Street (also see 2.)
   - Fruitvale Avenue
   - Jingletown/Elmwood Neighborhood Connection Improvements
   - Tidewater Avenue (also see 2.)

4. Existing street can be enhanced to better accommodate on-street automobile parking (not including trucks):

   - Derby Avenue

DESCRIPTIONS OF RECOMMENDED FUTURE IMPROVEMENTS

In order to facilitate a clear understanding of the recommended improvements in the context of existing City of Oakland plans and standards, the streets listed above have been organized into the three major street type categories used by the Oakland General Plan: Arterials, Collectors, and Local Streets.

Please also refer to Table A-1 – *Central Estuary Street Types Characteristics* and Table A-2 – *Central Estuary Design Recommendations*, both of which provide a summary of the described improvements and recommended design characteristics.

Automobile and truck travel lanes are shown as having a MAXIMUM width. Future improvements should be designed by street or street section to serve not only the land uses, but also the types of traffic that needs to be accommodated. In all cases, streets shall be designed with the Complete Streets approach required in Resolution 84204 C.M.S. (Complete Streets Resolution).

ARTERIALS (GENERAL PLAN)

1. FRUITVALE AVENUE

Existing Conditions and Users

Fruitvale Avenue is an important connector between Alameda, the Central Estuary and neighborhoods to the northeast. Currently, the street's limited right-of-way is optimized for the throughput of vehicular traffic, al-

though continuous sidewalks and bike lanes exist. Pedestrians are accommodated on 5-foot (east side) and 8-foot (west side) sidewalks, located directly adjacent to the street. Bicyclists travel on 5-foot wide bike lanes adjacent to 12-foot travel lanes. Safer and more comfortable connections for pedestrians and bicyclists to BART and the future East Bay Bus Rapid Transit (BRT) on International Boulevard are desirable but challenged by the limited available right-of-way (60 feet) and the need to maintain vehicular capacity for automobile and truck traffic to and from Alameda.

Current Plans

The EPP has designated Fruitvale Avenue as the primary bicycle and pedestrian connection to BART. The recommended future improvements listed below are consistent with these designations.

Recommendations for Future Improvements

Recommendations for future improvements of Fruitvale Avenue include widening the existing bike lanes and sidewalks along Fruitvale in order to strengthen bicycle and pedestrian connectivity between Alameda, the Central Estuary and neighborhoods to the northeast. In particular, the improvements would enhance non-motorized connectivity to Fruitvale BART and the future East Bay BRT on International Boulevard. In order to achieve the

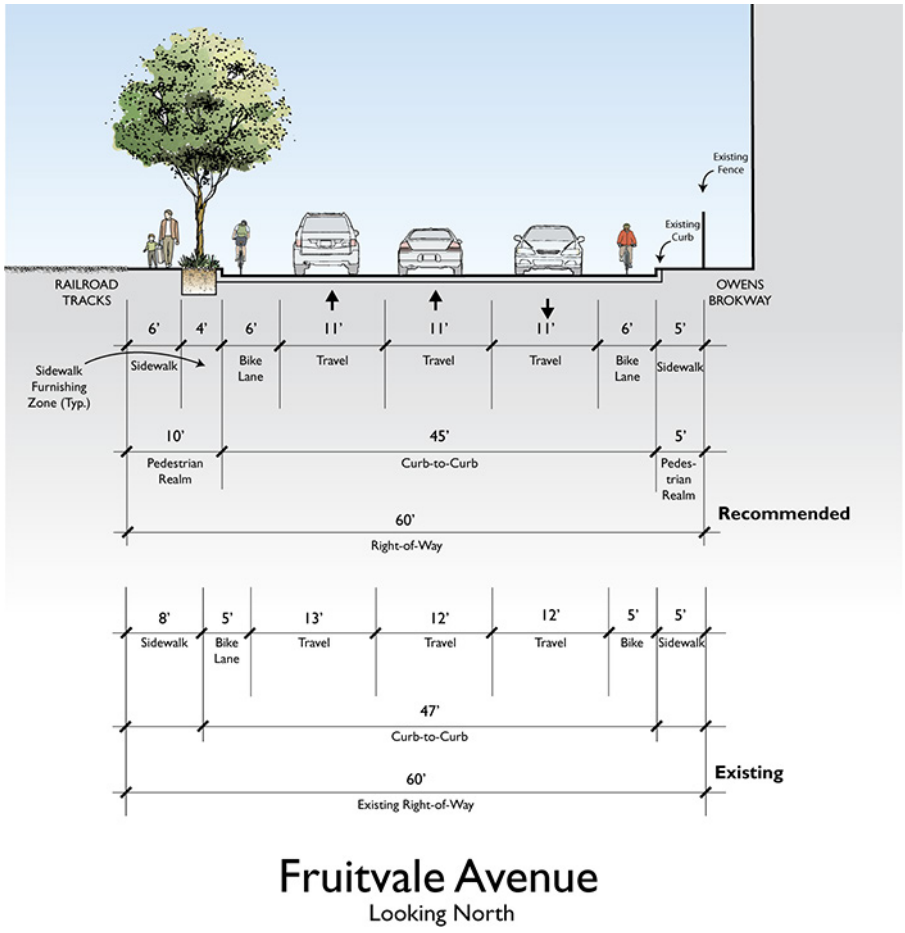
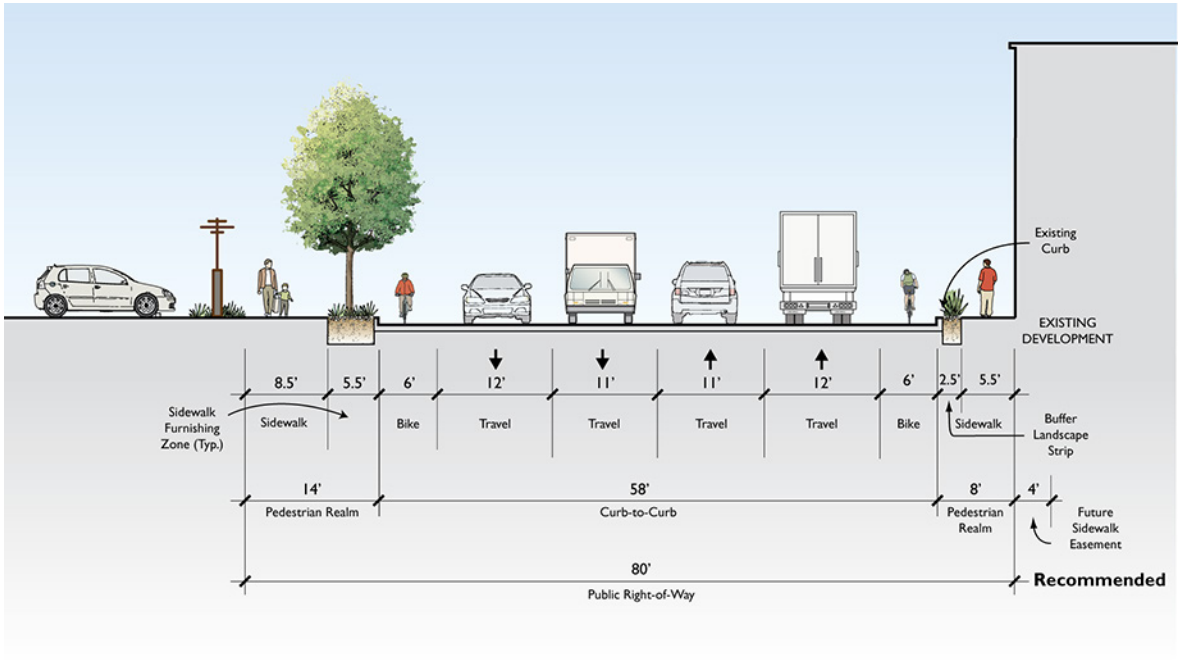
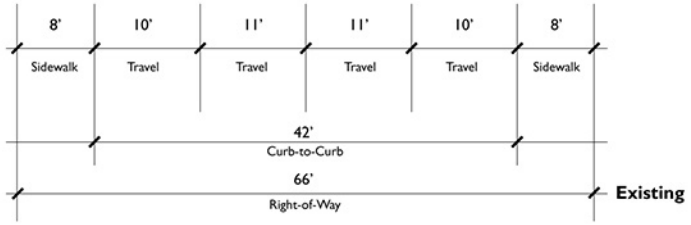


Figure A-2. Recommendations for Fruitvale Avenue Improvements





High Street
Looking North

latter, it is recommended to also improve pedestrians travel connections underneath I-880 at Elmwood Avenue and E 9th Street.

Figure A-2 illustrates the recommended improvements, which are achieved within the existing right-of-way by narrowing the existing travel lanes by one foot.

2. HIGH STREET

Existing Conditions and Users

High Street serves as one of the primary access points to the City of Alameda and the Tidewater industrial area. High Street is a designated truck route in Oakland's 2010 Municipal Code (Chapter 10.52). It also serves as an important local connector between the Central Estuary and neighborhoods to the northeast.

The street currently has no bike lanes. Pedestrians are accommodated on 8-foot sidewalk on either side of the street.

Current Plans

The EPP identifies High Street as a local connector, which indicates that pedestrians and bicycles need to be accommodated. The City's Bicycle Master Plan identifies High Street between East 12th Street and the High Street Bridge as a proposed Class 2 bike facility, acknowledging the importance of providing a bicycle connection to the Bay Trail and into Alameda.

Recommendations for Future Improvements

The planning for the segment of High Street between I-880 and the Estuary is challenging because it needs to accommodate continuing high use by automobiles and trucks, new Class 2 bicycle facilities, and the potential for increases in pedestrian volumes based on future land use. Land use designations along this segment of High Street include new retail/commercial between High Street and 42nd Avenue, but also the preservation of industrial/commercial on the southeastern side of High Street.

The recommended configuration for High Street considers the ongoing and pending improvement projects along High Street and 42nd Avenue at I-880, which will improve traffic operations and access to the Central Estuary. High Street will continue to serve as a primary truck route.

The recommended cross-section strikes a balance maintaining vehicular capacity and better incorporating non-motorized travel. It also works in tandem with the recommended cross-section for a 42nd Avenue Extension (see below). The cross-section maintains four travel lanes (two in each direction) and includes Class 2 bike lanes in both directions, but no on-street parking. The pedestrian environment is improved by widening the sidewalk on the west side of the street and by buffering pedestrians on the east side through a narrow planting strip.

The cross-section in Figure A-3 illustrates the recommended improvements.
The additional right-of-way needed to

accommodate all desired improvements is achieved by widening the right-of-way along its north-western edge as part of future development of the parcels located there. The curb on the south-east side is maintained in its current location.

COLLECTORS (GENERAL PLAN)

1. EAST 7TH STREET BETWEEN KENNEDY STREET AND 23RD AVENUE

Existing Conditions and Users

This segment of East 7th Street acts as the easterly extension of the Embarcadero, connecting the Embarcadero, Kennedy Street, and 23rd Avenue. 23rd Avenue is an important arterial street that establishes north-south connection across I-880. East 7th Street is the only direct connection between the residential areas of Jingletown/Elmwood and Union Point Park, the Bay Trail, and other recreational and commercial destinations along the waterfront adjacent to the Embarcadero. Formerly, East 7th Street between and including the intersections at Kennedy Street and 23rd Avenue was difficult to maneuver for bicyclists because it lacked bicycle lanes. This unsafe gap between the existing bicycle lanes on Embarcadero and the Bicycle Boulevard on East 7th Street east of 23rd Avenue was recently closed by a restriping project that introduced bicycle lanes on this block.

Current Plans

The Bicycle Master Plan shows proposed Class 2 bike lanes on 23rd Avenue and a Bicycle Boulevard on East 7th Street east of 23rd Avenue (recently striped by the City of Oakland). The Pedestrian Master Plan shows E 7th Street as a Neighborhood Route. The East 7th Street alignment serves as temporary alignment of the Bay Trail until gaps in the Bay Trail along the Estuary waterfront can be closed.

Recommendations for Future Improvements

Although new bicycle lanes were recently established through a restriping project between Kennedy and 23rd Avenue, the temporary Bay Trail function and importance of this block as sole direct link for non-motorized travel between Union Point Park and residences in the Jingletown/Elmwood neighborhood has motivated development of the recommended cross section shown in Figure A-4. The recommended improvements go farther than the recent restriping by narrowing the westbound travel lanes on East 7th Street approaching 23rd Avenue in order to provide a Class 2 bike lane. The eastbound travel lane is shifted slightly to the south. The “free” right-turn movement from southbound 23rd Avenue to Kennedy Street is channelized into its own lane to prevent any conflicts with bicyclist traveling eastbound on East 7th Street. The right-turn movement from southbound 23rd Avenue to eastbound East 7th Street is still permitted;

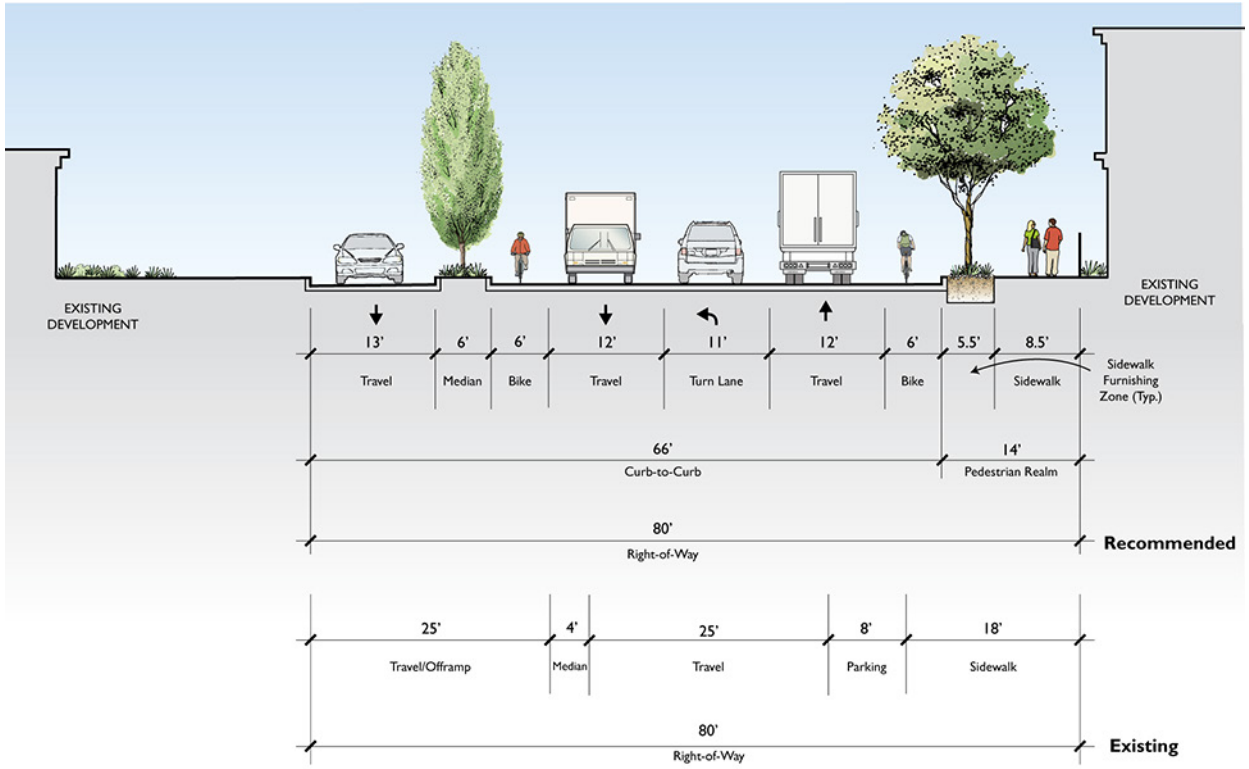


Figure A-4. Recommendations for East 7th Street Improvements

however, the movement would occur at the intersection instead of at the "free" channelized right-turn.

2. 42ND AVENUE EXTENSION

Existing Conditions and Users

Currently, 42nd Avenue does not extend into the Central Estuary.

Current Plans

Caltrans and the City of Oakland are completing improvement projects at 42nd Avenue and High Street at I-880, designed to improve traffic operations and access to the Central Estuary. The 42nd Avenue extension into the Central Estuary will create increased connectivity within the Study area and provide additional access to the Estuary and waterfront. The current improvements are described in greater detail in Chapter III of the CEAP.

Recommendations for Future Improvements

Similar to the reconfiguration recommended for High Street, the recommendations for 42nd Avenue consider the ongoing improvement projects along 42nd Avenue and High Street at I-880 while accounting for the 42nd Avenue to serve a variety of functions based on potential future land use changes. The recommended future improvements include an extension of 42nd Avenue beyond Howard Street and aligning its terminus such that it parallels High Street and intersects with the Tidewater Extension (West); see discussion of this street below. The 42nd Avenue Extension would create a direct path for vehicles exiting southbound I-880 to reach High Street and Alameda. It will also provide access to the new retail parcels along High Street and improve bicycle connectivity between Alameda Avenue and Tidewater Avenue.

The recommended cross-section includes two travel lanes (one lane in each direction) with bike lanes provided on the segment between Tidewater and Alameda Avenues. The bicycle lanes can be removed and converted to on-street parking if desired after the potential Policy Connection E – E and attendant bicycle lanes have been built.

The cross-section in Figure A-5 illustrates the recommended improvements.

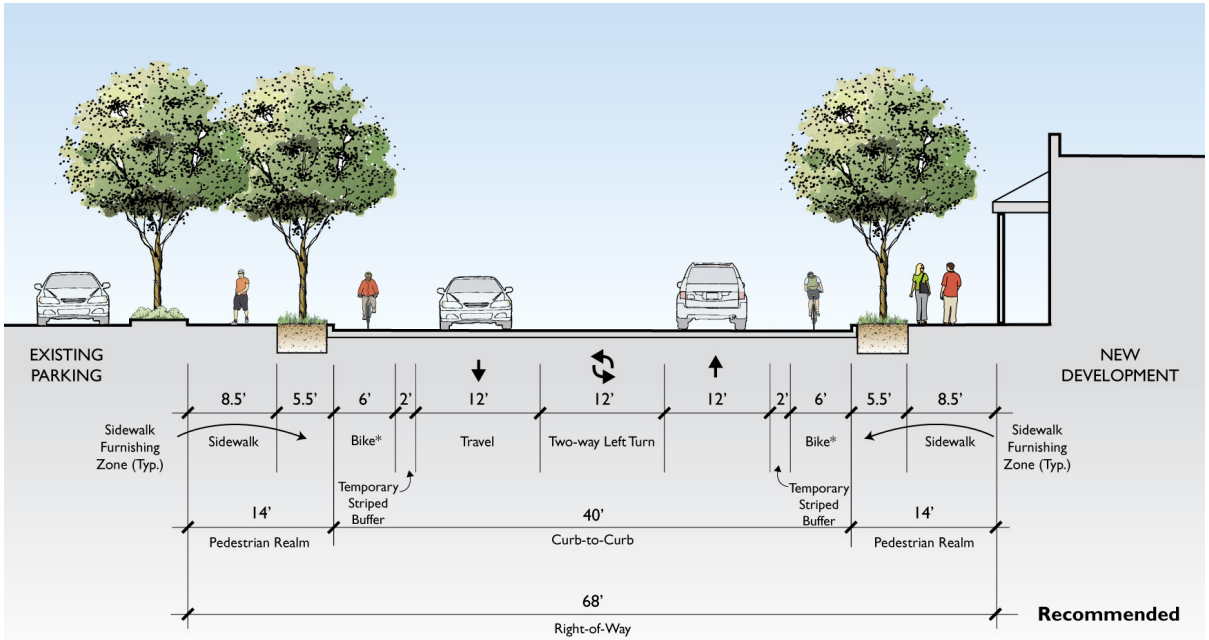
3. TIDEWATER EXTENSION (WEST)

Current Plans

There are no plans for Tidewater Extension (West) in current policy documents.

Recommendations for Future Improvements

Tidewater Extension (West) will serve to connect 42nd Avenue Extension to High Street at Tidewater Avenue. Recommendations and cross section are the same as for 42nd Avenue Extension (see discussion above and the cross-



* After completion of Policy Connection E – E (which includes bicycle lane) between Alameda Avenue and Tidewater Avenue, convert Bicyle Lanes to On-Street Parking

42nd Avenue Extension
Looking North

Figure A-5. Recommendations for 42nd Avenue Extension

section in Figure A-5). If and when Policy Connection E-E is implemented, this will become a further continuation of Tidewater Avenue eastbound, turning the intersection with 42nd Avenue into a T-intersection.

4. TIDEWATER AVENUE AND TIDEWATER EXTENSION (EAST)

Existing Conditions and Users

Tidewater Avenue currently is a 50-foot wide street built on a "non-exclusive driveway easement"[1] and therefore not a public street in the common sense. The street primarily serves industrial users and is heavily used by trucks. The pavement of the street is in poor condition, and pedestrians and bicyclists – although permitted to use the Tidewater Avenue easement for access to the waterfront and the Tidewater Boating Center via a second easement just east of ABF U-Pack Moving – are poorly accommodated.

The alignment for the Tidewater Extension (East) to Oakport Street as shown in Figure A-1 is currently occupied by the PG&E Oakland Service Center.

Current Plans

The *City of Oakland Industrial District Strategy Support – Public Infrastructure Assessment and Recommendations* report, commissioned by the City of Oakland in 2008 in support of its Industrial District Strategy, includes a range of cross section alternatives for the reconfiguration of Tidewater Avenue. These include varying approaches for accommodating truck travel, parking, pedestrian travel, landscaping, and overhead utilities within both 50- and 60-foot rights-of-way/easements. None of the concepts specifically address the accommodation of bicycles.

The Estuary Policy Plan discusses Tidewater Avenue as a future segment of the Waterfront Roadway System envisioned in that document to continue south beyond the borders of the Central Estuary. The Bicycle Plan shows Class 2 bike lanes on Tidewater. This designation is consistent with the function of the street as a temporary alignment of the Bay Trail until gaps in that facility at the High Street Bridge and along industrial uses south of the bridge can be closed in the future.

Neither of the two documents includes the concept of a Tidewater Avenue extension to Oakport Street to connect to a potential future I-880 underpass at or near 50th Avenue to 55th Avenue.

Recommendations for Future Improvements

The recommended future improvements for this street can be applied to either a private driveway easement or a newly dedicated public right-of-way. In light of the importance of Tidewater Avenue for multimodal access to the public MLK Jr. Regional Shoreline

1 Industrial District Strategy Support – Public Infrastructure Assessment and Recommendations report, City of Oakland, 2008.

and amenities, such as the Tidewater Boating Center and Bay Trail, the Area Plan recommends converting Tidewater Avenue to a public street. The recommended cross section accommodates not only truck and auto traffic as well as truck parking but also bicycle and pedestrian travel in accordance with the street's function as a temporary Bay Trail connection route. Because the safe accommodation of bicyclists on a street with heavy truck traffic can only be achieved through Class 2 bike lanes, these are recommended as program elements for the street. The recommended 70-foot cross-section therefore includes Class 2 bike lanes, two 12-foot travel lanes, a wider sidewalk with landscape buffer (on the south side only), and 9-foot on-street parking to accommodate trucks.

The cross section was developed with the narrowest distance between existing buildings on either side of Tidewater in mind, in order to avoid conflicts with major existing structures. Adjustments to the cross section may need to be made in order to accommodate local obstructions or high value private improvements. The amount of actually available space for dedication as a public right-of-way will need to be verified by the City and negotiated with the local property and business owners.

The recommended cross section could also be used for a potential Tidewater Avenue Extension (East) to Oakport Street. If a pedestrian/bicycle underpass is implemented around 50th Avenue to 54th Avenue and Oakport Street in

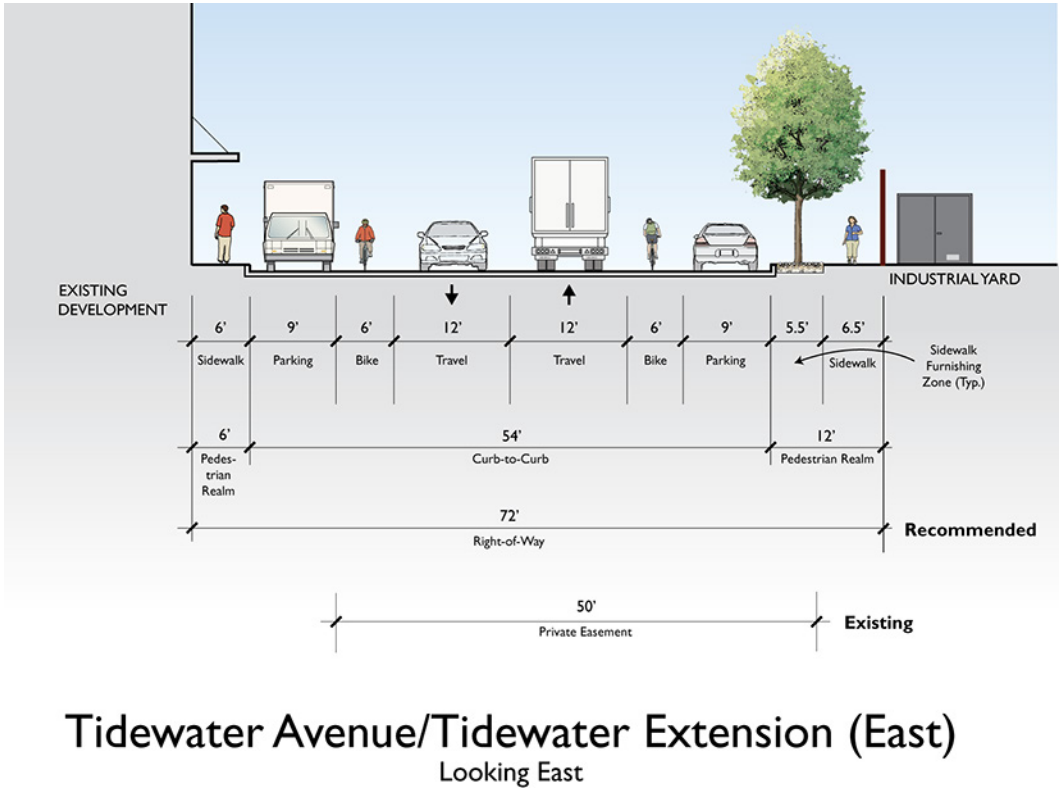


Figure A-6. Recommendations for Tidewater Avenue Improvements and Tidewater Extension (East)

the future, the Tidewater Avenue Extension would provide a direct and safe connection for non-motorized users to access the MLK Jr. Regional Shoreline and Bay Trail.

Figure A-6 illustrates the recommended improvements.

Recommended Interim Improvement:

Independent of a future comprehensive redesign of High Street or Tidewater Avenue, it is recommended to immediately implement the following improvement recommended in the *Oakland Industrial District Strategy Support – Public Infrastructure Assessment and Recommendations* report in order to address a concern over large truck turning movements at the High Street/tidewater intersection:

The report recommends that the southeastern corner of the Tidewater/High Street intersection be improved, with the corner reconfig-

ured to allow eastbound trucks to make this turn without entering westbound lanes on High Street.

LOCAL STREETS (GENERAL PLAN)

1. LIVINGSTON STREET

Existing Conditions and Users

Livingston Street extends southeast from Embarcadero adjacent to Embarcadero Cove, opposite the Livingston Pier. Livingston Street provides access to a broad mix of uses including light industrial, as well as some converted residential, commercial and institutional uses. The existing street includes 18-foot sidewalks on both sides, with some segments having narrower pedestrian through-zones due to the encroachment of landscaping along certain building edges. The street supports two lanes of traffic (one in each direction) with on-street parallel parking on both sides.

Near the intersection with Embarcadero, just south of the railroad tracks that cross Livingston, the sidewalk is eliminated on the east side of the street, where vehicles park on loose gravel in informal perpendicular spaces.

Current Plans

The General Plan and Estuary Policy Plan designate Livingston Street as a local street.

Recommendations for Future Improvements

In light of anticipated potential infill development and adaptive reuse for more intensive uses, including multi-family residential, on adjacent properties, improvements to pedestrian conditions are recommended along Livingston Street. These include the introduction of landscaping zones at the curb side of existing sidewalks to provide space for planting and street trees. Furnishings may be provided based on the initiative of property owners. Corner curb extensions of sidewalks are recommended, but curb radii must be designed to accommodate turning trucks. Additionally, future Livingston Street improvements should consider the feasibility of angled parking (in addition to recommendations described above).

The cross-section in Figure A-7 illustrates the recommended improvements.

2. 22ND AVENUE

Existing Conditions and Users

22nd Avenue extends north from Livingston Street, just east of Embarcadero, near Embarcadero Cove. 22nd Avenue provides access to a mix of light industrial, office, and limited residential uses. The existing street section includes a sidewalk on the west side

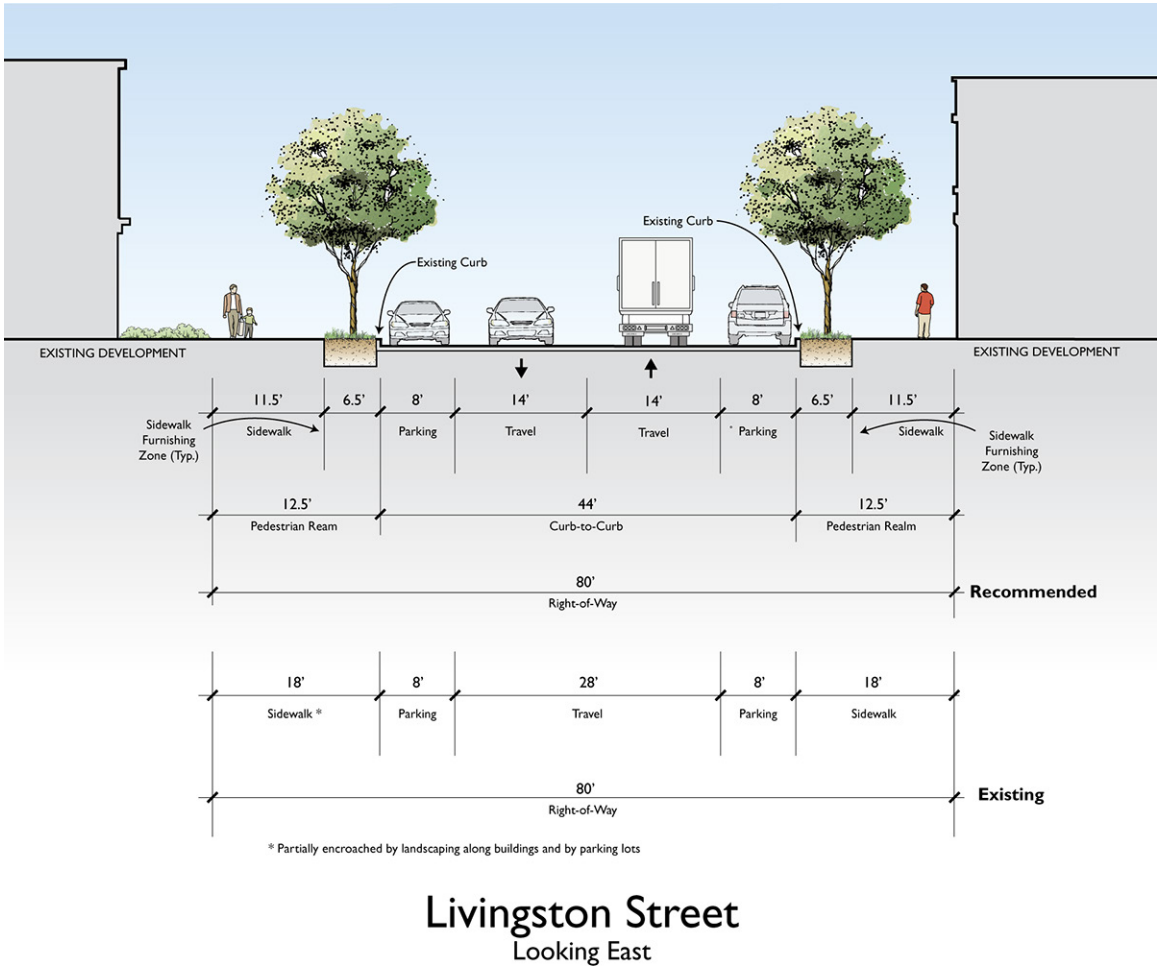


Figure A-7. Recommendations for Livingston Street Improvements

of the street, parallel parking on both sides and a generous two-lane traveled way (one in each direction). No sidewalk is provided on the existing east side of the street.

Current Plans

The Estuary Policy Plan designates 22nd Avenue as a local street.

Recommendations for Future Improvements

In light of anticipated potential infill development and adaptive reuse, improvements to pedestrian conditions are recommended along 22nd Avenue. These include the introduction of a widened sidewalk on the west side of the street, and a new sidewalk on the east side, along with landscaping zones at the curb side of both sidewalks that provide space for planting and street trees. Furnishings may be provided based on the initiative of property owners. Corner curb extensions of sidewalks are recommended, but curb radii must be designed to accommodate turning trucks. The existing, over-sized traveled way is narrowed to two standard truck-accessible 12-foot lanes (one in each direction) to accommodate the sidewalk improvements, while parallel parking remains on both sides of the street at a slightly narrower, but still standard depth of 7 feet.

The cross-section in Figure A-8 illustrates the recommended improvements.

3. EAST 7TH STREET BETWEEN 23RD AVENUE AND FRUITVALE AVENUE

Existing Conditions and Users

East 7th Street, which begins as an extension of the Embarcadero at Kennedy Street and ends at Fruitvale Avenue, consists of two segments. The first segment of East 7th Street runs from Kennedy Street and to 23rd Avenue (this is discussed above under the category Collectors). The second segment begins at 23rd Avenue, continues through the pedestrian/bicycle only undercrossing at 29th Avenue, and runs through the Jingletown/Elmwood neighborhood parallel to I-880 until it terminates at Fruitvale Avenue. Together with the Embarcadero, the two segments of East 7th Street constitute an important connection between the mostly residential Jingletown/Elmwood neighborhood and Union Point Park and other destinations along the Embarcadero. East 7th Street is also the only direct through-route between the Embarcadero and Fruitvale Avenue, which connects to important transit and retail destinations located just beyond the Central Estuary and along International Boulevard. This makes East 7th Street an important route for both pedestrians and bicyclists.

Current Plans

The Oakland Pedestrian Master Plan shows East 7th Street as both a segment of the Bay Trail and as a Neighborhood Route. The Oakland Bicycle Master Plan designates East

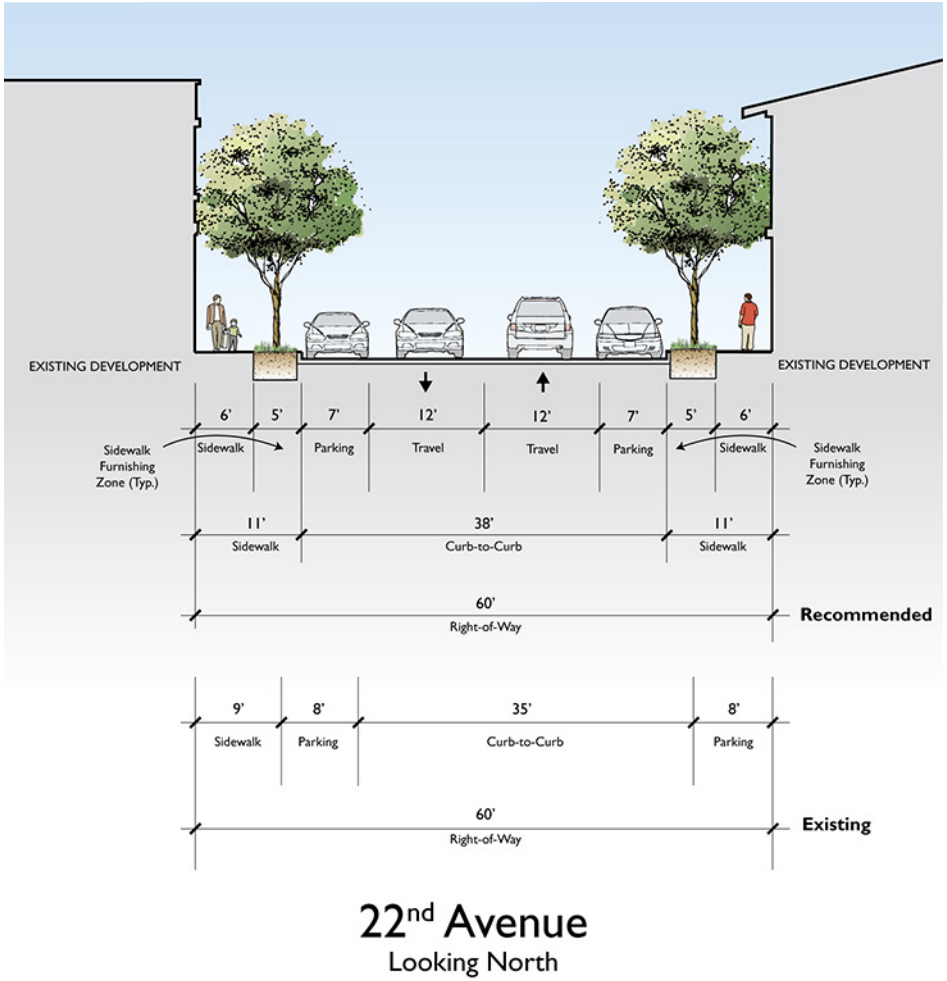


Figure A-8. Recommendations for 22nd Avenue Improvements

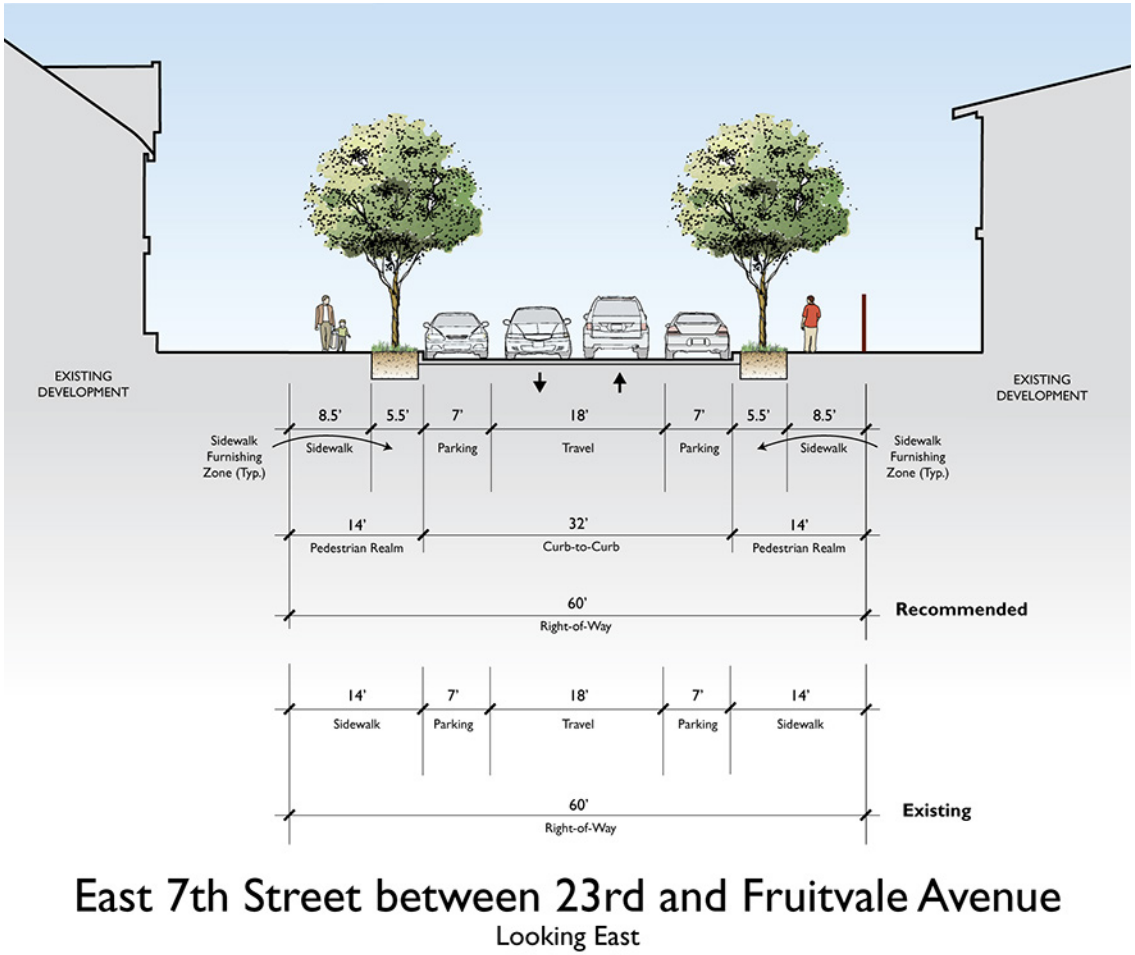


Figure A-9: Recommendations for East 7th Street Improvements

7th Street east of 23rd Avenue as a Class 3 B Bicycle Boulevard. In recognition of this, the City recently completed a restriping project for East 7th Street, which included markings such as "sharrows," speed hump striping, and other bicycle related markings. In conjunction with the striping of new Class 2 bike lanes on East 7th Street between Kennedy and 23rd Avenue, this completes a bicycle priority connection between the Embarcadero and Fruitvale Avenue, which both have Class 2 bike lanes.

Recommendations for Future Improvements

In addition to the recent restriping of East 7th Street as a Bicycle Boulevard, the recommended cross-section (see Figure A-9) illustrates how the pedestrian realm of the street should be upgraded through the introduction of street trees and other landscaping to increase pedestrian comfort along this important Neighborhood Route. All roadway elements are maintained as existing.

4. DERBY AVENUE

Existing Conditions and Users

Derby Avenue is an east-west local street that also provides access to the Estuary waterfront. The street is the only local street in the Jingletown/Elmwood neighborhood with an 80-foot wide right-of-way. Due to the lack of continuous sidewalks on several blocks, the space typically occupied by sidewalks is utilized for perpendicular parking. On the east side of Derby Avenue between Glascock and Ford Streets, angled parking has been constructed along with a new sidewalk as part of a development project. The lack of continuous sidewalk inhibits pedestrian travel from within the neighborhood to the waterfront.

Current Plans

Derby Avenue is a Local Street in both the General Plan and the Estuary Policy Plan.

Recommendations for Future Improvements

The existing example of angled parking in conjunction with an adjacent sidewalk between Ford and Glascock Streets was used to develop the recommended cross section in Figure A-10. Parking on the side opposite from the 30-degree angled spaces is ar-

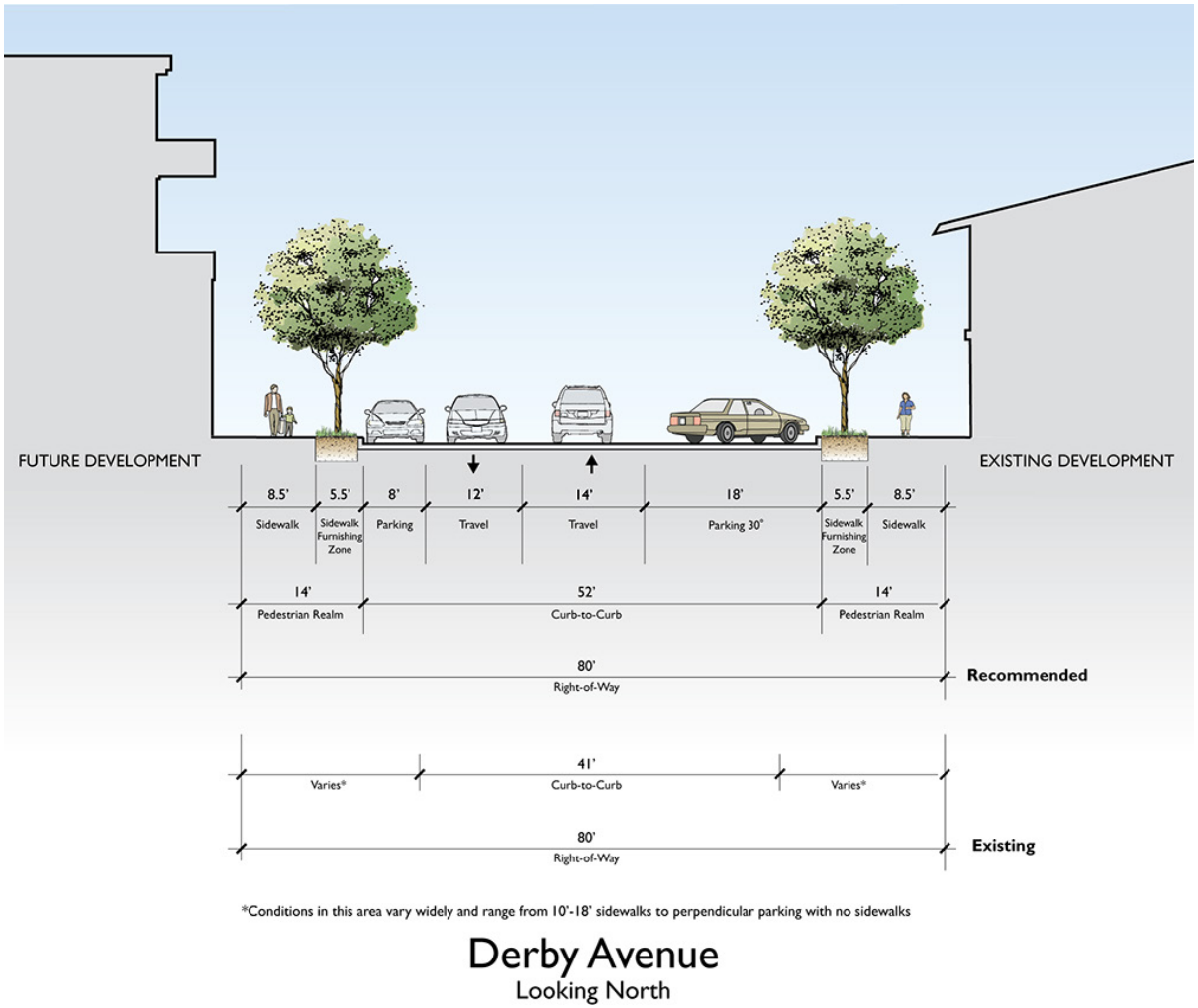


Figure A-10a. Recommended Derby Avenue Improvements (section)

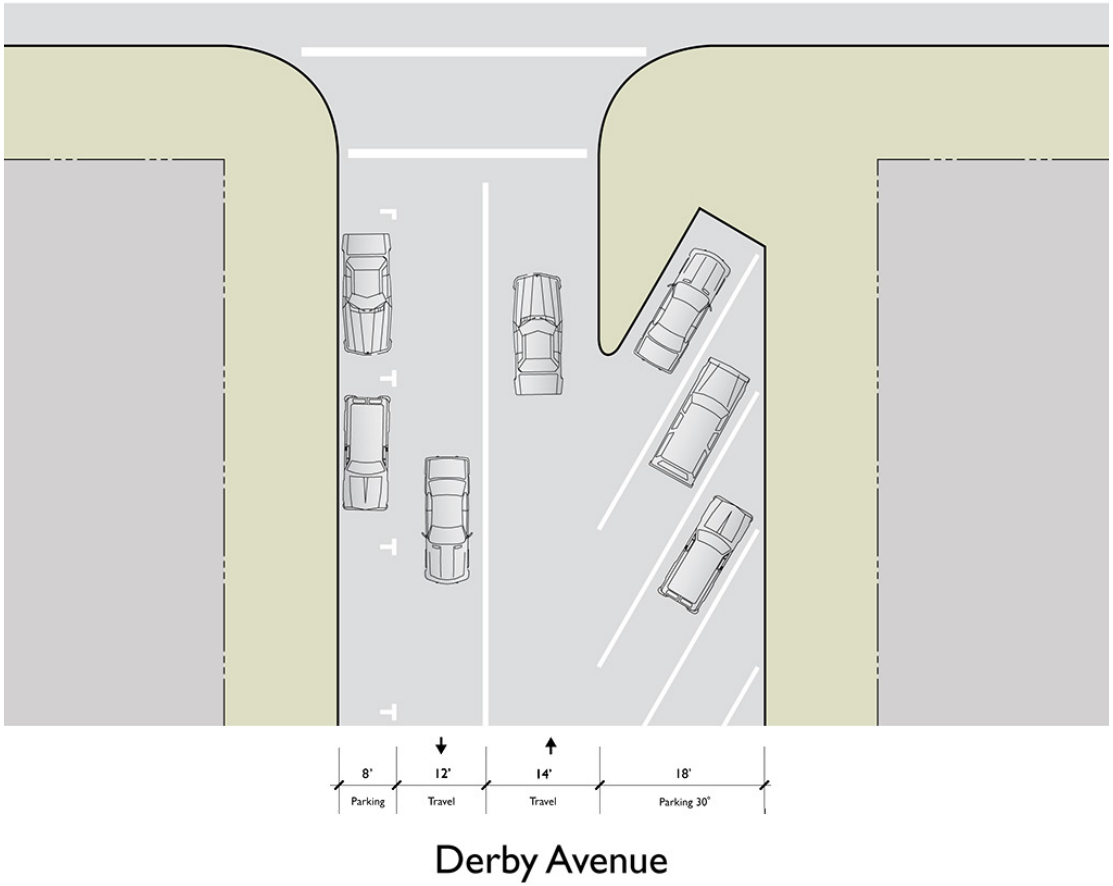


Figure A-10b. Recommended Derby Avenue Improvements (plan)

ranged as parallel. This treatment, if applied to all blocks of Derby Avenue, would establish continuous sidewalks between East 7th Street and the waterfront and Bay Trail. At the same time, it utilizes the relatively wider right-of-way of Derby Avenue (80 feet vs. 60 feet on other local Jingletown/Elmwood streets) to formally accommodate additional parking beyond the typical arrangement of parallel parking on both sides of a given street.

5. LESSER STREET EXTENSION (NEW)

Existing Conditions and Users

The existing Lesser Street currently provides a connection between Oakport Street near I-880 and Tidewater Avenue, providing access to the light industrial and warehouse uses in this part of the Central Estuary. There is also an existing unnamed access road from Tidewater Avenue to the waterfront located roughly opposite, but slightly to the west of the existing Lesser Street. This unnamed access road has a width of 33 feet (25-foot roadway and 8-foot sidewalk) and appears to be located on an access easement across private property. It provides access to the Martin Luther King, Jr. Regional Shoreline, the Bay Trail, and the recently constructed Tidewater Boating Center.

Current Plans

There are no plans for a Lesser Street extension in current policy documents.

Recommendations for Future Improvements

In light of anticipated future infill development of commercial-industrial mixed uses in this part of the South of Tidewater subarea, construction of a new street to replace the existing unnamed access road is recommended. This new street, Lesser Street Extension, is shifted to the east of the current unnamed access road to create a four-way intersection with Tidewater Avenue and the existing segment of Lesser Street. This realignment is devised to improve circulation within the larger street network, as more truck, auto, and non-motorized traffic is anticipated as a result of the introduction of more intensive land uses in the area. However, the character and facilities provided along Lesser Street Extension are tailored specifically to the unique demands of this new street, and differ from the existing segment of Lesser Street, north of Tidewater Avenue.

Specifically, the recommended cross-section allows for two travel lanes (one in each direction), as well as bike lanes, on-street parking, and wider sidewalks with landscape buffers that include street trees, all on both sides of the street. Corner curb extensions of sidewalks are recommended, but curb radii must be designed to accommodate turning trucks. Improving the street to better accommodate not only truck and auto traffic, but also ensure improved pedestrian and bicycle access, safety and comfort are important facility upgrades to those provided on the existing unnamed ac-

cess road. This is because the new Lesser Street Extension serves as a segment of the Bay Trail, providing access from Tidewater Avenue to the Bay Trail and other recreational destinations along the Estuary shoreline.

Figure A-11 illustrates the recommended street section.

6. NEW STREET A

Existing Conditions and Users

There is no existing street in this location. The existing uses include temporary trailer storage on leased East Bay Regional Park District land and light industrial, warehouse and office uses. Commercial-industrial mixed uses are anticipated as future infill development occurs in this part of the South of Tidewater subarea.

Current Plans

There are no plans for a New Street A in current policy documents.

Recommendations for Future Improvements

The New Street A segments are located adjacent to the waterfront and the Martin Luther King, Jr. Regional Shoreline, bordering anticipated future commercial-industrial mixed-use development between the shoreline recreation areas and Tidewater Avenue. The recommended cross-section for these segments includes two travel lanes (one in each direction), ample sidewalks with landscape buffers that accommodate street trees, and 30-degree angled

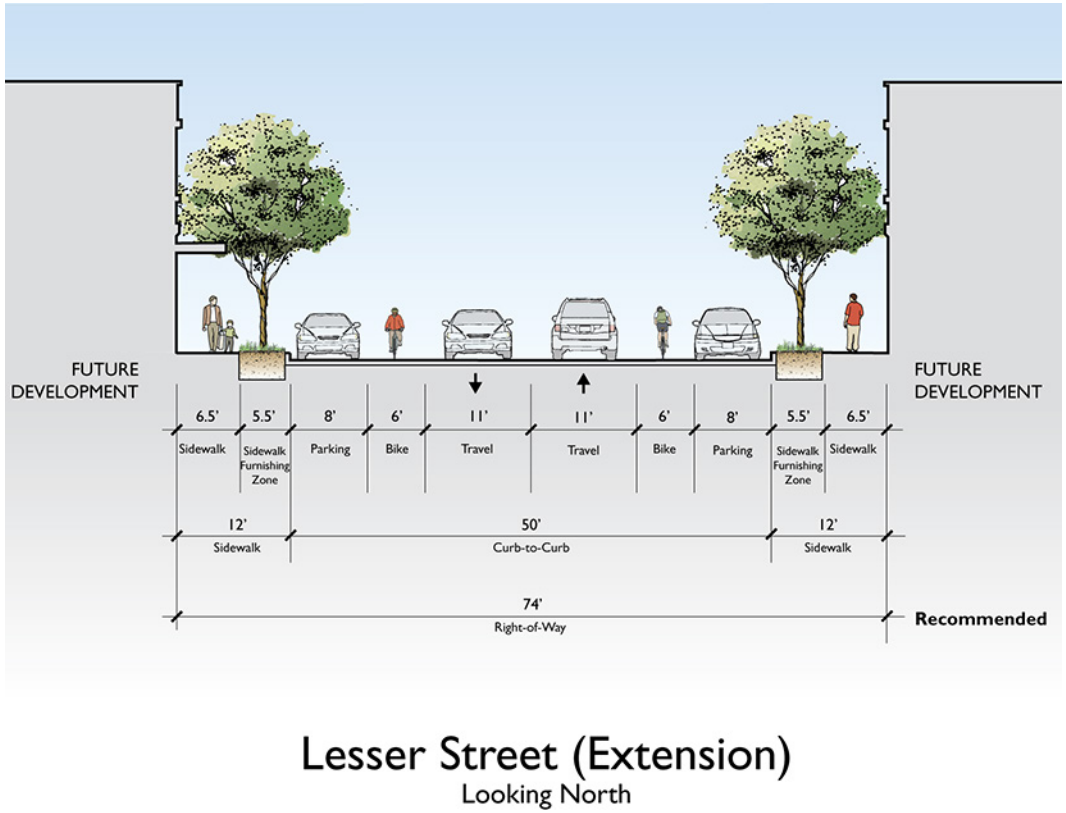


Figure A-11. Recommended Section for Lesser Street (Extension)

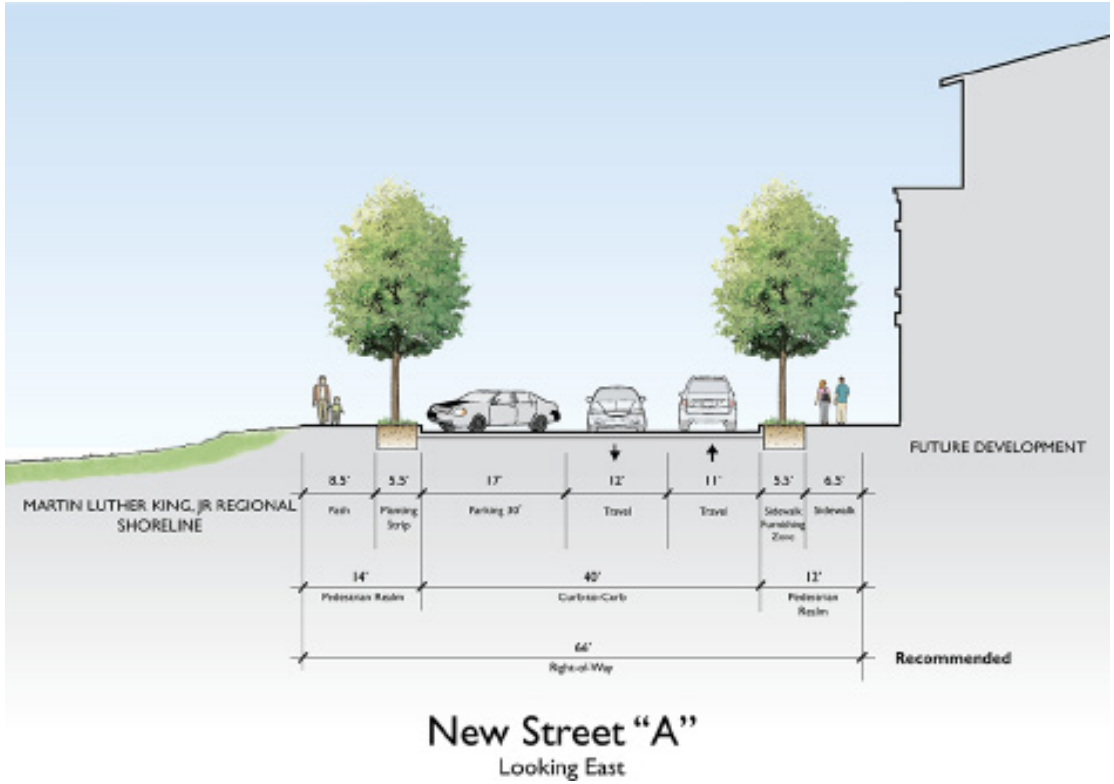


Figure A-12. Recommended Section for New Street "A"

parking along the shoreline side of the street. The angled parking is provided to accommodate the anticipated higher volume of visitors to this part of the Martin Luther King, Jr. Regional Shoreline once the parkland has been expanded to include the portion currently leased to accommodate truck trailer storage.

As with Lesser Street Extension, these streets provide an important pedestrian-oriented connection and create the inland edge to the Martin Luther King, Jr. Regional Shoreline, and they should be designed with well planned landscaping and abundant street trees. In addition, corner curb extensions are appropriate at intersections, although the radii of such curb extensions must be sized to accommodate truck traffic to serve the anticipated infill uses in the area.

Figure A-12 illustrates the recommended section.

7. NEW STREET B

Existing Conditions and Users

There is no existing street in this location. The existing uses include light industrial, warehouse and office uses. Commercial-industrial mixed uses are anticipated as future development in this part of the Tidewater area.

Current Plans

There are no plans for a New Street B in current policy documents.

Recommendations for Future Improvements

New Street B is intended to serve the anticipated future commercial-industrial mixed-use infill development located between the shoreline and Tidewater Avenue. The cross-section for this street is designed to accommodate a greater level of truck traffic and loading than the nearby New Street A. As such, New Street B includes two 12-foot travel lanes (one in each direction), and above standard width parallel parking facilities of 9-feet. Nevertheless, ample sidewalks with landscape buffers that accommodate street trees are also incorporated into the design of this new street. Corner curb extensions are appropriate at the intersections with New Street A, although the radii of such curb extensions must be sized such that they accommodate truck traffic to serve the anticipated infill uses in the area.

Street cross-section A-13 illustrates the recommended improvements.

8. JINGLETOWN/ELMWOOD NEIGHBORHOOD CONNECTION IMPROVEMENTS

Existing Conditions and Users

The existing Jingletown/Elmwood neighborhood is home to a broad mix of uses that include a great deal of single, duplex and multi-family residences, live/work, light industrial, and commercial uses, among others. The small block sizes in this part of the Central Estuary are conducive to walking and bicycling, and with the recommended improvements to East 7th Street and Fruitvale Avenue, detailed in this section, non-motorized activity is expect-

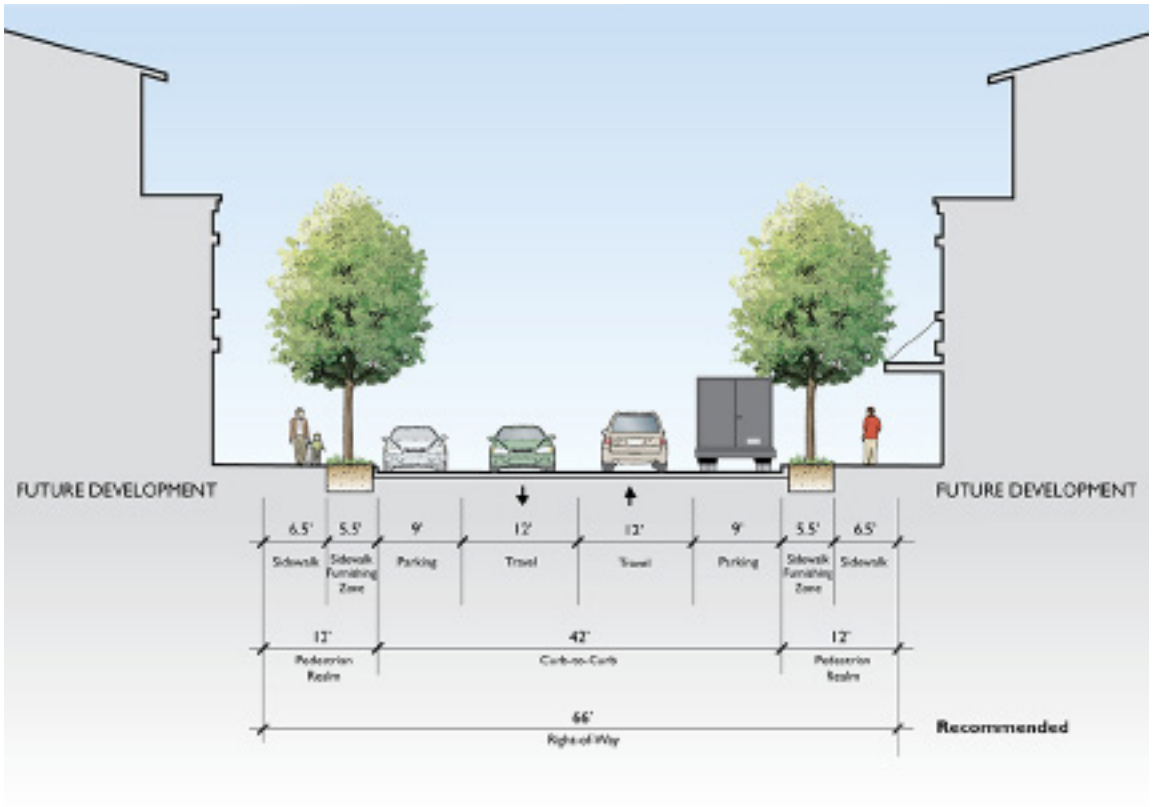


Figure A-13. Recommended Section for New Street "B"

ed to increase. To take advantage of this trend and facilitate greater non-motorized accessibility to local destinations such as the Fruitvale BART station and the Fruitvale Station shopping center, improvements to the existing street network connecting the Central Estuary and areas north of I-880 are recommended.

While specific designs have not been provided, a range of pedestrian improvements are recommended along Elmwood Avenue, Del Monte, and Lancaster Street: widened sidewalks with landscaped buffers and street trees, improved pedestrian crossings with improved traffic controls and traffic calming measures, more visible crosswalks, and corner curb extensions. In addition, a future additional pedestrian/bicycle undercrossing of I-880 that extends from the Peterson Street dead end to the Fruitvale Station shopping center is recommended. For all of these recommended improvements, further study is required.

APPLICABILITY TO OTHER STREETS IN THE CENTRAL ESTUARY

The section above described recommended improvements for a selection of streets in the Central Estuary. However, the fluidity of the development process may require the consideration of streets improvements on one of the streets not discussed here. Since some of the recommended street improvements can be applied or readily transferred to similar streets (in terms of right-of-way width and land use context), the final column in Table A-1 – *Central Estuary Street Types Characteristics* provides an overview of which streets can serve as examples for other streets in the Estuary in transferring the recommendations.

OTHER AREA-WIDE IMPROVEMENTS

Other area-wide improvements include items recommended in this Area Plan but not explicitly captured in the mid-term roadway network enhancements or other new streets. These improvements will help to improve access to the waterfront for residents of the greater Fruitvale and East Oakland areas. In particular, enhancements to the undercrossings of I-880 at Fruitvale Avenue and High Street would make these pathways under the freeway more attractive places to walk and bicycle. Freeway undercrossing improvements could include enhanced lighting, painting,

Table A-1: Street Type Characteristics

TABLE A-I STREET TYPE CHARACTERISTICS				Design Recommendations for Future Improvements (for additional details see recommendations in Table A-II)						
Street	Street Function[1]	Urban Context	Policy Classification[2]	Number of Through Lanes[3]	Desired Operating Speed[4]	Traffic Volume (2-Way Average Daily Traffic)[5] Present: 2011 counts Future: 2035 estimates	On-Street Parking[6]	Bicycle Facilities[7]	Sidewalks[8] Total (T) / Furnishing Zone (F) / Clear Zone (C) Width	Design Recommen-dations could also be applied to:
Arterial (General Plan)										
Fruitvale Avenue	Primary: Provide high volume automobile and truck connection to destinations in Alameda and other jurisdictions beyond the Central Estuary Provide connection to other neighborhoods and districts in Oakland Secondary: Provide pedestrian, bicycle and auto access to BART and East Bay BRT	Predominantly large-scale light industrial, industrial, and commercial use frontage	General Plan: *Arterial* Estuary Policy Plan: *Arterial Roadway* *Class I Bikeway* Bicycle Master Plan: *Class II – Bicycle Lanes* Pedestrian Plan: *City Route*	3	30 to 35 mph	Present: 19,500 Future: 22,600	No	Bicycle Lanes	West Side: 5' (T) / -- East Side: 10' (T) / 4' (F) / 6' (C)	N/A

NOTE: When implementing the design recommendations, consult with the City's Public Works Agency for current specific design requirements.

[1] Description based on Policy Classifications and Estuary Policy Plan goals.

[2] 1998 Oakland General Plan, City of Oakland, 1998; Estuary Policy Plan, City of Oakland, 1999; Oakland Bicycle Master Plan, 2007; Oakland Pedestrian Master Plan, 2002.

[3] For Arterials and Collectors based on capacity needed to accommodate traffic volumes based on 2035 estimates (where available). Local Streets are two-lane streets per the Oakland General Plan.

[4] Recommendations based on Street Function and Policy Classifications. Arterials serving multiple modes have lower targets for desired operating speeds than maximum but fall within the speed range discussed in the General Plan (30 to 45 mph).

[5] Present: based on counts by Arup, National Data & Surveying Services (2009); Future: based on 2035 estimates - Arup, Alameda County Transportation Commission Travel Demand Model (2012).

[6] Recommendation based on existing conditions and potential future land uses discussed in the Estuary Policy Plan.

[7] Based on 2002 Bicycle Master Plan.

[8] Clear Zone meets or exceeds City of Oakland minimum standard of 5 ft. Furnishing Zone is defined as the space between face of curb and edge of clear zone. Furnishing zone may accommodate landscape strips, trees in individual tree wells, light posts, trash receptacles, and signposts. Recommendations adapted from best practices described in *Designing Walkable Urban Thoroughfares A Context Sensitive Approach*, Institute for Transportation Engineers (ITE), 2010.

Table A-1 (cont.): Street Type Characteristics

TABLE A-I STREET TYPE CHARACTERISTICS				Design Recommendations for Future Improvements (for additional details see recommendations in Table A-II)						
Street	Street Function[1]	Urban Context	Policy Classification[2]	Number of Through Lanes[3]	Desired Operating Speed[4]	Traffic Volume (2-Way Average Daily Traffic)[5] Present: 2011 counts Future: 2035 estimates	On-Street Parking[6]	Bicycle Facilities[7]	Sidewalks[8] Total (T) / Furnishing Zone (F) / Clear Zone (C) Width	Design Recommen-dations could also be applied to:
High Street	Primary: Provide high volume automobile and truck connection to destinations in Alameda and other jurisdictions beyond the Central Estuary Provide connection to other neighborhoods and districts in Oakland Secondary: Provide pedestrian, bicycle and auto access to commercial retail along High Street and to BART and East Bay BRT	A mix of light industrial and warehouse to the east and commercial retail and automotive to the west	General Plan: *Arterial* Estuary Policy Plan: *Arterial Roadway* Bicycle Master Plan: -- Pedestrian Plan: --	4	30 to 40mph	Present: 27,600 Future: 32,700	No	Bicycle Lanes	West Side: 14' (T) / 5.5' (F) / 8.5' (C) East Side: 8' (T) / 2.5' (F) / 5.5' (C)	N/A

Table A-1 (cont.): Street Type Characteristics

TABLE A-I STREET TYPE CHARACTERISTICS				Design Recommendations for Future Improvements (for additional details see recommendations in Table A-II)						
Street	Street Function[1]	Urban Context	Policy Classification[2]	Number of Through Lanes[3]	Desired Operating Speed[4]	Traffic Volume (2-Way Average Daily Traffic)[5] Present: 2011 counts Future: 2035 estimates	On-Street Parking[6]	Bicycle Facilities[7]	Sidewalks[8] Total (T) / Furnishing Zone (F) / Clear Zone (C) Width	Design Recommen-dations could also be applied to:
Collector (General Plan)										
E 7th Street (Kennedy Street to 23rd Avenue)	Primary: Provide access to and from 23rd Ave overpass and to I-880N Secondary: Provide auto access and safe bicycle and pedestrian access as an inland Bay Trail connection between Embarcadero and E 7th Street East of 23rd Ave	Light industrial and live/work	General Plan: *Arterial* EPP: *Arterial Roadway* Bicycle Master Plan: *Class II – Bicycle Lanes (Proposed)* Pedestrian Plan: *Bay Trail*	2	30 to 35 mph	Not Available	No	Bicycle Lanes	East Side: 14' (T) / 5.5' (F) / 8.5' (C) West Side: --	N/A
42nd Avenue / Tidewater Extension (North)	Primary: Provide enhanced auto, bicycle and pedestrian access to businesses in this area and across I-880 Secondary: Accommodate portion of traffic volume previously limited to High Street	Retail commercial and warehouse	General Plan: -- EPP: -- Bicycle Master Plan: -- Pedestrian Plan: --	2	30 to 35 mph	Present: Not Available Future: 17,500	Parallel parking on both sides (after completion of Policy Connection E – E)	Bicycle Lanes (until Completion of Policy Connection E – E)	Both Sides: 14' (T) / 5.5' (F) / 8.5' (C)	N/A
Tidewater Avenue / Tidewater Extension (East)	Primary: Distribute truck and auto traffic to businesses within this area of the Central Estuary Secondary: Facilitate safe bicycle pedestrian travel to built portion of Bay Trail	Predominantly large-scale light industrial and industrial use frontage	General Plan: -- Estuary Policy Plan: *Waterfront Parkway* Bicycle Master Plan: *Class II – Bicycle Lanes (Proposed)* Pedestrian Plan: --	2	25 to 30 mph	Not Available	Parallel parking on both sides	Bicycle Lanes	East Side: 6' (T) / -- West Side: 11' (T) / 5' (F) / 6' (C)	N/A

Table A-1 (cont.): Street Type Characteristics

TABLE A-I STREET TYPE CHARACTERISTICS				Design Recommendations for Future Improvements (for additional details see recommendations in Table A-II)						
Street	Street Function[1]	Urban Context	Policy Classification[2]	Number of Through Lanes[3]	Desired Operating Speed[4]	Traffic Volume (2-Way Average Daily Traffic)[5] Present: 2011 counts Future: 2035 estimates	On-Street Parking[6]	Bicycle Facilities[7]	Sidewalks[8] Total (T) / Furnishing Zone (F) / Clear Zone (C) Width	Design Recommen-dations could also be applied to:
Local Street (General Plan)										
22nd Avenue	Primary: (balance the following:) Provide low speed access to local businesses for trucks and autos Provide safe and pleasant pedestrian realm	Mix of light industrial, residential, office	General Plan: -- EPP: *Local Street* Bicycle Master Plan: -- Pedestrian Plan: --	2	25 mph	Not Available	Parallel parking on both sides	No	Both Sides: 11' (T) / 5' (F) / 6' (C)	Diesel Street
Livingston Street	Primary: (balance the following:) Provide low speed access to local businesses for trucks and autos Provide safe and pleasant pedestrian realm	Mix of light industrial, commercial, residential, institutional	General Plan: *Local Street* EPP: *Local Street* Bicycle Master Plan: -- Pedestrian Plan: --	2	25 mph	Not Available	Parallel parking on both sides	No	Both Sides: 18' (T) / 6.5' (F) / 11.5'' (C)	Dennison Street, King Street, Frederick Street, Cotton Street

Table A-1 (cont.): Street Type Characteristics

TABLE A-I STREET TYPE CHARACTERISTICS				Design Recommendations for Future Improvements (for additional details see recommendations in Table A-II)						
Street	Street Function[1]	Urban Context	Policy Classification[2]	Number of Through Lanes[3]	Desired Operating Speed[4]	Traffic Volume (2-Way Average Daily Traffic)[5] Present: 2011 counts Future: 2035 estimates	On-Street Parking[6]	Bicycle Facilities[7]	Sidewalks[8] Total (T) / Furnishing Zone (F) / Clear Zone (C) Width	Design Recommen-dations could also be applied to:
E 7th Street (East of 23rd)	Primary: (balance the following:) Provide low speed access to local businesses and residences for small trucks and autos Provide safe and pleasant pedestrian realm Provide safe and pleasant pedestrian and bicycle route through Jingletown to open space (Union Point Park) and other destinations in adjacent Central Estuary districts	Residential Mixed-Use, small-scale commercial uses	General Plan: *Local Street* Estuary Policy Plan: *Local Street* Bicycle Master Plan: *Bicycle Boulevard- Class 3B (Proposed)* Pedestrian Plan: *Segment of Bay Trail*	2	25 mph	Not Available	Parallel parking on both sides	Bike Route Marked with "Sharrows"	Both Sides: 14' (T) / 6' (F) / 8' (C)	Chapman Street, Ford Street, Glascock Street, Peterson Street, Lancaster Street
Derby Avenue	Primary: Provide low speed access for autos and small trucks to residences and businesses in the Jingletown neighborhood Provide safe and pleasant pedestrian realm Secondary: Provide additional on-street parking	Primarily medium density residential with mixed uses including light industrial, warehouse, live/work, institutional, and single family	General Plan: *Local Street* EPP: *Local Street* Bicycle Master Plan: -- Pedestrian Plan: --	2	25 mph	Not Available	West Side: Parallel parking; East Side: 30° head-in angle parking	No	Both sides: 14' (T) / 5.5' (F) / 8.5' (C)	N/A

Table A-1 (cont.): Street Type Characteristics

TABLE A-I STREET TYPE CHARACTERISTICS				Design Recommendations for Future Improvements (for additional details see recommendations in Table A-II)						
Street	Street Function[1]	Urban Context	Policy Classification[2]	Number of Through Lanes[3]	Desired Operating Speed[4]	Traffic Volume (2-Way Average Daily Traffic)[5] Present: 2011 counts Future: 2035 estimates	On-Street Parking[6]	Bicycle Facilities[7]	Sidewalks[8] Total (T) / Furnishing Zone (F) / Clear Zone (C) Width	Design Recommen-dations could also be applied to:
New Local Street (CEAP)										
Lesser Street Extension	**Primary:** Provide auto and truck access to businesses south of Tidewater **Secondary:** Provide safe pedestrian and bicycle access and low speed auto access to the MLK Jr. Regional Shoreline and related amenities (i.e. Tidewater Boat Center) and Bay Trail	Commercial-industrial mix	N/A	2	25 mph	Not Available	Both sides: Parallel parking	Bicycle lanes	Both sides: 12' (T) / 5.5' (F) / 6.5' (C)	N/A
"New Street A"	**Primary:** Provide auto and truck access to businesses south of Tidewater **Secondary:** Provide safe pedestrian and bicycle access and low speed auto access to the MLK Jr. Regional Shoreline and related amenities (i.e. Tidewater Boat Center) and Bay Trail	Commercial-industrial mix	N/A	2	25 mph	Not Available	South/East sides: 30º head-in angle parking	No	North/West sides: 12' (T) / 5.5' (F) / 6.5' (C) South and East sides: 14' (T) / 5.5' (F) / 8.5' (C)	N/A
"New Street B"	**Primary:** Provide auto and truck access, as well as safe pedestrian access to businesses south of Tidewater	Commercial-industrial mix	N/A	2	25 mph	Not Available	Both sides: Parallel Parking	No	Both sides: 12' (T) / 5.5' (F) / 6.5' (C)	N/A

Table A-1 (cont.): Street Type Characteristics

TABLE A-I STREET TYPE CHARACTERISTICS				Design Recommendations for Future Improvements (for additional details see recommendations in Table A-II)						
Street	Street Function[1]	Urban Context	Policy Classification[2]	Number of Through Lanes[3]	Desired Operating Speed[4]	Traffic Volume (2-Way Average Daily Traffic)[5] Present: 2011 counts Future: 2035 estimates	On-Street Parking[6]	Bicycle Facilities[7]	Sidewalks[8] Total (T) / Furnishing Zone (F) / Clear Zone (C) Width	Design Recommen-dations could also be applied to:
Policy-Level Street Connections (CEAP)										
A to A	**Primary:** Provide auto and truck access, as well as safe pedestrian access to existing or future uses	Mix of light industrial, commercial, residential, institutional	CEAP: Local Street	2	25 to 30 mph	T.B.D.	Likely: Parallel Parking (both sides)	No	Depending on future use context; Likely 10' to 12' (T)	N/A
B to B	**Primary:** (balance the following:) Provide multimodal access to Estuary waterfront Provide auto and truck access to future uses in the area	T.B.D.	EPP: *Waterfront Parkway segment* CEAP: Collector	2 (plus potential two-way, center left-turn lane)	30 to 35 mph	T.B.D.	Likely: Parallel Parking (one or both sides)	Yes (but requires coordination with implementation status of Bay Trail)	Depending on future use context; Generous pedestrian accommodation shoreline-side	N/A
C to C	**Primary:** Provide auto and truck access, as well as safe pedestrian access to existing or future uses	T.B.D.	CEAP: Collector	2 (plus potential two-way, center left-turn lane)	25 to 30 mph	T.B.D.	Likely: Parallel Parking (both sides)	T.B.D.	Depending on future use context; Likely 12' to 14' (T)	N/A
D to D	**Primary:** Provide auto and truck access, as well as safe pedestrian access to existing or future uses	Commercial-industrial mix	CEAP: Local Street	2	25 to 30 mph	T.B.D.	Likely: Parallel Parking (both sides)	No	Depending on future use context; Likely 10' to 12' (T)	N/A
E to E	**Primary:** (balance the following:) Provide multimodal access to Estuary waterfront Provide auto and truck access to future uses in the area	T.B.D	EPP: *Waterfront Parkway segment* CEAP: Collector	2 (plus potential two-way, center left-turn lane)	30 to 35 mph	T.B.D.	Likely: Parallel Parking (one or both sides)	Yes (but requires coordination with implementation status of Bay Trail)	Depending on future use context; Generous pedestrian accommodation shoreline-side	N/A

Table A-1 (cont.): Street Type Characteristics

TABLE A-I STREET TYPE CHARACTERISTICS				Design Recommendations for Future Improvements (for additional details see recommendations in Table A-II)						
Street	Street Function[1]	Urban Context	Policy Classification[2]	Number of Through Lanes[3]	Desired Operating Speed[4]	Traffic Volume (2-Way Average Daily Traffic)[5] Present: 2011 counts Future: 2035 estimates	On-Street Parking[6]	Bicycle Facilities[7]	Sidewalks[8] Total (T) / Furnishing Zone (F) / Clear Zone (C) Width	Design Recommendations could also be applied to:
F to F	Primary: Provide auto and truck access, as well as safe pedestrian access to existing or future uses	Residential Mixed-Use, small-scale commercial uses	CEAP: Local Street	2	25 to 30 mph	T.B.D.	Likely: Parallel Parking (both sides)	No	Depending on future use context; Likely 10' to 12' (T)	
G to G	Primary: Provide auto and truck access, as well as safe pedestrian access to existing or future uses	T.B.D	CEAP: Local Street	2	25 to 30 mph	T.B.D.	Likely: Parallel Parking (both sides)	No	Depending on future use context; Likely 10' to 12' (T)	

Table A-2: Recommendations for Design Details

TABLE A-II RECOMMENDATIONS FOR DESIGN DETAILS	Countdown Pedestrian Signals[1]	Corner Curb Extensions [1]	Street Trees [1]	Linear Sidewalk Planters [1]	Pedestrian Lighting [1]	Site Furnishings / Other Streetscape Treatments
Arterial (General Plan)						
Fruitvale Avenue	At 8th Avenue/Elmwood and Alameda	No	Yes (see cross section)	No	On east side only	Transit Stops
High Street	At Tidewater and Howard	No	Yes (see cross section)	On east side only (see cross section)	Yes	Trash Receptacles
Collector (General Plan)						
E 7th Street (West of 23rd)	At Kennedy Street and 23rd Avenue	On E 7th Street: on south side of block between Kennedy and 23rd Avenue	Yes, wherever feasible while maintaining 4-foot minimum ADA sidewalk width	Yes, where sidewalk width of 11 feet or more can be achieved	On south side only	Trash Receptacles between Kennedy and 23rd Avenue
42nd Avenue/Tidewater Extension (North)	At Howard/Alameda	On 42nd Avenue: At corners of blocks with parking On Cross Street: Look up Cross Street	Yes (see cross section)	Yes	Yes	Trash Receptacles
Tidewater Avenue/Tidewater Extension (East)	At High Street	On Tidewater Avenue: At corners of blocks with parking On Cross Street: Look up Cross Street	On south side only (see cross section) On north side: consider requiring trees in landscape easement on private property	No	Along south side sidewalk only	Trash Receptacles along south side sidewalk
Local Street (General Plan)						
22nd Avenue	n/a	On 22nd Street: Yes, but curb radius needs to accommodate turning trucks On Cross Street: See Livingston Street	Yes, wherever feasible while maintaining 4-foot minimum ADA sidewalk width	No	No	Furnishings appropriate if based on initiative by property owners

NOTE: When implementing the design recommendations, consult with the City's Public Works Agency for current specific design requirements.

[1] Recommendation based on anticipated main pedestrian travel routes within the Central Estuary network

Table A-2 (cont.): Recommendations for Design Details

TABLE A-II RECOMMENDATIONS FOR DESIGN DETAILS	Countdown Pedestrian Signals[1]	Corner Curb Extensions [1]	Street Trees [1]	Linear Sidewalk Planters [1]	Pedestrian Lighting [1]	Site Furnishings / Other Streetscape Treatments
Livingston Street	n/a	On Livingston Street: Yes, but curb radius needs to accommodate turning trucks On Cross Street: see 22nd Avenue	Yes, wherever feasible while maintaining 4-foot minimum ADA sidewalk width	No	No	Furnishings appropriate if based on initiative by property owners
E 7th Street (East of 23rd)	At 23rd Avenue	On E 7th Street: At corners of blocks with angled parking On Cross Street: Yes	Yes	Yes	Yes	Trash Receptacles Additional furnishings appropriate if based on initiative by property owners
Derby Avenue	No	On Derby Avenue: At corners of blocks with angled parking On Cross Street: See E 7th Street (East of 23rd)	Yes	Yes, on blocks without angled parking	Yes	Furnishings appropriate if based on initiative by property owners
New Local Streets (CEAP)						
Lesser Street Extension	No	On Lesser Extension: Yes, but curb radius needs to accommodate turning trucks On Cross Street: Look up Cross Street	Yes (see cross section	Yes	No	No
"New Street A"	No	On New Street A: Yes, but curb radius needs to accommodate turning trucks On Cross Street: see New Street "B" and Tidewater	Yes (see cross section	Yes	No	No
"New Street B"	No	On New Street B: Yes, but curb radius needs to accommodate turning trucks On Cross Street: see New Street "A"	Yes (see cross section)	Yes	No	No

Table A-2 (cont.): Recommendations for Design Details

TABLE A-II RECOMMENDATIONS FOR DESIGN DETAILS	Countdown Pedestrian Signals[1]	Corner Curb Extensions [1]	Street Trees [1]	Linear Sidewalk Planters [1]	Pedestrian Lighting [1]	Site Furnishings / Other Streetscape Treatments
Connections (CEAP)						
A to A	No	T.B.D.	Yes	T.B.D.	T.B.D.	No
B to B	Where pedestrians cross B – B to access Bay Trail	T.B.D.	Yes	Yes	Yes	Trash Receptacles
C to C	At Fruitvale	T.B.D.	Yes	Yes	Yes	Trash Receptacles
D to D		T.B.D.	If available ROW allows	No	No	No
E to E	Where pedestrians cross B – B to access Bay Trail; At 42nd Avenue	T.B.D.	Yes	Yes	Yes	Trash Receptacles
F to F	No	T.B.D.	If available ROW allows	No	No	No
G to G	No	T.B.D.	If available ROW allows	No	No	No

IMPLEMENTATION OF RECOMMENDED TRANSPORTATION IMPROVEMENTS

This section includes a cost estimate for mid-term roadway network enhancements, other new streets, and improvements to existing streets recommended in this Appendix, as well as other area-wide improvements. These cost estimates are based on detailed utility and roadway cost estimates, which follow this overview summary. The long-term network enhancements recommended in this Appendix are excluded from the cost estimate, as these policy connections are dependent on major, long-term changes in existing land uses currently occupied by economically viable uses. A brief description of possible funding mechanisms is also included.

Mid-term roadway network enhancements, other new streets, and improvements to existing streets recommended in Appendix A: Appendix A identifies twelve mid-term roadway segment projects. These projects include network enhancements (new streets to improve the connectivity of the roadway network), other new streets associated with potential future development, and improvements to existing streets. Each segment is associated with a street cross-section type, which dictates the right-of-way width, number and width of travel lanes, width of landscape strips and sidewalks, and the provision of bike lanes.

For each cross-section type, a unit cost estimate per linear foot (LF) has been developed. The unit cost estimate includes all of the construction and materials costs, including:

- Demolition and mobilization costs
- Roadway paving
- Sidewalk construction, street lighting, and electrical conduits
- Landscaping (1 tree every 400 sf, 1 shrub every 200 sf, sod and irrigation systems)
- Curb and gutter improvements
- Traffic signals
- Traffic signage

To determine the cost for each roadway segment in Appendix A, the length of each segment was measured and multiplied by the unit cost per LF for that street type. Recommended improvements to the Park Street Triangle from the *Park Street Triangle Traffic Study, Final Report* (Dowling Associates, September 28, 2006) are also included.

Other area-wide improvements: Other area-wide improvements include items recommended in the CEAP but not explicitly captured in the mid-term roadway network enhancements or other new streets. These would include the following:

- Improved undercrossings of I-880 at Fruitvale Avenue and High Street: The existing undercrossings at Fruitvale and High Street will be improved with the funded transportation projects discussed in the CEAP and the mid-term roadway network enhancements. However, additional improvements are recommended to make these pathways under the freeway attractive places to walk and bicycle. These improvements could include enhanced lighting, painting, public art and murals, and acoustic measures to reduce noise impacts.
- Improved signage and way finding: While the street cost estimates include signage, additional signage is recommended to improve way finding through the Plan Area and to help orient visitors to key amenities such as the Bay Trail, BART, and the main pathways across I-880.
- Improved lighting and pedestrian and bicycle amenities: Improved amenities would include pedestrian scaled lighting, enhanced landscaping, and additional traffic calming devices such as a curb extensions and bulb-outs.

Utilities: The CEAP infrastructure section identified the demand and constraints of the existing utility systems. System upgrades and extensions into new streets for potable water, fire protection, recycled water, sanitary sewer, storm drainage, gas, telecommunications, and electrical systems have been identified and unit cost estimates for each system have been developed. While property owners would be responsible for utility connections to private parcels, utility system upgrades and extensions into new streets can be shared with utility providers and are not expected to be fully placed on new development or the City.

Findings: Table A3 summarizes overall estimated costs and implementation actions to achieve the recommendations in the Plan. The estimated cost for the twelve roadway section improvements amounts to $15.4 million, $5 million for other area-wide improvements, $15.6 million for a major reconstruction of the Park Street Triangle, and $34.4 million for utility improvements.

Table A-3: Recommendations and Implementation Actions

RECOMMENDATION	DESCRIPTION	COORDINATION & PARTNERSHIP	COST ESTIMATE (ROUNDED)
Mid-Term Roadway Network Enhancements, Other New Streets, and Improvements to Existing Streets			
Fruitvale Avenue: I-880 to the Estuary	Cross section A-2*		$690,000
High Street: I-880 to the Estuary	Cross section A-3*		$1.89 million
East 7th: Kennedy to 23rd Avenue	Cross section A-4*		$290,000
42nd Avenue Extension: Jensen to Tidewater	Cross section A-5*	Caltrans	$1.99 million
Tidewater Avenue: High Street to Oakport	Cross section A-6*		$3.66 million
Livingston Street	Cross section A-7*		$410,000
22nd Avenue	Cross section A-8*		$300,000
East 7th: 23rd Avenue to Fruitvale Avenue	Cross section A-9*	Caltrans	$2.06 million
Derby Avenue	Cross section A-10*		$240,000
Lesser Street Extension	Cross section A-11*		$1.09 million
New Street "A"	Cross section A-12		$1.85 million
New Street "B"	Cross section A-13*		$1.10 million
Near-Term Park Street Triangle Improvements		City of Alameda	$830,000
Total Mid-Term Roadway Network Enhancements, Other New Streets, and Improvements to Existing Streets			**$16.4 million**
Other Area-Wide Improvements			
Improved undercrossings of I-880 at Fruitvale and Del Monte Avenues and High Street	$1 million per undercrossing	Caltrans	$3 million
Improved signage and wayfinding	$1 million		$1 million
Improved lighting and pedestrian/bicycle amenities	$2 million		$2 million
Major Reconstruction of the Park Street Triangle (Per the Dowling Study)		City of Alameda	$15.6 million
Total Other Area-Wide Improvements			**$21.6 million**
Total Utilities			**$34.4 million**
TOTAL ROADWAY + UTILITY COSTS			**$72.4 MILLION**

*Corresponds to cross sections include in Figure A-1 of Appendix A. Traffic signal costs were included in section A-7, while the signage was included in A-5.

FUNDING MECHANISMS

Future development facilitated by the CEAP will likely result in construction of some of the needed infrastructure improvements described above. However, the breadth of infrastructure deficiencies in the Central Estuary Area is well beyond the means of any one private developer to design and construct. Likewise, the City's Capital Improvement Program is spread extremely thin, and cannot shoulder the burden of the making all the necessary improvements. Therefore, an integrated approach to addressing the Plan Area infrastructure deficiencies is needed.

A combination of both property-based financing tools and public funding sources should be further studied to determine which is appropriate for the area. Community support and City Council approval would be needed for some of the tools such as special districts and impact fees, as would additional economic and feasibility studies. The following table outlines possible funding mechanisms, the improvements funded by the mechanism and the various requirements of the mechanism.

Table A-4: Potential Property-Based Financing Tools and Public Funding Sources

FUNDING MECHANISM	DESCRIPTION AND IMPROVEMENTS FUNDED	REQUIREMENTS
Property-Based Financing Tools		
1. Landscape and Lighting District	Would establish new assessments to fund installation and maintenance of public improvements, such as street trees, sidewalks, parkways, and landscaping.	Oakland's current LLAD is responsible for maintaining 130 City parks, as well as street trees, community centers, street lights and traffic signals. Due to funding limitations, it may not be possible for the current LLAD to fund needed infrastructure improvements in the Central Estuary.
2. Community Facilities District (CFD)	A CFD could levy additional property taxes on land located inside the district to pay for new infrastructure.	Requires 2/3 approval by the voters to form district and issue bonds. The particular method of allocating the special tax, and the facilities and services to be authorized, would need to be specified. If bonds are to be authorized, their amount and maximum term must be specified as well.
3. Fees and Exactions **(Development Impact Fees and In-lieu Fees)**	City may impose fees on new development to fund things such as transportation improvements to offset the impact of new development.	City would need to prepare a Nexus study to: 1) Identify the purpose of the fee. 2) Identify the use to which the fee is to be put. If the use is financing public facilities, the facilities must be identified. 3) Determine how there is a reasonable relationship between the fee's use and the type of development project on which the fee is imposed (commonly called a Nexus).
4. Infrastructure Finance District (IFD)	IFDs can fund regional public facilities by diverting property taxes for 30 years to fund identified for improvements (such as transit improvements, water systems and sewer projects).	▪ May not be used to pay for maintenance, repairs, operating costs, or services. ▪ Requires 2/3 approval by the voters to form and issue bonds. ▪ Requires a complex infrastructure financing plan. ▪ Under current state regulations, may not be able to be established within an existing redevelopment area.

Table A-4 (cont.): Potential Property-Based Financing Tools and Public Funding Sources

FUNDING MECHANISM	DESCRIPTION AND IMPROVEMENTS FUNDED	REQUIREMENTS
5. Community Benefit District (CBD) / Business Improvement District (BID)	Business community could voluntarily assess themselves to fund marketing, promotion, security, limited streetscape improvements, maintenance and special events.	▪ Would require the Planning Area business community to pay annual fees to fund activities and programs. ▪ Not sufficient to fund infrastructure improvements.
6. Mills Act	The Mills Act is a voluntary program in which the City and an owner of an historic property enter into a contract whereby the property owner agrees to repair and maintain the historic character of the property in exchange for reduced property taxes.	▪ A limited number of contracts are processed annually ▪ $400 application fee
Public Funding Sources		
1. Measure B	Measure B provides funds for transportation projects in Alameda County including public transit and local street improvements and bicycle and pedestrian infrastructure.	▪ Strict project deadlines: Each project must have environmental clearance and a funding plan seven years from first revenue collection. ▪ Timely use of funds: Jurisdictions and transit agencies must spend funds in a timely manner and report on these expenditures each year. ▪ Performance and accountability measures: These will be included in every contract with fund recipients. ▪ Competitive process

Table A-4 (cont.): Potential Property-Based Financing Tools and Public Funding Sources

FUNDING MECHANISM	DESCRIPTION AND IMPROVEMENTS FUNDED	REQUIREMENTS
2. One Bay Area Grant (OBAG)	OBAG is an integrated approach to distributing federal transportation dollars regionally. Grant funds cover, in part, local street and bicycle and pedestrian improvements.	▪ Investments primarily directed to Priority Development Areas or major connections to these areas. ▪ City needs a Complete Streets Policy Resolution ▪ City is required to have its general plan housing element adopted and certified by the State ▪ City is required to provide performance reporting ▪ Competitive process

DETAILED ROADWAY AND UTILITY COST ESTIMATES

This section provides detail on the roadway and utility cost estimates presented in Table A-3.

BASIS AND CONTENT OF ESTIMATE

The estimate is not intended to set the budget for the potential projects. Any future projects will be subject to the normal contracting process including developing a final project design.

1. The data listed below represents a review of labor, materials, equipment, and subcontractor costs as well as productivities and additional project cost features that provide a comprehensive assessment of the items estimated.

2. This estimate is classified as a Level 5 within the Arup Cost Estimate Classification Tool and was generated by means of widely used and accepted estimating practices. A Level 5 estimate is considered an "order of magnitude" estimate when little or no design information is available. This type of estimate is appropriate for screening and feasibility planning studies and typically has higher contingency assumptions.

3. The elemental estimate data was assessed by comparison of similar projects using various parametrics.

4. This estimate is based on the latest project description and includes all construction costs associated with that option, and has been generated considering the assumptions and exclusions noted below.

EXCLUSIONS

1. The costs or impacts of latent environmental issues that result in litigations or development delays.

2. Land acquisitions.

3. Planning and enquiry costs including legal expenses and fees.

4. Financing charges.

5. Cost escalation beyond the date of this estimate.

6. This estimate does not account for any tree removals or scope done by an arborist or landscape architect.

7. Demolition or relocation of the PG&E Oakport Service Center.

8. Disposal fee for AC & PCC demolition.

9. SWPPP or BMP measures.

10. City Staff review during design phase and City resident engineer and inspection during construction phase.

ASSUMPTIONS MADE IN THE PREPARATION OF THIS ESTIMATE

1. This estimate assumes normal ground conditions, and no allowances have been included for rock excavation, ground decontamination, or discovery of archaeological artifacts and their consequential effect on the Project.

2. Costs are reported in quarter 1 2011 dollars and no allowance has been included for inflation.

3. A construction estimate contingency of 30% has been included.

4. A soft cost estimate contingency of 30% has been included.

5. Contingency does not cover changes in scope.

6. New pipe includes: trench excavation, bedding, joints, fittings and backfill. This estimate does not include costs for restoring trench surface, the estimate stops at the top of backfill.

7. Road sections are assumed to have the following characteristics:

    - 4" AC depth for new roadway sections.
    - 1.5" AC depth for overlay sections.
    - 5" PCC depth for new sidewalks and medians.
    - 6" tall curb with 24" wide gutter.

8. Utility trenches, with exception to the Communications & Electrical, are assumed to be on average 4' deep. Electrical and Communication trenches are assumed to be on average 6' deep.

COST ESTIMATE DETAILS

The roadway and utility cost estimates consist of the following components:

Construction Costs

- **Direct Costs:** costs of installed equipment, material, and labor directly involved in the physical construction of the permanent facility.
- **Indirect Costs:** all costs which do not become a final part of the installation, but which are required for its orderly completion.
- **Contingency:** an amount added to an estimate to allow for items, conditions, or events for which the state, occurrence, or effect is uncertain and that experience shows will likely result, in aggregate, in additional costs. A 30% contingency is added to the direct construction cost estimates.

Soft Costs

- **Engineering**
- **Final Design**
- **PM/CA:** Project Management for design and construction, construction administration/management
- **Insurance:** professional liability and other non-construction insurances
- **Other:** legal, permits, review fees, surveys, testing, inspection, and start-up
- **Contingency:** a 30% contingency is added to the soft cost estimates.

Direct costs are calculated based on a series of unit costs (2011 dollars) and quantities. Indirect costs, soft costs, and contingency are based on factors multiplied by the total roadway and utilities construction costs. For the individual roadway projects, these cost components are apportioned based on the share of total direct construction cost.

Table A-5 presents the detailed direct construction cost estimates for the utility and roadway segments.

Table A-5: Detailed Direct Construction Cost Estimates

DESCRIPTION	ESTIMATED QUANTITY	UNIT	2011 UNIT COST	2011 AMOUNT
Utilities Engineering Quantities and Cost Estimate				
Potable Water - 8" dia. Pipe	11,000	LF	$ 49	$ 541,987
Potable Water - 12" dia. Pipe	6,300	LF	$ 75	$ 474,241
Fire Protection - Fire Hydrants	22	EA	$ 10,335	$ 223,500
Recycled Water - 8" dia. Pipe	1,500	LF	$ 49	$ 73,907
Recycled Water - 12" dia. Pipe	7,500	LF	$ 75	$ 564,573
Recycle Water - 12" dia. Pipe (Off-site)	1,450	LF	$ 75	$ 109,151
Recycle Water - 24" dia. Pipe (Off-site)	10,200	LF	$ 177	$ 1,806,075
Sanitary Sewer - 8" dia. Pipe	6,300	LF	$ 109	$ 684,543
Sanitary Sewer - 12" dia. Pipe	9,500	LF	$ 129	$ 1,225,990
Sanitary Sewer - Manholes (@ 300 ft. spacing)	53	EA	$ 5,595	$ 296,551
Storm Drainage - 15" dia. Pipe	2,400	LF	$ 127	$ 305,235
Storm Drainage - 18" dia. Pipe	6,500	LF	$ 150	$ 977,717
Storm Drainage - 24" dia. Pipe	2,250	LF	$ 176	$ 395,335
Storm Drainage - Manholes (@300' Spacing)	37	EA	$ 5,595	$ 207,026
Gas - 4" dia. Pipe	10,200	LF	$ 78	$ 800,448
Gas - 8" dia. Pipe	2,600	LF	$ 164	$ 426,869
Telecom - (6 x 4") conduits, including manholes/Junction box (600' Spacing)	10,000	LF	$ 196	$ 1,955,838
Electrical - (4 x 6") conduits, including manholes/Junction box (600' Spacing). 2 Spare conduits and 2 w/3EA 1000MCM cables	10,000	LF	$ 397	$ 3,968,743
Electrical - (8 x 6") conduits, including manholes/Junction box (600' Spacing)	1,000	LF	$ 744	$ 743,675
Relocation of Oakport Service Center - Allowance	-	LS	$ 19,565,798	$ -
Total Construction Cost Estimate - Quarter 1 2011 Dollars				**$ 15,781,406**

Table A-5 (cont.): Detailed Direct Construction Cost Estimates

DESCRIPTION	ESTIMATED QUANTITY	UNIT	2011 UNIT COST	2011 AMOUNT
Roadway Engineering Quantities and Cost Estimate				
A2: Fruitvale Avenue	1,600	LF	$ 194	$ 310,115
A3: High Street	1,900	LF	$ 427	$ 811,465
A7 & A8: Livingston and 22nd	2,100	LF	$ 151	$ 317,635
A4: E 7th btwn Kennedy and 23rd	400	LF	$ 322	$ 128,641
A5: 42nd Avenue btwn Alameda and Tidewater	1,500	LF	$ 497	$ 744,772
A6: Tidewater	3,100	LF	$ 527	$ 1,633,648
A9 & A10: E 7th btwn 23rd and Fruitvale and Derby	2,900	LF	$ 354	$ 1,026,995
A11: Lesser Street	900	LF	$ 541	$ 486,454
A12: New Street "A"	1,700	LF	$ 487	$ 827,670
A13: New Street "B"	1,000	LF	$ 490	$ 489,873
Triangle	1,400	LF	$ 266	$ 372,545
Traffic Signal	1	EA	$ 317,786	$ 317,786
Signage	17,975	LF	$ 4	$ 71,720
Total Construction Cost Estimate - Quarter 1 2011 Dollars				**$ 7,539,319**

Table A-6 summarizes the direct and indirect construction costs.

Table A-6: Summary of Direct and Indirect Construction Costs

			2011	
DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT COST	AMOUNT
Utilities Direct Cost Estimate 2011	1	LS	$ 15,781,406	$ 15,781,406
Indirect Cost/Mark-Up 2011				**$ 5,994,409**
Mobilization (Mob) = 10% x (Direct Cost)	1	LS	10%	$ 1,578,141
Indirects (Ind) = 12% x (Mob + Direct Cost)	1	LS	12%	$ 2,083,146
Overhead & Profit (OHP) = 12% x (Ind + Mob + Direct Cost)	1	LS	12%	$ 2,333,123
Contingency	1	LS	30%	**$ 6,532,744**
Total Construction Cost Estimate - Quarter 1 2011 Dollars				**$ 28,308,559**

Roadway Direct Cost Estimate 2011	1	LS	$ 7,539,319	$ 7,539,319
Indirect Cost/Mark-Up 2011				**$ 2,863,735**
Mobilization (Mob) = 10% x (Direct Cost)	1	LS	10%	$ 753,932
Indirects (Ind) = 12% x (Mob + Direct Cost)	1	LS	12%	$ 995,190
Overhead & Profit (OHP) = 12% x (Ind + Mob + Direct Cost)	1	LS	12%	$ 1,114,613
Contingency	1	LS	30%	**$ 3,120,916**
Total Construction Cost Estimate - Quarter 1 2011 Dollars				**$ 13,523,970**

Table A-7 presents the soft cost estimates.

Table A-7: Summary of Soft Costs

DESCRIPTION	ESTIMATED QUANTITY	UNIT	2011 UNIT COST	2011 AMOUNT
Utilities Direct Cost Estimate 2011	1	LS	$ 15,781,406	$ 15,781,406
Soft Cost 2011				**$ 4,655,515**
Preliminary Engineering	1	LS	2%	$ 315,628
Final Design	1	LS	12%	$ 1,893,769
PM/CA	1	LS	13%	$ 1,972,676
Insurance	1	LS	2%	$ 315,628
Other	1	LS	1%	$ 157,814
Contingency	1	LS	30%	**$ 1,373,377**
Total Soft Cost Estimate - Quarter 1 2011 Dollars				**$ 6,028,892**

Roadway Direct Cost Estimate 2011	1	LS	$ 7,539,319	$ 7,539,319
Soft Cost 2011				**$ 2,224,099**
Preliminary Engineering	1	LS	2%	$ 150,786
Final Design	1	LS	12%	$ 904,718
PM/CA	1	LS	13%	$ 942,415
Insurance	1	LS	2%	$ 150,786
Other	1	LS	1%	$ 75,393
Contingency	1	LS	30%	**$ 656,109**
Total Soft Cost Estimate - Quarter 1 2011 Dollars				**$ 2,880,208**

Table A-8 presents the cost summary of the direct and indirect construction costs plus the soft costs for utilities and roadways.

Table A-8: Summary of Total Costs

SUMMARY	AMOUNT (2011$)
TOTAL UTILITIES CONSTRUCTION COST 2011	$ 28,308,559
TOTAL UTILITIES SOFT COST 2011	$ 6,028,892
TOTAL UTILITIES COST	**$ 34,337,451**
TOTAL ROADWAY CONSTRUCTION COST 2011	$ 13,523,970
TOTAL ROADWAY SOFT COST 2011	$ 2,880,208
TOTAL ROADWAY COST	**$ 16,404,178**
TOTAL COST (UTILITY + ROADWAY)	**$ 50,741,630**

Table A-9 provides a breakdown of how the roadway costs for each mid-term improvement were developed. This table shows how the indirect costs, soft costs, and contingency for the roadway totals shown above were apportioned to each improvement. The traffic signal and signage costs were assigned to segments A-7 and A-5, respectively.

Table A-9: Cost Estimates for Each Mid-Term Roadway Improvement

	CONSTRUCTION COSTS			SOFT COSTS			2011
MID-TERM ROADWAY IMPROVEMENT	DIRECT COST	INDIRECT COST	CONTINGENCY	ENG/DESIGN	CONTINGENCY	OTHER COSTS	FINAL COST
A2: Fruitvale Avenue	$310,115	$124,211	$135,366	$96,468	$28,458		$694,618
A3: High Street	$811,465	$325,018	$354,207	$252,423	$74,465	$71,720	$1,889,299
A4: E 7th btwn Kennedy and 23rd	$128,641	$51,525	$56,152	$40,016	$11,805		$288,139
A5: 42nd Ave btwn Alameda and Tidewater	$744,772	$298,306	$325,095	$231,677	$68,345	$317,786	$1,985,980
A6: Tidewater	$1,633,648	$654,330	$713,093	$508,180	$149,913		$3,659,164
A7: Livingston	$181,506	$72,699	$79,228	$56,461	$16,656		$406,550
A8: 22nd	$136,129	$54,524	$59,421	$42,346	$12,492		$304,912
A9: E 7th St btwn 23rd and Fruitvale	$920,754	$368,792	$401,912	$286,420	$84,494		$2,062,371
A10: Derby	$106,241	$42,553	$46,374	$33,048	$9,749		$237,966
A11: Lesser	$486,454	$194,841	$212,339	$151,322	$44,640		$1,089,596
A12: New Street "A"	$827,670	$331,509	$361,281	$257,464	$75,952		$1,853,876
A13: New Street "B"	$489,873	$196,210	$213,831	$152,385	$44,954		$1,097,254
Triangle	$372,545	$149,217	$162,617	$115,888	$34,187		$834,454
Traffic Signal	$317,786	$0	$0	$0	$0		Signal included in A5
Signage	$71,720	$0	$0	$0	$0		Signage included in A3
Total	**$7,539,319**	**$2,863,735**	**$3,120,916**	**$2,224,099**	**$656,109**		**$16,404,178**

UNIT COST BUILD-UP

ITEM		MATERIAL BUY & INSTALL	MISC FITTINGS (25% OF PIPE COST)	SUBTOTAL (INCLUDES LOCATION FACTOR)	NOTES
Potable Water - 8" dia. Pipe	LF	$ 32.93	$ 8.23	$ 49.27	PVC CL 150 C905
Potable Water - 12" dia. Pipe	LF	$ 50.31	$ 12.58	$ 75.28	PVC CL 150 C905
Fire Protection - Fire Hydrants	LF	$ 8,634.30		$ 10,335.26	Hydrant, 4-1/2" valve size, two way, 20' offset, 4' deep
Recycled Water - 8" dia. Pipe	LF	$ 32.93	$ 8.23	$ 49.27	PVC CL 150 C905
Recycled Water - 12" dia. Pipe	LF	$ 50.31	$ 12.58	$ 75.28	PVC CL 150 C905
Recycle Water - 12" dia. Pipe (Off-site)	LF	$ 50.31	$ 12.58	$ 75.28	PVC CL 150 C905
Recycle Water - 24" dia. Pipe (Off-site)	LF	$ 118.34	$ 29.59	$ 177.07	PVC CL 150 C905
Sanitary Sewer - 8" dia. Pipe	LF	$ 72.62	$ 18.16	$ 108.66	SDR 21. Change from SDR to 21 to SDR 11. Cost for the 21 = $38.5
Sanitary Sewer - 12" dia. Pipe	LF	$ 86.25	$ 21.56	$ 129.05	SDR 21. Change from SDR 21 to SDR 11. Cost for the 21 = $45
Sanitary Sewer - Manholes (@ 300 ft. spacing)	EA	$ 4,674.44		$ 5,595.30	Manhole, precast,4' ID riser,8' deep
Storm Drainage - 15" dia. Pipe	LF	$ 85.00	$ 21.25	$ 127.18	18" concrete w/gasket class 3 , 6' deep (scaled down)
Storm Drainage - 18" dia. Pipe	LF	$ 100.53	$ 25.13	$ 150.42	18" concrete w/gasket class 3 , 6' deep
Storm Drainage - 24" dia. Pipe	LF	$ 117.43	$ 29.36	$ 175.70	24" concrete w/gasket class 3, 6' deep
Storm Drainage - Manholes (@300' Spacing)	EA	$ 4,674.44		$ 5,595.30	Manhole, precast,4' ID riser,8' deep
Gas - 4" dia. Pipe	LF	$ 45.81	$ 9.75	$ 78.48	steel, Sch 40, plain ends
Gas - 8" dia. Pipe	LF	$ 113.46	$ 23.70	$ 164.18	steel, Sch 40, plain ends
Telecom - (6 x 4") conduits, including manholes/Junction box (600' Spacing)	LF	$ 139.40	$ 24.00	$ 195.58	PVC type EB
Electrical - (4 x 6") conduits, including manholes/ Junction box (600' Spacing). 2 Spare conduits and 2 w/3EA 1000MCM cables	LF	$ 273.93	$ 57.63	$ 396.87	PVC type EB. 1000MCM copper cable, NEC costbook
Electrical - (8 x 6") conduits, including manholes/ Junction box (600' Spacing)	LF	$ 505.71	$ 115.57	$ 743.68	PVC type EB. 1000MCM copper cable, NEC costbook
Relocation of Oakport Service Center - Allowance	LS	$ 16,345,696		$ 19,565,798.41	NIC
A2: Fruitvale Avenue	LF	$ 161.92		$ 193.82	Fruitvale Avenue
A3: High Street	LF	$ 356.80		$ 427.09	High Street
A7 & A8: Livingston and 22nd	LF	$ 126.36		$ 151.25	Livingston and 22nd
A4: E 7th btwn Kennedy and 23rd	LF	$ 268.67		$ 321.60	E. 7th Street btwn Kennedy & 23rd

ITEM		MATERIAL BUY & INSTALL	MISC FITTINGS (25% OF PIPE COST)	SUBTOTAL (INCLUDES LOCATION FACTOR)	NOTES
A5: 42nd Avenue btwn Alameda and Tidewater	LF	$ 414.80		$ 496.51	42nd: Alameda to Tidewater
A6: Tidewater	LF	$ 440.25		$ 526.98	Tidewater Ave
A9 & A10: E 7th btwn 23rd and Fruitvale and Derby	LF	$ 295.85		$ 354.14	E 7th (23rd to Fruitvale) and Derby
A11: Lesser Street	LF	$ 451.55		$ 540.50	Lesser Street
A12: New Street "A"	LF	$ 406.74		$ 486.86	New Street "A" (2 segments)
A13: New Street "B"	LF	$ 409.25		$ 489.87	New Street "B"
Triangle	LF	$ 222.31		$ 266.10	Triangle (Mid-Term)
Traffic Signal	LF	$ 265,485		$ 317,785.55	Traffic Signal
Signage	LF	$ 3.33		$ 3.99	Traffic Signage
Oakland City Adjustment Factor of 1.197 **Source: RSMeans Online**					

ROADWAY SECTION BUILD-UP

Section	A2	Fruitvale Avenue		
Length	1,600	LF		
Action	Width (ft)	*Qty (sf)*	*Unit Cost*	*Extended*
AC Paving	0	-	$5.29	$ -
Resurface	45	*72,000*	$2.50	$ *180,000*
Sidewalk/Median	0	-	$6.15	$ -
Demo AC	4	*6,400*	$1.25	$ *8,000*
Demo Concrete Sidewalk/Median	0	-	$2.07	$ -
Landscape	4	*6,400*	$4.03	$ *25,797*
Curb & Gutter	1	*1,600*	$28.30	$ *45,280*
			Total	$ 259,077
			$/LF	$ 161.92

Section	A5	42nd: Alameda to Tidewater		
Length	1,500	LF		
Action	Width (ft)	*Qty (sf)*	*Unit Cost*	*Extended*
AC Paving	40	*60,000*	$5.29	$ *317,241*
Resurface	0	-	$2.50	$ -
Sidewalk/Median	16	*24,000*	$6.15	$ *147,504*
Demo AC	0	-	$1.25	$ -
Demo Concrete Sidewalk/Median	0	-	$2.07	$ -
Landscape	12	*18,000*	$4.03	$ *72,554*
Curb & Gutter	2	*3,000*	$28.30	$ *84,900*
			Total	$ 622,199
			$/LF	$ 414.80

Section	A12	New Street "A" (2 segments)		
Length	1,700	LF		
Action	Width (ft)	*Qty (sf)*	*Unit Cost*	*Extended*
AC Paving	40	*68,000*	$5.29	$ *359,540*
Resurface	0	-	$2.50	$ -
Sidewalk/Median	16	*27,200*	$6.15	$ *167,171*
Demo AC	0	-	$1.25	$ -
Demo Concrete Sidewalk/Median	0	-	$2.07	$ -
Landscape	10	*17,000*	$4.03	$ *68,523*
Curb & Gutter	2	*3,400*	$28.30	$ *96,220*
			Total	$ 691,454
			$/LF	$ 406.74

Section	A3	High Street		
Length	1,900	LF		
Action	Width (ft)	*Qty (sf)*	*Unit Cost*	*Extended*
AC Paving	14	*26,600*	$5.29	$ *140,644*
Resurface	44	*83,600*	$2.50	$ *209,000*
Sidewalk/Median	13	*24,700*	$6.15	$ *151,806*
Demo AC	0	-	$1.25	$ -
Demo Concrete Sidewalk/Median	0	-	$2.07	$ -
Landscape	9	*17,100*	$4.03	$ *68,926*
Curb & Gutter	2	*3,800*	$28.30	$ *107,540*
			Total	$ 677,916
			$/LF	$ 356.80

Section	A6	Tidewater Ave		
Length	3,100	LF		
Action	Width (ft)	*Qty (sf)*	*Unit Cost*	*Extended*
AC Paving	54	*167,400*	$5.29	$ *885,103*
Resurface	0	-	$2.50	$ -
Sidewalk/Median	14	*43,400*	$6.15	$ *266,736*
Demo AC	0	-	$1.25	$ -
Demo Concrete Sidewalk/Median	0	-	$2.07	$ -
Landscape	3	*9,300*	$4.03	$ *37,486*
Curb & Gutter	2	*6,200*	$28.30	$ *175,460*
			Total	$ 1,364,785
			$/LF	$ 440.25

Section	A13	New Street "B"		
Length	1,000	LF		
Action	Width (ft)	*Qty (sf)*	*Unit Cost*	*Extended*
AC Paving	42	*42,000*	$5.29	$ *222,069*
Resurface	0	-	$2.50	$ -
Sidewalk/Median	16	*16,000*	$6.15	$ *98,336*
Demo AC	0	-	$1.25	$ -
Demo Concrete Sidewalk/Median	0	-	$2.07	$ -
Landscape	8	*8,000*	$4.03	$ *32,246*
Curb & Gutter	2	*2,000*	$28.30	$ *56,600*
			Total	$ 409,251
			$/LF	$ 409.25

Section	A7 & A8	Livingston and 22nd		
Length	2,100	LF		
Action	Width (ft)	*Qty (sf)*	*Unit Cost*	*Extended*
AC Paving	0	-	$5.29	$ -
Resurface	36	*75,600*	$2.50	$ *189,000*
Sidewalk/Median	0	-	$6.15	$ -
Demo AC	0	-	$1.25	$ -
Demo Concrete Sidewalk/Median	0	-	$2.07	$ -
Landscape	2	*4,200*	$4.03	$ *16,929*
Curb & Gutter	1	*2,100*	$28.30	$ *59,430*
			Total	$ 265,359
			$/LF	$ 126.36

Section	A9 & A10	E 7th (23rd to Fruitvale) and Derby		
Length	2,900	LF		
Action	Width (ft)	*Qty (sf)*	*Unit Cost*	*Extended*
AC Paving	0	-	$5.29	$ -
Resurface	32	*92,800*	$2.50	$ *232,000*
Sidewalk/Median	14	*40,600*	$6.15	$ *249,528*
Demo AC	0	-	$1.25	$ -
Demo Concrete Sidewalk/Median	12	*34,800*	$2.07	$ *72,036*
Landscape	12	*34,800*	$4.03	$ *140,270*
Curb & Gutter	2	*5,800*	$28.30	$ *164,140*
			Total	$ 857,974
			$/LF	$ 295.85

Section		Triangle (Mid-Term)		
Length	1,400	LF		
Action	Width (ft)	*Qty (sf)*	*Unit Cost*	*Extended*
AC Paving	0	-	$5.29	$ -
Resurface	37	*51,800*	$2.50	$ *129,500*
Sidewalk/Median	0	-	$6.15	$ -
Demo AC	0	-	$1.25	$ -
Demo Concrete Sidewalk/Median	12	*16,800*	$2.07	$ *34,776*
Landscape	12	*16,800*	$4.03	$ *67,717*
Curb & Gutter	2	2800	$28.30	$ *79,240*
			Total	$ 311,233
			$/LF	$ 222.31

Section	A4	E. 7th Street btwn Kennedy & 23rd		
Length	400	LF		
Action	Width (ft)	*Qty (sf)*	*Unit Cost*	*Extended*
AC Paving	0	-	$5.29	$ -
Resurface	60	*24,000*	$2.50	$ *60,000*
Sidewalk/Median	4	*1,600*	$6.15	$ *9,834*
Demo AC	4	*1,600*	$1.25	$ *2,000*
Demo Concrete Sidewalk/Median	6	*2,400*	$2.07	$ *4,968*
Landscape	12	*4,800*	$4.03	$ *19,348*
Curb & Gutter	1	*400*	$28.30	$ *11,320*
			Total	$ 107,469
			$/LF	$ 268.67

Section	A11	Lesser Street		
Length	900	LF		
Action	Width (ft)	*Qty (sf)*	*Unit Cost*	*Extended*
AC Paving	50	*45,000*	$5.29	$ *237,931*
Resurface	0	-	$2.50	$ -
Sidewalk/Median	16	*14,400*	$6.15	$ *88,502*
Demo AC	0	-	$1.25	$ -
Demo Concrete Sidewalk/Median	0	-	$2.07	$ -
Landscape	8	*7,200*	$4.03	$ *29,021*
Curb & Gutter	2	*1,800*	$28.30	$ *50,940*
			Total	$ 406,395
			$/LF	$ 451.55

EXCAVATION BUILD-UP

TRENCH FOR A 4" PIPE, 4' DEEP, INCLUDING EXCAVATION, BACKFILL, BEDDING & COMPACTION					
DESCRIPTION	QUANTITY	UNIT	MATERIAL	INSTALLATION	TOTAL
Excavating, trench or continuous footing, common earth, 3/4 C.Y. excavator, 1' to 4' deep, excludes sheeting or dewatering	0.2963	B.C.Y.	0	1.85	1.85
Excavating, trench backfill, 1 C.Y. bucket, minimal haul, front end loader, wheel mounted, excludes dewatering	0.1603	L.C.Y.	0	0.41	0.41
Excavating, trench backfill, 1 C.Y. bucket, 200' haul, front end loader, wheel mounted, excludes dewatering	0.2249	L.C.Y.	0	2.28	2.28
Fill by borrow and utility bedding, for pipe and conduit, crushed stone, 3/4" to 1/2", excludes compaction	0.203	L.C.Y.	8.53	2.32	10.85
Fill by borrow and utility bedding, for pipe and conduit, compacting bedding in trench	0.173	E.C.Y.	0	0.88	0.88
Compaction, 4 passes, 24" wide, 6" lifts, walk behind, vibrating roller	0.1233	E.C.Y.	0	0.54	0.54
		Total	**$8.53**	**$8.28**	**$16.81**

TRENCH FOR AN 8" PIPE , 4' DEEP, INCLUDING EXCAVATION, BACKFILL, BEDDING & COMPACTION					
DESCRIPTION	QUANTITY	UNIT	MATERIAL	INSTALLATION	TOTAL
Excavating, trench or continuous footing, common earth, 3/4 C.Y. excavator, 1' to 4' deep, excludes sheeting or dewatering	0.2963	B.C.Y.	0	1.85	1.85
Excavating, trench backfill, 1 C.Y. bucket, minimal haul, front end loader, wheel mounted, excludes dewatering	0.1278	L.C.Y.	0	0.32	0.32
Excavating, trench backfill, 1 C.Y. bucket, 200' haul, front end loader, wheel mounted, excludes dewatering	0.2574	L.C.Y.	0	2.61	2.61
Fill by borrow and utility bedding, for pipe and conduit, crushed stone, 3/4" to 1/2", excludes compaction	0.233	L.C.Y.	9.79	2.67	12.45
Fill by borrow and utility bedding, for pipe and conduit, compacting bedding in trench	0.198	E.C.Y.	0	1	1
Compaction, 4 passes, 24" wide, 6" lifts, walk behind, vibrating roller	0.0983	E.C.Y.	0	0.43	0.43
		Total	**$9.79**	**$8.88**	**$18.66**

TRENCH FOR 18" PIPE , 6' DEEP, INCL EXCAVATE W/BOX, BACKFILL, BEDDING & COMPACT					
DESCRIPTION (FOR ELECTRICAL AND COMMUNICATIONS UTILITIES)	QUANTITY	UNIT	MATERIAL	INSTALLATION	TOTAL
Excavating, trench or continuous footing, common earth, 3/4 C.Y. excavator, 6' W x 6'D, includes trench box, excludes dewatering	1.33	B.C.Y.	0	8.53	8.53
Excavating, trench backfill, 1 C.Y. bucket, minimal haul, front end loader, wheel mounted, excludes dewatering	0.858	L.C.Y.	0	2.17	2.17
Excavating, trench backfill, 1 C.Y. bucket, 200' haul, front end loader, wheel mounted, excludes dewatering	0.956	L.C.Y.	0	9.69	9.69
Slurry backfill	0.163	C.Y	12.23	4	16.225
Fill by borrow and utility bedding, for pipe and conduit, compacting bedding in trench	0.605	E.C.Y.	0	3.06	3.06
Compaction, 4 passes, 24" wide, 6" lifts, walk behind, vibrating roller	0.66	E.C.Y.	0	2.87	2.87
		Total	**$12.23**	**$30.32**	**$42.55**

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