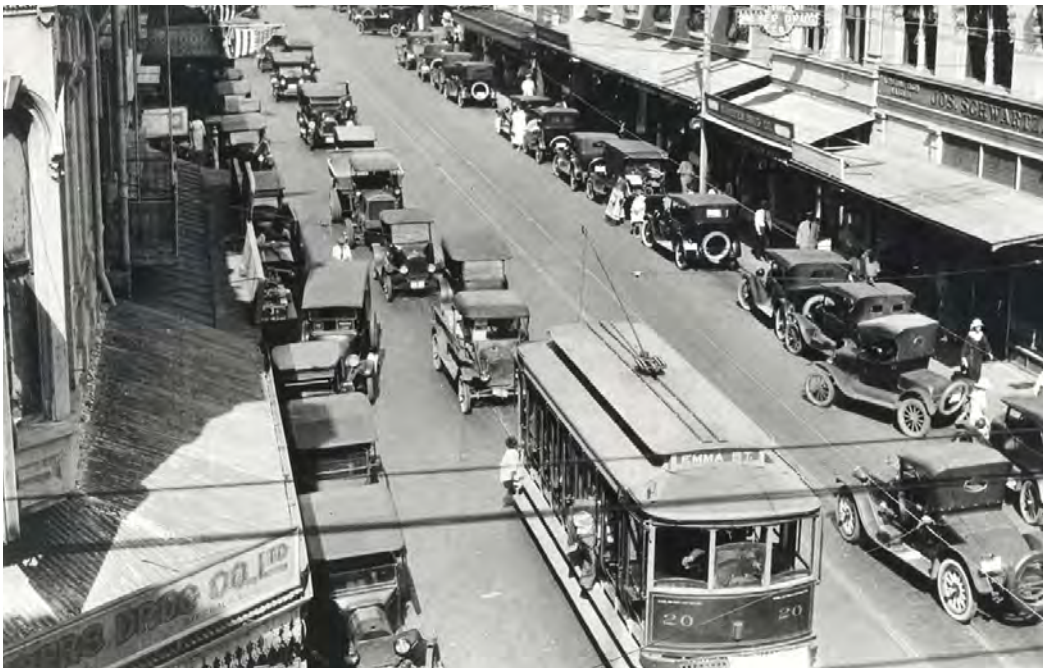

HAWAII COMMUNITY DEVELOPMENT AUTHORITY

KAKA`AKO COMMUNITY DEVELOPMENT DISTRICT

TOD OVERLAY PLAN

FINAL
DRAFT

March 18, 2016

Printed on 100% recycled paper

Lee Sichter LLC

NELSON
NYGAARD

VIA

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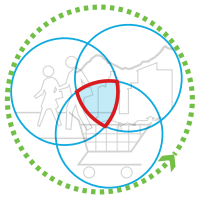

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1 INTRODUCTION

NOTE TO READER

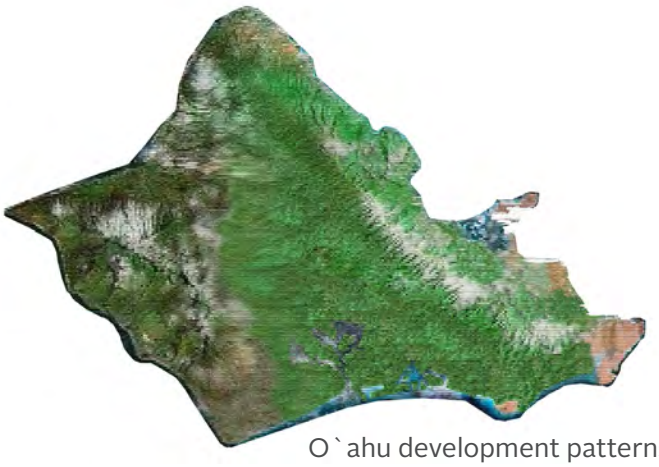
The Final Environmental Impact Statement for Transit Oriented Development in the Kaka`ako Community Development District evaluated three alternatives: No Action, Alternative A, and Alternative B. Alternative A represented the Draft TOD Plan, dated May 20, 2013. Alternative B represents a modification of the Draft Plan that imposed a building height limit of 418 feet throughout the Mauka Area District. This modification has led to revisions in proposed Floor Area Ratios, building densities, and parking standards.

The Final TOD Overlay Plan is intended to implement TOD Alternative B.

URBAN SYNERGY IN KAKA`AKO

"As a net is made up of a series of ties, so everything in this world is connected by a series of ties. If anyone thinks that the mesh of a net is an independent, isolated thing, he is mistaken. It is called a net because it is made up of a series of interconnected meshes, and each mesh has its place and responsibility in relation to other meshes."

- The Buddha



O`ahu development patterns
prior to Western contact
1778 AD

"Planning for indefinite expansion is now wasteful and obsolete. The city of the future will have a better sense of its natural limits: it will attempt to make the most of what it has, rather than to evade its actual difficulties and its actual deterioration by encouraging its population to move out to the outskirts and permit the interiors to become more completely blighted. Good planning means rehabilitation: it means beginning over again and doing the job right."

—Lewis Mumford, *Whither Honolulu? (1939)*

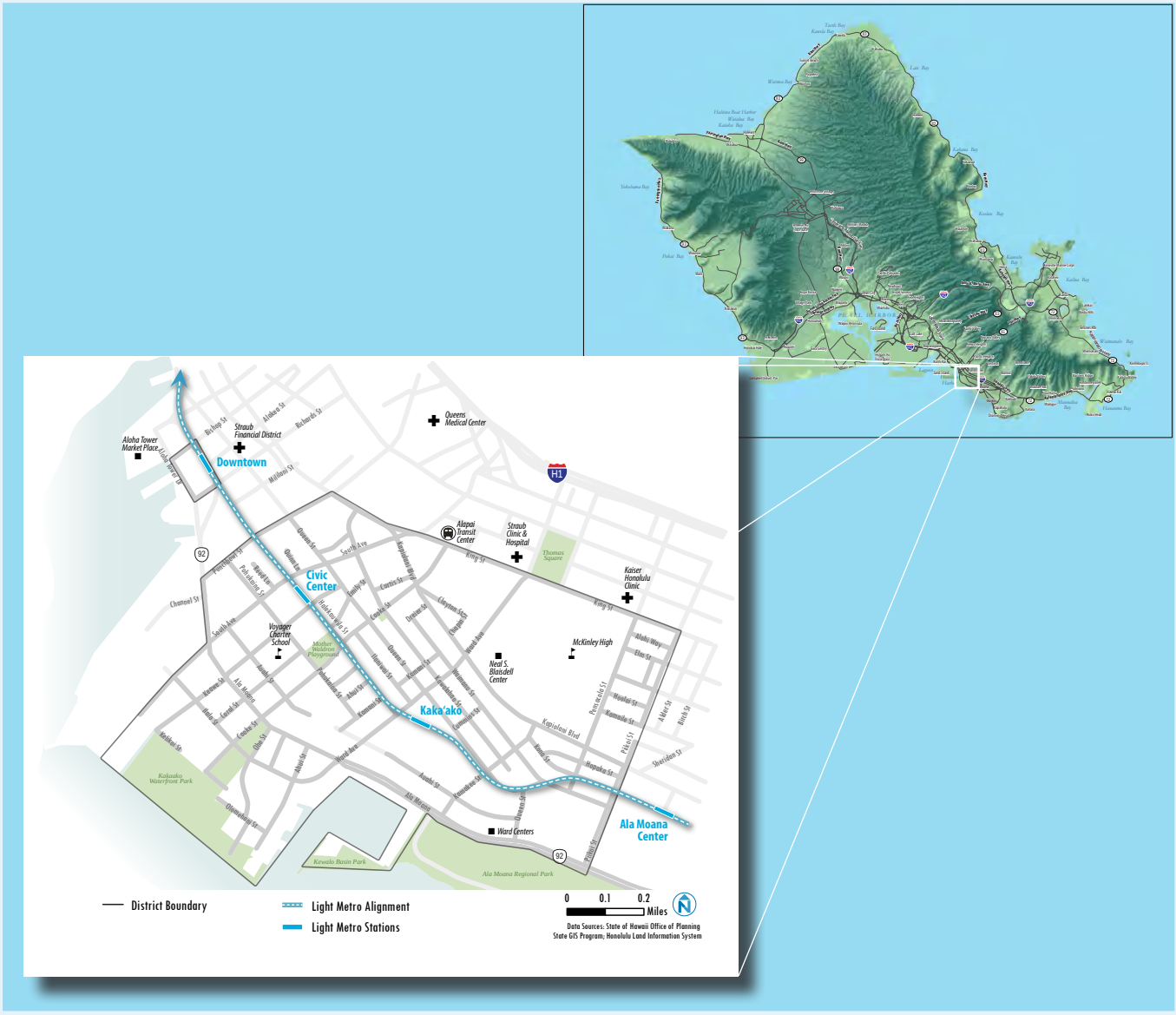
O`ahu development patterns now
2012 AD

DEFINITIONS & CONTEXT

**Kaka`ako Community Development District (KCDD):** Upon passage of Chapter 206E, Hawaii Revised Statutes Kaka`ako was designated as the first Community Development District under the Hawaii Community Development Authority (HCDA)—a public corporate entity responsible for planning and revitalizing redevelopment areas. Legislators found that Kaka`ako was significantly underdeveloped and under utilized relative to its central location in urban Honolulu. The 601.6-acre KCDD, pictured below, is bounded by King Street on the north, Piikoi Street and Ala Moana Regional Park on the east, Punchbowl Street and the property line between Pier 2 and Pier 4 on the west, and the Pacific Ocean on the south. HCDA was then given jurisdiction over the 3.4-acre Aloha Tower Special District in Downtown Honolulu. The Aloha Tower Special District is located on the makai side of Ala Moana Boulevard and is bounded by Richard Street, Bishop Street, and Aloha Tower Drive.

TOD Overlay: HCDA recognizes the need to leverage existing transit services to develop a transit-oriented community. In 2012, Honolulu City Council's approval of an elevated fixed rail system, hereafter referred to as "light metro", to extend from East Kapolei to Honolulu and include three new light metro stations in the KCDD further validated the need to develop a plan and rules to guide transit-oriented development (TOD). The new rules will be enacted as an "overlay" to the existing district rules.

TOD Overlay Plan: The TOD Overlay Plan represents a comprehensive analysis of the issues and opportunities associated with TOD in Kaka`ako. Once an environmental impact statement disclosing the anticipated impacts of TOD is prepared and accepted, rules will be adopted that will guide TOD in the KCDD.



1 INTRODUCTION

PROJECT PURPOSE

The Hawai`i Community Development Authority (HCDA) and the Kaka`ako community have a vision for the Kaka`ako Community Development District (KCDD) to be a sustainable, highly livable, culturally vibrant, economically strong, healthy, and walkable urban neighborhood. This vision is manifested in the Kaka`ako Mauka Area Plan and Rules as well as in the Makai Area Plan and Rules. HCDA plans to work with many partners to develop the district into an internally diverse network of housing, businesses and amenities; while simultaneously strengthening the district's critical role in preserving the health of greater urban Honolulu.

The Kaka`ako Community Development District's (KCDD) Transit Oriented Development Plan and Rules Overlay (TOD Overlay Plan) enhances the policies and direction set forth in the previously established district plans and rules by maximizing development through the use of smart growth principles, multi-modal transportation, and walkable neighborhood design. The intention of the TOD Overlay Plan is to foster development that creates well-used and well-loved urban places that are safe, comfortable, diverse, attractive and representative of the diverse character in the Kaka`ako community, while providing safe and comfortable streets and convenient access to the district's three future light metro stations.

Figure 1-1 Elements of Transit-Oriented Development in KCDD

Mobility & Access **Available Services** **Redevelopment Potential**

Transit-oriented neighborhoods are places that, by their design, allow people to drive less and walk, cycle, and take transit more. This is achieved by concentrating higher-density, mixed-use, human scale development around transit stops and stations. Transit-oriented neighborhoods provide **mobility and access** through well-connected and well-designed networks of streets, creating walking- and cycling-friendly streets. Such places help to reduce unnecessary auto travel by locating a wide range of needed **services** close to where people live and work. Transit-oriented neighborhoods allow developers to build more efficiently, maximizing the use of space for productive uses such as housing, offices, entertainment, retail, and services. Communities built in this way have proven to be particularly livable, sustainable, and resilient places.

Image from HCDA

Typical weekday peak traffic congestion on Lunalilo Freeway (H1). Due to Honolulu's geographic constraints, travel demand is funneled into a limited number of Ewa-Koko Head corridors.
Image from Flickr user Casey Serin

WHY A TRANSIT-ORIENTED KCDD MATTERS FOR O`AHU

Honolulu and urban O`ahu are regarded as places of great natural beauty with a unique quality of life. However, O`ahu faces a number of challenges including high housing costs, high energy prices, high levels of traffic congestion and auto dependence, increasing obesity rates, urban design that restricts walking and healthy activities, and a high level of dependence on imported oil for energy and mobility.

- **Honolulu has among the most expensive housing in the nation**—the median housing price in Honolulu is $576,500[1]
- **Honolulu is highly reliant on fossil fuels**—over 90% of energy consumed in Hawai`i is from imported petroleum[2]
- **Honolulu has the worst traffic congestion in the nation**—the average driver spent 58 hours in traffic in 2012[3]
- **10 square miles of land were developed** on O`ahu between 1992 and 2005[4]

Transit-oriented development can help to address each of these challenges, particularly in urban areas where good bus service and pedestrian infrastructure is already in place, amenities and services are abundant, and is in close proximity to major job centers. The KCDD represents the region's best opportunity to create a rich urban neighborhood that reduces per capita demands on energy, land, and other valuable resources, creates affordable housing opportunities, and reduces the overall cost and impact of living, while simultaneously building a culturally rich and vital urban neighborhood in the heart of urban Honolulu. This is no small feat; it is necessary to address threats to Honolulu's livability and environment.

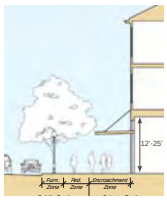
1 US Census Bureau, American Community Survey, 2011.
2 US Energy Information Administration, Hawaii Energy Profile, 2009.
3 Inrix National Travel Scorecard. 2013. Accessed at http://scorecard.inrix.com/scorecard/default.asp. 2013.
4 Developed areas assessed based on Coastal Change Analysis Program and 2005 Hawaii Land Cover datasets, NOAA Coastal Services Center, 2009.

PROJECT BACKGROUND/CONTEXT

Policy Context

This TOD Overlay Plan evolves from a rich history of planning for urban Honolulu and the Kaka`ako community. The coming introduction of rail transit - in parallel with community driven interest in creating a city that is highly walkable, friendly and safe for cyclists - is an impetus for this plan. However, a changing transportation paradigm is only a representation of a much broader movement to bring vitality to urban Honolulu, reflecting the values of native Hawai`ian culture, particularly stewardship of land and environment, preservation of native culture, openness to the visiting world, and responsibility to local people and their prosperity.

This plan builds directly on the Mauka Area Plan and Rules and the Makai Area Plan and Rules and references many other important guiding plans and policies.



Mauka Area Plan and Rules was adopted in the fall of 2011. This plan provides the strongest policy foundation for the district, as it was developed around Smart Growth principles, placing high value on sustainable development, quality urban form, and creation of walkable streets and pedestrian scale environments. The Mauka Area Plan and Rules were developed with the anticipation for an additional overlay that would enhance the Smart Growth principles established in its guidelines. Thus, this TOD Overlay Plan functions as an extension and not only translates the principles in the Mauka Area Plan and Rules to other parts of the district, but also is developed to integrate district development, transportation networks and active public spaces into a tightly-knit network.

PUC

Primary Urban Center: Development Plan. The PUC Development Plan addresses O`ahu's Primary Urban Center, including Kaka`ako, as it functions as a critical piece of O`ahu's overall development pattern. The PUC plan implements the community's vision for the urban center as expressed in the O`ahu General Plan and outlines necessary actions in order to accomplish the vision. The actions focus on land use, transportation, infrastructure and public facilities; all of which are important components of this TOD Overlay Plan. Specifically addressed are the land use and transportation sections that promote goals and ideas around:

- Protecting and Enhancing Natural, Cultural, and Scenic Resources
- Cultivating Livable Neighborhoods
- Promoting In-Town Housing Choices
- Developing Honolulu as Pacific's Leading City
- Creating a Balanced Transportation System

HAWAI'I 2050

**The Hawai`i 2050 Sustainability Plan** was developed as a "people's plan" with more than 10,500 participants. The Hawai`i 2050 Sustainability Plan addresses the future of Hawai`i through an economic, social and environmental lens, filtering a common ground that suggests ideas to encourage a long-term economic strength, environmental stewardship, and quality of life for Hawai`i's citizens and visitors. In 2011, the Hawai`i State Plan (Chapter 226, Hawai`i Revised Statutes), was amended to include the Hawai`i 2050 Plan's definition of sustainability. New priority guidelines and principles to promote sustainability were also added to the

Hawai`i State Plan. As set forth in the State Plan, "Sustainability means achieving the following:

1. Respect of the culture, character, beauty, and history of the State's island communities;
2. Striking a balance between economic, social, community, and environmental priorities; and
3. Meeting the needs of the present without compromising the ability of the future generations to meet their own needs."

This TOD Overlay Plan recognizes the importance of long-range sustainability as a primary influence in the development and well-being of the Kaka`ako community. 2050 Plan principles permeate this Plan.

LEED for Neighborhood Development. Offering a balance of ideas and smart growth principles at a neighborhood scale, this rating system was composed by great minds on the forefront of community building and environmental preservation. Their knowledge and case studies offered in the LEED ND manual present a means of translating global issues relating to green neighborhood development into individual diverse communities within Kaka`ako. The guiding elements in the manual are headlined under ideas such as Smart Locations and Linkages, Neighborhood Pattern and Design, and Green Infrastructure and Buildings.

Makai Area Plan and Rules. As set forth in the 2011 Conceptual Plan for the Makai District, the area of the KCDD makai of Ala Moana Boulevard (and including the Aloha Tower Special District) is envisioned as the community's gathering place that welcomes all people with enriching cultural, recreational, and educational public uses. It will serve as a safe and secure place for neighboring residents and visitors; sustaining public uses on public-owned lands for the greater public good; offering enriching cultural facilities; incorporating a Hawai`ian sense of place in the design of area public facilities; and ensuring future sustainable operation of the area's public facilities. While the TOD Overlay Plan proposes no new development in the Makai District directly related to the proposed transit stations, it envisions the integration of the Complete Streets concept throughout the Mauka and Makai Districts.

Landowner Plans. The TOD Overlay is also closely coordinated with the development plans of the two major landowners in the KCDD: Kamehameha Schools and the Howard Hughes Corporation.

District Boundaries and Size

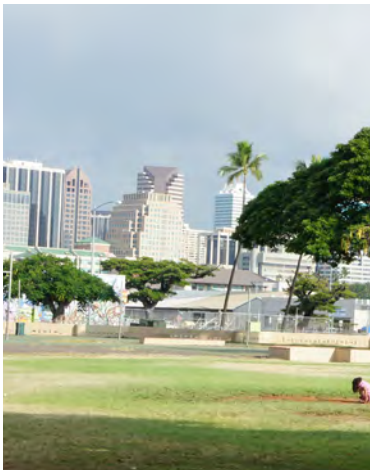
The TOD Overlay encompasses the entire Kaka`ako Community Development District (KCDD) including the Aloha Tower Special District. The KCDD is comprised of two areas, one of which is approximately 450 acres on the mountain (mauka) side of Ala Moana Boulevard bounded by Piikoi Street, Punchbowl Street and King Street ; hereinafter referred to as the "Mauka Area." The second area in the KKCD is approximately 151.6 acres on the ocean (makai) side of Ala Moana Boulevard bounded by Ala Moana Regional Park and the property line between Pier 2 and Pier 4 at the Honolulu Harbor shoreline; hereinafter referred to as the "Makai Area." The Aloha Tower Special District is comprised of approximately 3.4 acres located on the ocean side of Ala Moana Boulevard bounded by Richard Street, Bishop Street and Aloha Tower Drive. The total area addressed in the TOD Overlay Plan is approximately 605 acres.

The Kaka`ako Community Development District is composed of several sub-neighborhoods, each with its own unique character. With the exception of the Makai District and Aloha Tower Special District, these neighborhoods were defined in the Mauka Area Plan and Rules based on existing and emerging land uses, building forms, and land tenure patterns combined with the influences of major transportation corridors and adjacent districts. Each neighborhood will be influenced differently from the provisions laid forth in this Overlay. The intent of implementing transit oriented development is not to redefine the character of the existing neighborhoods, but to utilize TOD to enhance the existing quality of Kaka`ako as a whole.

Figure 1-2 Neighborhoods in the KCDD

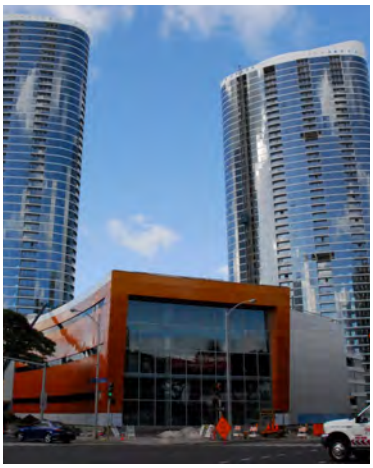
The KCDD has nine neighborhoods, each with a unique character and predominant land use.
Source: Nelson\Nygaard

KAKA`AKO'S DIVERSE NEIGHBORHOODS



Pauahi is presented in the Mauka Area Plan as a mixed-use "urban village." The name of the neighborhood honors the legacy of Princess Bernice Pauahi Bishop, who is the benefactor of Kamehameha Schools - the major landowner in this area. The proposed light metro Civic Center station is located within this neighborhood. The Mauka Area Plan envisions the Pauahi neighborhood as a high-rise area with pedestrian scaled podiums and active frontages. Several properties on the mauka side of Ala Moana Boulevard are owned by Kamehameha Schools. The implementation of the Kamehameha School's Master Plan will help to activate the Pauahi neighborhood and potentially areas along busy Ala Moana Boulevard.

Auahi is emerging as Kaka`ako's retail and entertainment center. Recent development has generated a marked increase in pedestrian activity, particularly in the vicinity of Auahi and Kamakee Streets. This activity is expected to multiply as the Howard Hughes Corporation, the majority land holder in this neighborhood, builds out its master plan. The Auahi neighborhood is envisioned to expand upon its retail and entertainment base providing active frontages and lively pedestrian environment with high-rise residential towers above. The proposed light metro Kaka`ako Station is slated to be built on the master planned property making this district a gateway to Kaka`ako's Kewalo Basin Harbor and waterfront promenade for rail transit patrons.



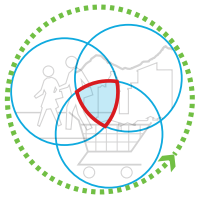
Kapiolani is a neighborhood where land uses are strongly influenced by the busy Kapiolani Boulevard corridor. As a link between Downtown Honolulu and Waikiki, the Kapiolani corridor is an attractive location for high-rise mixed-use development, including retail stores, services and showrooms at grade level, and office and residential uses on higher floors. The continuous canopy of monkeypod trees and wide planting strip at the curb line lends a distinctive character to the corridor that enhances its value for future development and as a shaded, comfortable street for pedestrian traffic. The entire neighborhood is within a five minute walk from either a proposed light metro station or one of TheBus transfer stations.

Thomas Square District is a neighborhood makai of the historic Thomas Square park.[1] The park is surrounded by properties that are home to some of Honolulu's major cultural and educational venues – the Honolulu Academy of the Arts, the Neal S. Blaisdell Center, and McKinley High School. The majority of the Thomas Square District land west of the park is owned by the City and County of Honolulu, Hawai`i State Department of Education, and the Hawaiian Electric Company. While there are no immediate redevelopment plans for the lands west of the park, these properties are in many ways ideal candidates for transit oriented redevelopment. The properties are large, relatively under-utilized, and well-connected to the urban grid and a wealth of services and amenities.

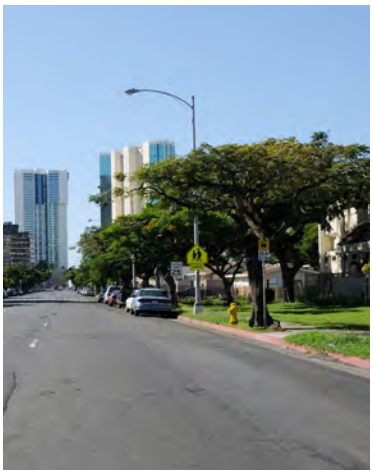
Aloha Tower Special District is a single property that is a part of a much larger neighborhood near downtown Honolulu. The property is owned by the Hawaiian Electric Company and is situated next to the Aloha Tower Marketplace and entertainment complex. It is immediately adjacent to the proposed light metro downtown station. In early 2013, Hawai`i Pacific University secured the lease of the Aloha Tower Marketplace property and announced its intention to locate student dormitories on a portion of the property. This proposed use is consistent with and supportive of transit oriented development.

Central Kaka`ako is composed primarily of small lots with individual ownership. Predominate land uses in this area are service businesses, many with an industrial character, such as repair shops and production facilities. As a distinct reminder of the district's legacy as a light-industrial and residential community, Central Kaka`ako is valued as a convenient location for service businesses and this Plan intends to maintain the existing character because of the important role these businesses will play in providing services to the many new residents expected to move into the area. Significant redevelopment is not expected in this area because of the small lot size. However, some improvements are needed and there are opportunities to create more pedestrian tolerant linkages between other important redevelopment areas and light metro stations.

1 While Blaisdell Center and the high school are situated within the Thomas Square District, Thomas Square Park and the Academy are not.



Civic Center is characterized by government and other important civic buildings spread out in a campus-like setting. Only a small portion of this neighborhood falls within the KCDD and therefore this Plan has relatively minor influence on the overall character of the neighborhood. The proposed light metro Civic Center station will be located within a five minute walk from most government buildings providing employees convenient access to rail transit. Given the existing campus character and the scale and ambiance of the significant and historic buildings in this area, existing zoning parameters will remain in place. The TOD Overlay Plan is expected to have marginal direct impact.



Sheridan is predominately a residential neighborhood composed of small, fee simple lots. This established residential neighborhood also includes active commercial uses fronting King Street and the historic Makiki Christian Church located along Pensacola Street. The KCDD's Sheridan neighborhood area represents approximately half of the larger Sheridan Tract, which is bisected by Piikoi Street. The land use, small lot size, block size and land tenure patterns are very similar to the other half of Sheridan Tract, which is located on the Diamond Head side of Piikoi Street, just outside the KCDD. While some building renovations and redevelopment does occur in this area, the scale and pace of change is slight compared other areas of Kaka`ako. Residents in this neighborhood will be within walking distance of the proposed light metro Ala Moana Station.

Purpose and Legislative Intent

The Hawai`i State Legislature created and empowered the Hawai`i Community Development Authority (HCDA) with the enactment of Chapter 206E, HRS with comprehensive planning, regulation and development responsibilities. Section 206E-33, HRS governs HCDA's planning and development activities to ensure that HCDA functions consistent with legislative intent. Although this Overlay, along with the current district plans and rules in its entirety, address all the policies defined in Section 206E-33, HRS, the TOD overlay focuses on rule 206E-33, HRS in light of the direct correlation to transit oriented development.

> *HRS 206E-33.3. Activities shall be located so as to provide primary reliance on public transportation and pedestrian facilities for internal circulation within the district or designated subareas.*

Plan Time Horizons

The planning horizon for the TOD Overlay Plan is 2035. The analysis conducted for the TOD Overlay Plan assumes 2013 as the baseline, but includes data assembled from prior years by the State of Hawai`i, the City and County of Honolulu, and the large landowners in the district.

TOD OVERLAY PLAN FORMAT

The KCDD TOD Overlay Plan is guided by a set of goals, objectives, and policies presented in Chapter 2 of this report. Several chapters set forth ideas, strategies, regulations, and implementing actions to realize the KCDD vision.

Chapter 2 Guiding Principles

Chapter 2 defines the goal of the TOD Overlay Plan as well as the objectives and policies that guide the recommendations set forth in subsequent chapters. Plan goals are organized around six key factors known to promote sustainable, transit-oriented development.

Chapter 3 Land Use

Chapter 3 describes the existing land use patterns in the KCDD and the principles and land use alternatives that can achieve plan goals. This chapter describes the results of a development propensity analysis that indicates where TOD is most viable and beneficial in the KCDD.

Chapter 4 Urban Design

Chapter 4 describes principles for achieving a high quality and highly functional urban form including development of new high-rise buildings, view preservation, active public space, and development of community amenities.

Chapter 5 Mobility and Access

Chapter 5 describes how the development of a diverse and resilient transportation system supports the goals of the KCDD. This includes the integration and role of the three new light metro stations and needed improvements to ensure safe, efficient, and comfortable access for district residents and employees traveling by rail.

Chapter 6 Complete Streets

Chapter 6 describes a new framework for mobility and access in the KCDD - Complete Streets - and establishes basic street and intersection design principles to guide future street design and operation. Complete Streets are designed for all users, with priority given to the pedestrian and modes that prioritize efficient movement of people through the limited urban rights-of-way that must support new district development.

Chapter 7 Parking and Transportation Demand Management

Chapter 7 provides recommendations for managing parking in the KCDD, including policies and practices that allow developers to reduce the footprint and impact of parking on this increasingly urbanizing area. Further the chapter explores approaches to reducing unnecessary auto travel and parking demand, which are critical to developing walkable, vibrant, and interesting streets.

2 GUIDING PRINCIPLES

2 GUIDING PRINCIPLES

Kaka`ako Community Development District: A Sustainable Community

The TOD Overlay Plan is developed as a part of a long legacy of thought and consideration focused on improving the overall quality of the Kaka`ako Community Development District (KCDD). Located at the heart of the urban Honolulu area, KCDD is positioned to be an important growth center for the region. Residential and job growth located in this transit rich district can help to reduce consumption of land elsewhere on the island and lessen the environmental impacts of development and mobility by bringing jobs and residents to a complete neighborhood where they can shop, work, recreate, and find tranquility. The KCDD envisioned by this plan celebrates the great cultural history of the place, but does so with an urbanity, thoughtful design, and environmental consciousness previously unmatched in Hawaii.

Project Goals and Objectives

The goal of the TOD Overlay Plan is to develop the Kaka`ako community in ways that promote the shared values of livability, environmental, social and economic sustainability and resiliency in the face of change. The result must enhance the distinct character and history of the Kaka`ako community, and contribute to the environmental, social and economic health of the region. The TOD Overlay Plan is designed to seamlessly integrate with the district's three future light metro stations and express the agency's dedication to placemaking through enhanced urban form.

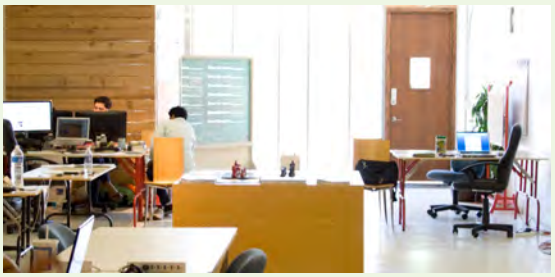
The objectives and policies outlined on the following pages are based on the "6 D's" of pedestrian focused, transit-oriented, community development.

KAKA`AKO: AN EVOLVING URBAN COMMUNITY

If, like in many cities, food trucks, green business start-ups and redevelopment of light industrials buildings are the signs of a burgeoning cultural district and more significant redevelopment, then Kaka`ako is on the brink of something great.

Kaka`ako is:

Home to the City's Largest Food Truck Festival – Food PopUP in the Park
Image from Thomas Obungen



A Hub for Technology Business Startups
Image from The Box Jelly

Home of the Greenhouse Innovation Hub
Image from Sean Nakamura

The Fruitvale BART Station TOD is an excellent example of attractive transit-oriented design.
Image from Nelson\Nygaard

WHY TRANSIT-ORIENTED DESIGN MATTERS IN KAKA`AKO

Transit-oriented neighborhoods promote Honolulu's shared values of a healthy environment, social equity, economic strength, and neighborhood resiliency. TOD supports better transit service and also makes places more conducive to walking and cycling and in doing so provides a number of key benefits to communities:

INCREASED LIVABILITY

Transit-oriented neighborhoods are safe and enjoyable places to walk, cycle, and to spend time outdoors for people of all ages and abilities. The world's successful TOD districts have proven to be particularly livable and healthy places where walking and cycling are fun and easy.

HEALTHY ENVIRONMENT

Transit-oriented neighborhoods can help to reduce energy consumption and automobile use. With reduced fossil fuel consumption, transportation in transit-oriented communities leads to improved air quality and produces fewer greenhouse gas emissions. Careful design of streets and public spaces can reduce the volume of water runoff, lessening their impact on local watersheds.

SOCIAL EQUITY

Transit-oriented neighborhoods provide high quality transportation options for all community members, including those who can't drive a private car — a group that includes people with very low incomes, young people, and some seniors. Transit-oriented communities reduce the overall household cost of living by reducing the need to drive and thereby reducing household transportation costs. By incorporating the principles of universal design, transit-oriented neighborhoods are accessible to people of all abilities.

Transit is a travel option available to people of all ages and income levels.
Image from Nelson\Nygaard

ECONOMIC STRENGTH

Transit-oriented neighborhoods promote a strong regional economy by providing workers and shoppers with efficient access to places of employment, shopping and other activities. Shifting more travel to non-auto modes also reduces roadway congestion and improves goods movement, which can yield additional economic benefits. Finally, investment in walking, bicycling, and transit is often more cost-effective way of providing mobility and access than measures such as new parking facilities or new freeway or street lane miles. More compact and complete neighborhoods allow for more efficient use of existing infrastructure and scarce land—a particularly relevant issue on O`ahu.

Transit-oriented design contributes to economic development efforts
Image from Nelson\Nygaard

ENHANCED RESILIENCY

Transit-oriented neighborhoods can adapt to changing circumstances; they can achieve a desirable quality of life for their residents and workers even as the surrounding urban and natural environments evolve. For example, when neighborhoods apply the principles of universal design and provide transportation options for people of all abilities, they become resilient in the face of an aging population. When communities rely more on walking, cycling and transit, they can respond more flexibly to changes in energy prices.

The TOD Overlay Plan's objectives and policies are based on the "6 D's" of pedestrian focused, transit-oriented, community development:

D1: Destinations
Coordinate Land Use and Transportation

D2: Distance
Create a well-connected street network using Complete Streets Principles

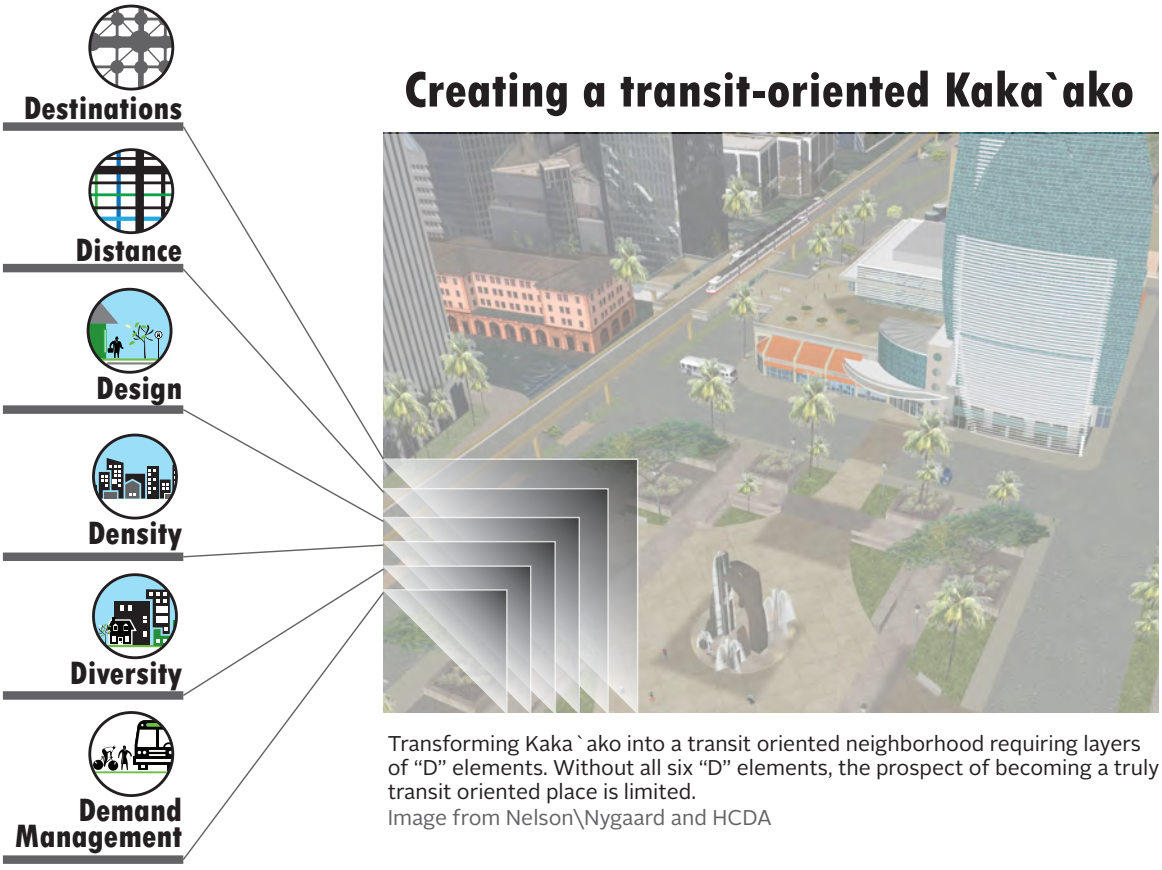
D3: Design
Create places for people

D4: Density
Concentrate and intensify activities near frequent transit

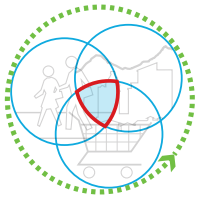
D5: Diversity
Encourage a mix of uses

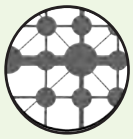
D6: Demand Management
Encourage the "auto trip not taken" through a systems management approach

Figure 2-1 The 6 "Ds" of Transit-Oriented Neighborhood Design



Transforming Kaka`ako into a transit oriented neighborhood requiring layers of "D" elements. Without all six "D" elements, the prospect of becoming a truly transit oriented place is limited.
Image from Nelson\Nygaard and HCDA





Objective D1: Destinations

Coordinate land use and transportation

Coordinate transportation and land use by concentrating development along reasonably direct corridors, so that most destinations are 'on the way' to other destinations. When transportation and land use are well coordinated, transit, walking and biking can provide more people with fast, direct and cost-effective access to more destinations.

Policy D1.1 Locate highest density of uses near high-capacity, high-frequency transit, including high frequency bus and light metro stations.

Policy D1.2 Sustain the district's mixed use character and encourage a mix of land uses around transit stations, near transit corridors and transfer centers to spread demand throughout the day and create an interesting and dynamic pedestrian environment.

Policy D1.3 Create quality connections between the Kaka`ako district and neighboring districts to extend the viability of active transportation choices.

Objective D2: Distance

Create a well-connected street network using Complete Streets principles

Implement complete streets policies and develop a holistic transportation system in KCDD, finding ways to maximize the capacity to move people by developing environments that encourage people to walk, bike and take transit, rather than driving for all trips. A well-connected street network shortens travel distances, making it possible for people to walk or cycle to transit service quickly and conveniently from places they live, work, shop, and play and supporting walking and cycling as everyday transportation options. Implementation of the complete streets network will require coordination between work at street level and the need to consider upgrades to utilities to support new development.

Policy D2.1 Provide a fine-grained street network, minimizing the distances between intersections and avoiding streets that do not connect into the greater grid.

Policy D2.2 Create a multimodal mobility network, providing a continuous high quality environment that encourages active transportation and quality public spaces throughout the district.

Policy D2.3 Balance system uses by creating multimodal streets with priority for moving people rather than cars through design treatments that encourage walking, biking and taking transit.

Policy D2.4 Make walking and cycling access to frequent transit as direct as possible.

Policy D2.5 Complete streets implementation will be coordinated with the implementation of new utility infrastructure necessary to catalyze and support development.

Objective D3 : Design
Create places for people

Create streets and public spaces that are carefully designed with the needs of people in mind. The public realm should be safe, comfortable, and inviting for people of all abilities and ages. To achieve these objectives, transit-oriented neighborhoods have complete streets designed to meet the needs of a range of users, and they provide inviting public spaces that welcome lingering, gathering and celebration. Development in transit-oriented community development also reinforces the distinct history, culture, and character of Kaka`ako's neighborhoods using context-sensitive design and enhancing the pedestrian environment.

Policy D3.1 Design streets to relate to buildings in a way that creates porosity, interest, and public space opportunities.

Policy D3.2 Design streets that are accessible and easily navigated by users of all abilities.

Policy D3.3 Design parking and parking access to support a pedestrian-oriented realm.

Policy D3.4 Design the spaces adjacent to light metro stations and alignment through Kaka`ako in ways that maximize access and benefit to the community.

Policy D3.5 Design spaces that integrate the history, culture, and character of Kaka`ako.

TRANSIT ORIENTED DEVELOPMENT FOR ALL

"Many of the urban design features commonly associated with TODs have been linked to higher rates of walking and biking and lower probabilities of being overweight or obese. The construction of affordable housing near transit helps to ensure that these benefits are extended to lower-income households, which tend to be at higher-risk for many obesity-related diseases."

Center for TOD

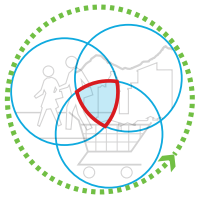
Objective D4: Density
Concentrate and intensify activities near frequent transit

Encourage more intensive development near frequent transit (transit service that arrives every 15 minutes or better) to enable livable, walkable, and resilient neighborhoods. To function well, higher density development should be combined with the other principles of good transit-oriented development, creating a compact community with a connected street network, well-designed buildings and public spaces, a mix of land uses, and managed demand for private vehicle travel. In Kaka`ako, more intense land use will relieve development pressures on suburban and rural areas by attracting development to urban areas in the District that can be well served by a variety of modes.

Policy D4.1 Encourage mixed-use redevelopment along transit corridors.

Policy D4.2 Offset increased development heights with increased active public space amenities that directly benefit the building's residents and tenants.

Policy D4.3 Plan for density that supports community character and promotes a high quality of life.



Objective D5: Diversity
Encourage a Mix of Uses

Create an internally diverse and vibrant mixed-use community through the provision of a range of housing choices, services and facilities which improve the quality of life for residents and businesses.

Policy D5.1 Provide a mix of housing types at varying densities and costs.

Policy D5.2 Preserve and enhance active public space.

Policy D5.3 Include a broad mix of commercial and light industrial uses that are compatible with an urban village.

Objective D6: Demand Management
Encourage the "Auto Trip Not Taken" through a systems management approach

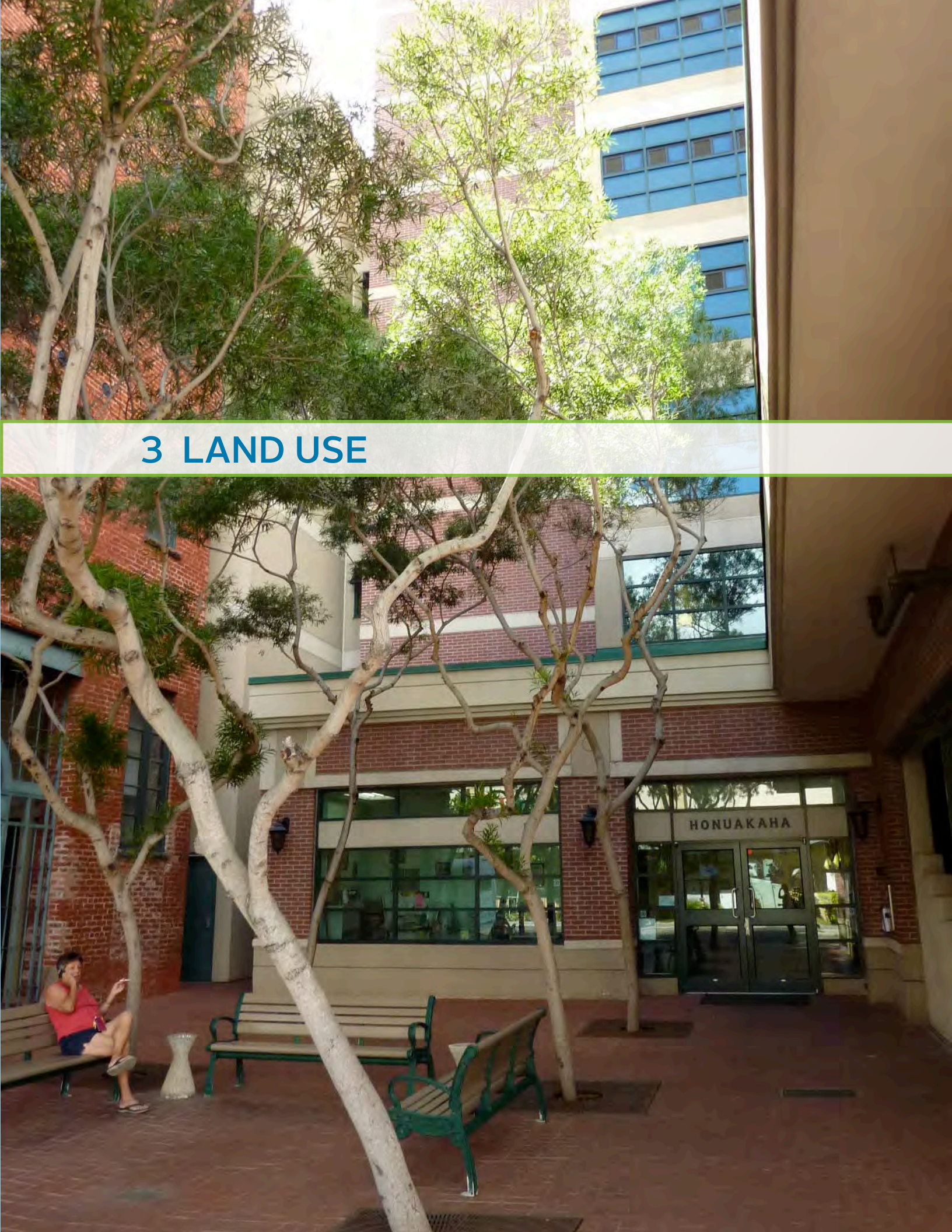
Develop a comprehensive systems approach to parking and travel demand management. This will include developing the Kaka`ako district in a way that allows residents of the district to meet many of their needs within the district, avoiding the need to travel longer distances for basic life needs. Combined with the emphasis on high quality, convenient, reliable and competitive transportation choices, these policies can have a wide range of positive benefits, including reducing traffic congestion and air pollution, making better use of existing capacity and infrastructure, increasing traffic safety, and improving public health.

Policy D6.1 Manage parking supply and demand consistent with the goals of reducing driving trips.

Policy D6.2 Create an environment within Kaka`ako that will enable residents to meet many of their needs within the district, reducing the need to drive outside of the district for all trips.

Policy D6.3 Ensure that all non-auto mobility choices are designed to be convenient and competitive with the auto to maximize non-auto travel.

3 LAND USE



3 LAND USE

Future Land Use: Creating Complete Connected Neighborhoods

Kaka`ako is located in Oahu's Primary Urban Center. This central area benefits from long-term investments in public infrastructure and proximity to employment centers, schools and entertainment. Investment in consolidating and improving the urban footprint in Kaka`ako corresponds directly to the preservation of O`ahu's outlying rural areas and helps to reduce the cost burden for new roads, water and sewer lines. TOD Overlay land use policies build on the Mauka Area Plan and Rules (2011), Makai Area Plan (2005) and Makai Area Conceptual Master Plan (2010). Using these plans as a base, the TOD Overlay better integrates the HART transit system into the KCDD, by focusing on policies that advance access to daily needs and support shared quality of life concerns such as raising a family, getting to school, commuting to work, operating a business, and aging in place.

The Kaka`ako TOD Overlay anticipates more people in more types of buildings, resulting in a rich, varied urban fabric. Together, plan policies work to minimize spaces allocated for automobiles, while enhancing spaces for people. The result is a mixed-use, urban neighborhood with shaded - walkable streets and richly textured architecture. With this Plan, HCDA has an opportunity to create a "how-to" primer to leverage Kaka`ako's function as a major node in the regional transportation network by promoting positive collaboration and place-making.

"The best transportation choice is just being there" (Amory Lovins)

A common misconception exists that dense, busy cities result in endless congestion. However, countless studies have shown that typical suburban housing developments are often more congested than dense urban areas. In well-designed, higher-density, mixed-use neighborhoods with good pedestrian, cycling and transit access people tend to own fewer cars and ultimately drive 20-40 percent less annual miles than the same households would in more auto-dependent locations.[1] Scalable and synergistic, the transit-friendly land use principles represented in this plan's TOD objectives, work together to support the creation of positive feedback loops – encouraging neighborhood design that lets people find what they need close by, and provides opportunity to walk, bike or take transit to get there.[2]

The Kaka`ako TOD Overlay Plan land use strategies support this effort by bolstering the mixed use district as defined in the Mauka Area Plan. The TOD Overlay Zone increases both the variety and amount of residential housing and introduces new opportunities for area activities such as a limited number of hotels and office buildings. The increase in capacity is tethered to new community amenities and public realm enhancements, the substructure that supports urban lifestyles. Reinforcing strong land use and transit planning partnerships lays the groundwork to develop walkable neighborhoods (see Mobility & Access in Chapter 5), improve public health, lower vehicle miles traveled (VMT), and reduce GHG emissions, all while increasing sociability.

1 G.B. Arrington and Kimi Iboshi Sloop (2010), "New Transit Cooperative Research Program Research Confirms Transit-Oriented Developments Produce Fewer Auto Trips," ITE Journal (www.ite.org), Vol. 79, No. 6, June, pp. 26-29
2 Todd Litman (2011), "Land Use Impacts on Travel: Current State of Knowledge," Planetizen (http://www.planetizen.com/node/50451).

TOD Overlay: New Tool For Vibrant Neighborhoods

The TOD Overlay Plan will increase overall capacity within selected areas of the Mauka District (see Figure 3-1) to permit more people and businesses to locate in close proximity to the light metro system. The Overlay Plan boosts the intensity of uses over the "as of right" development in Mauka Chapter 217 rules (now 3.5 FAR not inclusive of structures associated with parking garages) using a discretionary incentive zoning process. TOD Overlay development protocols leverage this growth to contribute to identified public benefits, while at the same time achieving a reasonable overall rate of return for the developer. This process will provide opportunities to:

- Reduce household costs associated with storing automobiles and driving
- Concentrate activities where there is the greatest level of accessibility
- Minimize development pressure on rural areas, and preserve Oahu natural resources
- Anticipate a variety of building types meeting the needs of a variety of income levels, at different life stages, and allow for possible new uses such as hotel.

FAR controls that regulate floor area are supplemented by a set of **form-based rules** (the Mauka Regulating Plan) guiding the size, siting and design treatment of buildings.

Urban Redevelopment and TOD Impacts of Elevated Rail

Properties within the sphere of influence of the rail alignment will be impacted in a variety of ways over the course of the project, ranging from land acquisition (and the creation of some residual land parcels adjacent to the Kaka`ako Station site), to construction nuisance, and noise impacts from the overhead train. At the same time these areas will also see significant private sector benefits typical to transit rich areas such as:

- Increased land values, and real estate performance (rents and lease rates)
- Increased retail sales
- Increased access to labor pools
- Increased affordability due to increased access and reduced parking costs by providing transit alternatives
- Renewed vitality as a destination

HCDA and its public sector partners will work to ensure that the benefit of the rail can be broadly shared in the form of improvements to local infrastructures and specific transit-oriented development projects that will locate more investment within proximity of the station. The HART Station Area Development Potential Report (August 2011) identified underutilized parcels and opportunities for redevelopment within each station's quarter-mile. This report documented that redevelopment potential is greatest at the three West O`ahu stations followed closely by the Kaka`ako District's Civic Center Station. This Plan looks closely at redevelopment potential to best clarify opportunities, needed amenities as well a how to broaden pubic benefits through a variety of value capture techniques with the constraint that land value in urban Honolulu is already very high.

District Opportunities and Challenges

Although the project boundary consists of the entire HCDA Kaka`ako Mauka District, most of which is within either a 0.25 or 0.5 mile walking distance from a future light metro station, not all areas of the district will experience significant land use changes under the TOD Overlay.

The TOD Overlay Plan consolidates growth in the core area, while maintaining and preserving existing mature neighborhoods (i.e. a building currently limited to a low-rise in Sheridan or Civic Center will not become eligible for a high rise structure), public parks and major public assets to ensure continuity and longevity for users.

As such, the TOD Overlay recommends minimum changes to the following Mauka Area locations:

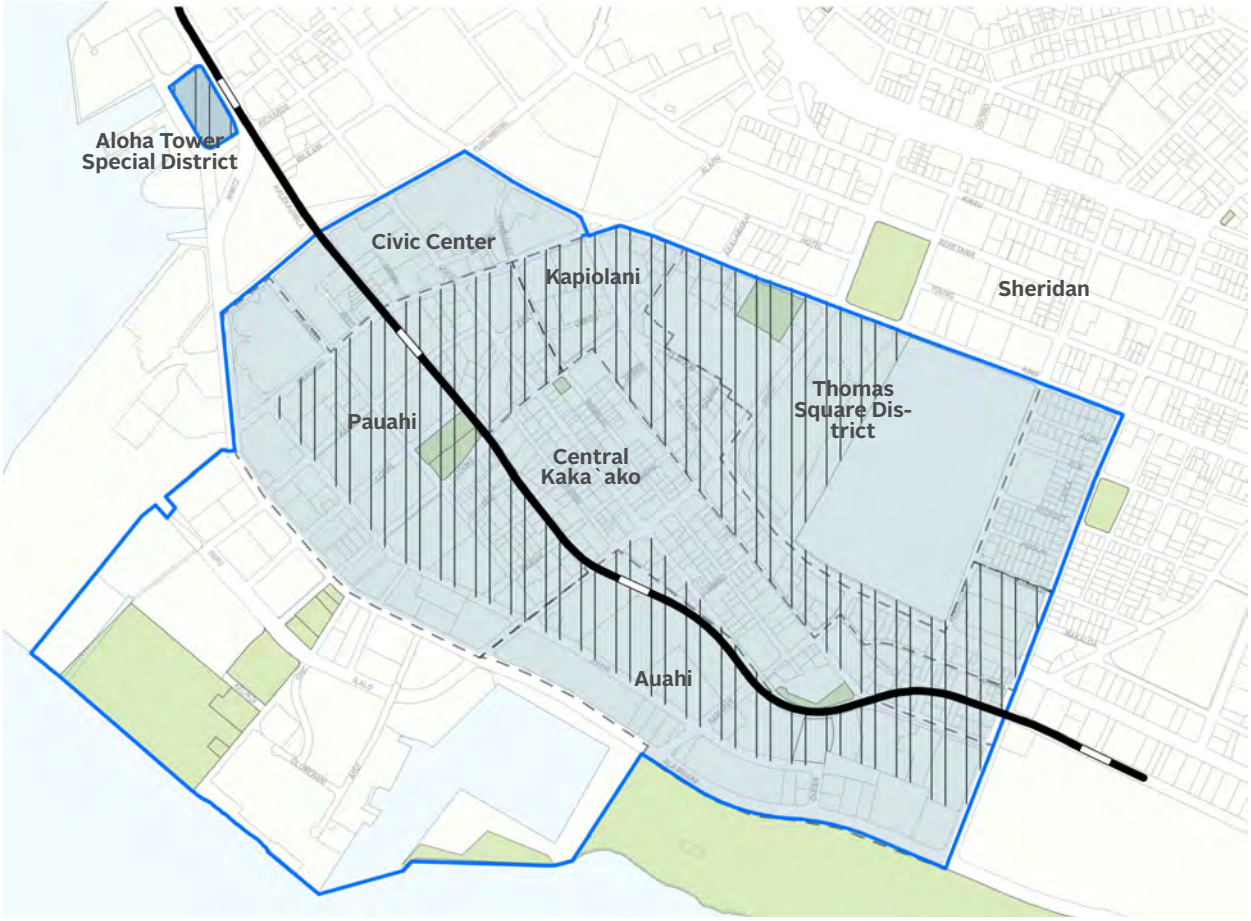
- Sheridan, an existing lower-scale, residential neighborhood;
- Central Kaka`ako identified as low rise industrial and service business areas. The TOD Overlay Plan recognizes the economic value and the benefits to the community of the many existing light industrial and service uses in the area. The planned land use designations retain areas for many of these commercial uses to continue excepting in areas with major impacts by the rail alignment by providing an option to participate in the TOD program.
- Civic Center, a neighborhood that contains major historic sites and civic structures with no immediate plans to redevelop; and
- Ala Moana Corridor: Due to the desire to ensure views to the waterfront from properties Mauka, limitations on overall capacity increases are maintained one block mauka of Ala Moana. This area is subject to the following policy provision in the Mauka Rules: *"a negotiated number of taller, 400' towers are allowed, the remainder of the buildings are allowed to 100' height limits."* No changes to height or capacity are proposed. However, these areas will be eligible to participate in parking reductions and district wide parking management plans as well as opportunities for new uses.

Relationship to Kaka`ako Makai

In 2011, HCDA adopted the Kaka`ako Makai Conceptual Master Plan (KMCMP) as the neighborhood vision. While a broad mix of uses are currently allowed, the KMCMP designates a preference for commercial and civic-oriented uses and residential uses are excluded by statute. Maximum heights allowed in this location vary between 45' on the waterfront, stepping up to 200' along Ala Moana Boulevard with an FAR of up to 3.5 not inclusive of parking.

The KMCMP, the Kewalo Basin planning process, and plans for public park enhancements showcase this area as a leading location to cluster community-oriented uses. Areas within Makai are eligible for associated parking reductions, provided they maintain existing density limitations.

Figure 3-1 TOD Overlay Area Land Use Changes



The above figure shows the areas eligible to participate in the TOD Overlay.

Figure 3-2 describes the changes to each district within Mauka.

Figure 3-2 District Challenges and Opportunities

District	Existing Land Use Policy Priorities	Challenges and Opportunities for TOD Objectives
Aloha Tower Special District	A single property in downtown Honolulu's waterfront neighborhood, this site is owned by the Hawaiian Electric Company and is immediately adjacent to HART's proposed transit station. The HECO substation occupies half of the Aloha Tower Special District site.	Its location adjacent to the transit station makes it a prime candidate for transit oriented development to be coordinated with the downtown Honolulu waterfront and public realm enhancements.
Auahi	The vision for this area is as an urban, mixed-use location with a cluster of taller, predominately residential buildings. An emerging entertainment and retail center in the vicinity of Auahi and Kamakee Streets near Kaka`ako Station. Howard Hughes Corp. is a major landowner with the Ward Village Master Plan.	Opportunities leveraging more intensive uses for increased community benefit in collaboration with a major property owner and the design of clear, friendly access to Kaka`ako Station. Flexible land use strategies should take advantage of mobility options and provide guidance for integrating transit directly into development plans.
Pauahi	Kamehameha Schools is principal landowner in this area. HART's Civic Center Station, Mother Waldron Park are located in this district. Puahi is envisioned as a high-rise, predominately residential area with some adaptive re-use of existing buildings. A priority on walkable active streets include Auahi Street as a retail street, and Cooke Street enhanced by a green linear park. This vision is coordinated with 2010 Kamehameha Schools Master Plan.	Challenges associated with the siting of the future elevated rail alignment and station include ensuring that infrastructure does not detract from the urban environment. Opportunities include developing a comfortable, public interface for the Civic Center station, coordinating public open space amenities, and improving streetscapes to support trips by transit, walking and cycling. Flexible land use strategies should help developers to take advantage of mobility opportunities and provide guidance for integrating transit into development plans.
Civic Center	The civic heart of Honolulu, this district contains historic buildings in a campus like setting. HART's Civic Center station is located adjacent to Civic Center, providing for enhanced access to the district.	Opportunities to ensure good connections into the major destinations and land uses in Civic Center. Existing zoning and development parameters remain, and there is likely to be limited new redevelopment in this area. Traffic calming improvements, and wayfinding improvements are proposed.
Sheridan	This existing residential neighborhood consists of small lots with approximately 90 ownerships. The historic Makiki Church is located in this area and includes active historic uses on King Street. The Mauka Area Rules restricts density in this area to 1.5 FAR where infrastructure is lacking and building heights to between 45-65'. The neighborhood will be a blend of both older and new mid- to low rise residential uses.	TOD Overlay land use changes are not eligible at this time in Sheridan. Challenges exist to improving the safety and convenience of walking into the Sheridan Neighborhood from nearby destinations and from the Kaka`ako transit station.
Thomas Square District	Across on the makai side from the historic Thomas Square park, Thomas Square District houses the Honolulu Academy of Arts, the Neal S. Blaisdell Center and the McKinley High School. These constitute large ownerships by the City and County of Honolulu, as well as Honolulu Electric Company. Thomas Square District is within a five- minute walk of both Kaka`ako and Civic Center station.	Several major publicly owned properties present opportunities for TOD redevelopment and possible public/ private partnerships, particularly the Blaisdell Center. In this area the TOD Plan can leverage the provision of new high rise mixed-use buildings to make needed improvements to the existing arena and performing arts facilities. The vision for this area includes coordinated and enhanced public spaces as well as connectivity improvements.
Kapiolani	All of Kapiolani is within a five minute walk of one of the light metro stations. It is also a major bus corridor linking the downtown Honolulu, Ala Moana Center, and Waikiki. New high rise development along Kapolani includes a mix of retail, larger stores and showrooms and offices, with residential above.	Although much of Kapolani has already developed, there are several locations that may provide good opportunities for TOD, as well as contribute to an employment corridor with added height and density. A new street type for a transit boulevard will be introduced.
Central Kaka`ako	Composed of smaller lots (less than 20,000 SF), this district contains about 200 small ownerships and is generally unimproved, lacking storm drains and other utilities. Services, employment, and light industrial uses predominate, including repair shops and craft production facilities. This area has limited redevelopment potential, with FAR capacity limited to 1.5 in the core area until infrastructure improvements are made.	Land use policy seeks to maintain and support existing local business, and to incubate the growing residential neighborhood, promote the siting of new services. Opportunities exist to promote flexible strategies for adaptive re-use. Some lots within Central Kaka`ako along Halekauwila may be eligible for TOD opportunities because of the light metro alignment.

District Character: Encouraged Land Use Types

Strategy LU1 Diverse residential building types, ground-oriented family housing in proximity to transit stations

Providing access to more affordable housing is a priority for the TOD Overlay. Honolulu residents bear both high living and transportation costs. According to the City and County of Honolulu General Plan, which measures the Housing and Transportation Affordability Index, the average Honolulu resident spends 61% of their his/her income on housing and transportation costs, (or 32% on housing and 29% on transportation respectively). However, in location efficient places such as Kaka`ako, these expenses can be significantly reduced. The Center for Transit Oriented Development finds an average reduction of 16% in transportation costs for households located in transit-rich neighborhoods. Additionally, providing for housing choices close to employment centers and in proximity to high capacity transit reduces commute times, and as a consequence, could potentially reduce the number of vehicles needed by a household.

The demographic character of the population living near transit also influences transportation demand. Different household types have differing travel behaviors. Studies show that as housing diversity increases, per-household transit trips also rise, and per-household car trips decrease.[1] In particular, lower-income households may not only own fewer vehicles but are also more susceptible to changes in gas prices and thus can be more transit-dependent.[2]

The TOD Plan introduces the opportunity for participating properties to increase overall capacity while reducing building volumes dedicated to storing automobiles. Allowing and promoting a mix of building types at higher overall intensities will provide variety – not only in the character and feel of a neighborhood, but also in the cost and feasibility of construction – influencing the end results for tenants, lessees, entrepreneurs and property owners, producing a mixed-income district.

Strategy LU2 Reserved housing

TOD Overlay Zone's additional capacity is estimated to be predominately residential, with a land use mix estimated at 85% residential and 15% commercial. As capacities increase in Kaka`ako, so does the potential for more reserved housing. All properties within Mauka Area are already required to meet the Kaka`ako Reserved Housing Rules (Chapter 218). This requires that applicants for a multifamily development on a lot >20,000 SF must provide at least twenty percent of the total residential floor area in the development for sale or rental to qualifying persons (100 - 140% Average Median Income). A list of cost offsets is included in table 8-1 Mauka Area Plan (Table 8.1 Cost Offsets p50)

- Reserved housing is exempt from Public facilities dedication fee (15-217-65)
- Residential Floor Area dedicated to Reserved Housing is exempt from FAR calculations
- Reduced parking requirements
- Fees are paid upon receipt of certificate of occupancy rather than upon application for a building permit.
- Fast track permitting
- Design flexibility

1 Transit Cooperative Research Program Report 128. Sponsored by the FTA. Effects of TOD on Housing, Parking and Transit
2 CTOD (2009) Mixed Income Housing near Transit: Increasing Affordability with Location Efficiency

Strategy LU3 Transit-friendly land uses such as "third places," full-service grocery stores, cultural and community amenities

Kaka`ako is transitioning to become a full time, 24-hour neighborhood that can better compete in terms of desirability with residential locations outside the City's core. In order to retain and attract new residents, the neighborhood should focus on creating places for people, from small shops, to a full service grocery store, to cultural and community amenities, medical services, and day care. In particular, HCDA promotes land uses that encourage transit use throughout the day (peak period, mid day, nighttime, weekend) so as to encourage "round the clock" activity in and near transit stations.

Overlapping networks of uses are what make urban districts thrive. A limited number of hotels will be considered in up to three locations in proximity to the district transit stations. Hotels under consideration include full service, business, and condo-hotels for travelers seeking to stay outside of the tourist districts. A Kaka`ako-based hotel will be a transit -ride from the airport, and will be highly accessible for meetings and work engagements at the commercial core, or convention center.

Action LU3.1 Prioritize capital spending for the placement of key community amenities within proximity to the station locations, including libraries, senior centers, and community centers.

Action LU3.2 Work with local developers and businesses to site a full service grocery store in Kaka`ako. The City's Primary Urban Center Plan points out that grocery stores require more floor area and service facilities than typical retail uses, warranting special incentives.

Action LU3.3 Explore impacts of hotel uses, and implement tools to ensure that Kaka`ako remains a district oriented with a local full-time residents rather than over-whelmed as a tourist destination.

Grocery stores can be designed to be integrated with multifamily residential buildings, and can operate as a "Third Place" for the surrounding community. Whole Foods associated with a Vancouver, BC Canada line station includes townhouses, green roof and vertical green walls. Image: VIA Architecture

Strategy LU4 Support creative interim uses, pop-ups, food trucks and artist interventions

Often new business start-ups rely on access to cheap, flexible spaces that can be reconfigured and redesigned or leased temporarily to "test-out" new markets. Similarly, vacant or under-utilized land such as weekend parking lots can provide free or cheap space for local gatherings. Kaka`ako currently is host to "Eat the Street" the popular monthly gathering of local food trucks at the corner of South and Halekauwila. Other temporary use activities include street mural program and pop-up restaurants.

Action LU4.1 Draft a "road map" how-to guide for temporary uses, particularly for sites undergoing construction or long-term redevelopment - so that properties can evolve while remaining active.

Action LU4.2 Ensure that the code allows for co-working spaces, live/work spaces and other flexible uses.

Action LU4.3 Include artist space, and/or arts community spaces as part of an optional bonus amenity in the incentive zoning system for added density.

The new Salt Building Project by Kamehameha Schools
Image from VIA Architecture

Mural Arts project Kaka`ako
mage from VIA Architecture

SHARED USE AGREEMENTS

In the City of Arlington, VA the Arlington Arts Incubator and related City policies prioritize joint use agreements in various publicly owned locations that allow arts organizations to reuse spaces during "off hours." The Arlington Arts Incubator also invested in a set/costume workshop that acts as a shared resource and brings together the broader artistic community.

Farmers Market
mage from VIA Architecture

Strategy LU5 Adaptive re-use of character buildings

In addition to nationally registered historic properties in the Civic Center, Kaka`ako also contains a variety of buildings of interest that highlight the "old Hawaii" of early twentieth century architecture, from wood-framed plantation style retail to modernist civic buildings to aging WWII-era Quonset huts.

Character buildings should not be lost to redevelopment, but rather retained to provide context, and a sense of place in changing neighborhoods. Tools and incentives (discussed in LU6) provide incentives for preservation and adaptive re-use of these building – particularly in Central Kaka`ako. Mauka Rules existing density transfer programs are proposed to be expanded to provide incentives for property owners to preserve (and in many cases, restore) character buildings, providing new revenue that could be re-invested in the property.

TOOLS: HISTORIC PRESERVATION

In Portland, OR density may be transferred within the neighborhood where the Historic landmark is located or to any site within two miles of the landmark. By allowing unused development potential to be transferred, redevelopment pressure on the landmark is lessened and a potential source of income is provided, as the owner may sell these rights to the owner or developer of the receiving site. Portland recently adopted zoning changes that extend this capability to "contributing" buildings in the Pearl District or those that are ranked on the City's Historic Resource Inventory.

Many cities also rely upon small grant programs dedicated to the restoration of qualifying buildings. A grant program could be designed to reimburse a small property owner a percent of the total cost of a façade renovation and construction up to a fixed dollar amount (such as $10,000.) Additionally, a Design Services Grant reimburses related facade design services up to dollar amount (such as $10,000).

Sunshine scuba shop (Cooke and Queen)
Image from VIA Architecture

Adaptive re-use project on Ala Moana Boulevard
Image from VIA Architecture

Land Use and Density Controls

The treatment of off-street parking within a neighborhood has an impact on the quality of the public realm. Changing this relationship is one of the most significant policy changes in the TOD Overlay Plan. Parking facility location and configuration influence not only building form and land use options, economic feasibility of a project, but also the ways in which future users will travel to or interact with the neighborhood. With the introduction of high capacity transit, and complete streets priorities, Kaka`ako is transitioning to a "park once" location (see Chapter 5 for more information). These strategies encourage people who drive to the neighborhood to park only once, and walk to a variety of destinations. Flexible, context-sensitive parking strategies make better use of existing parking resources, as well as the design and treatment of parking structures in future buildings.

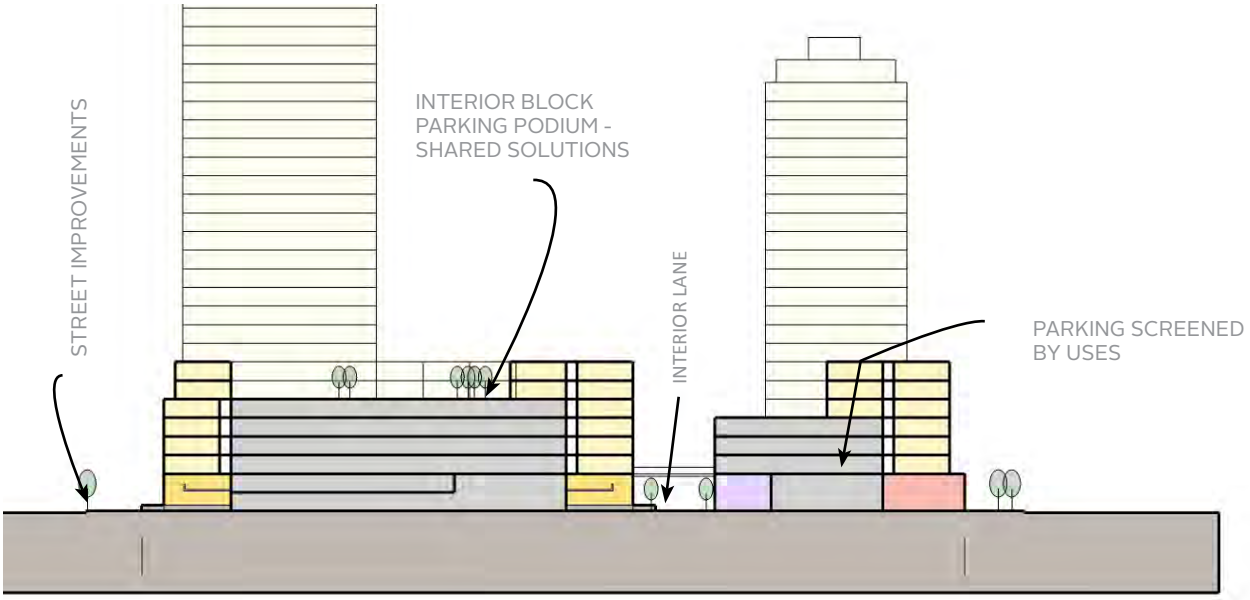
Strategy LU 6 Off Street Parking utilization: "Right Size" parking supply for both commercial and residential uses

One strategy that is particularly important to ensure that parking demand and supply are in balance is to include volumes associated with parking into overall density controls. Under the Mauka and Makai Rules, building floor area associated with above-ground parking is not included in the maximum FAR calculation. Yet, it is understood that for each building to accommodate parking structures, one to two FAR are generally required (depending on the building's use). The TOD Plan shifts this strategy to recognize parking and its impacts as a land use. The TOD Plan will improve the quality of urban experience in Mauka by avoiding:

- The dedication of excessive space to parking causing street scapes to be overpowered by garages;
- An increase in the cost of housing units by subsidizing auto-use;
- Higher lease rates and artificially limiting new uses.

Building too few parking spaces can also result in frustration on the part of retailers, residents and neighbors when on-street spaces are in high demand. The TOD Plan specifically requires those involved with redevelopment to carefully consider the balance of parking. As the form and character of Kaka`ako shift, ultimately motor vehicle ownership in transit station areas will decline, but this must be a carefully managed transition. Strategies to aid in the transition include appropriately pricing parking, car sharing and parking management tools. Further action is warranted to work with private landowners to track on-site parking utilization to attain a clear picture of overall usage within the district. The following is a summary of tools located in Chapter 7:

- Managed on-street parking: permits, and pricing of parking, parking benefit districts (PT1)
- Remove minimums and include other mobility investments as an alternative such as transit pass programs (PT2, PT 9)
- Develop District Parking options and satellite parking (PT4)
- Selling parking spaces separately from the unit (PT 5)
- Encourage Best Practice - stacking and tandem parking (PT 7)
- Support for bike share, bike parking and bike networks
- Support Car Share (PT 11)



Currently projects in the Mauka Area construct parking spaces at higher rates than other comparable urban centers on the US west coast, often at significant cost (structured parking costs are estimated between $35,000-$50,000 per space). A comparison between the estimated number of parking spaces that would typically be constructed under the TOD Overlay Plan (making use of parking tools), and a building under the existing regulatory scheme is shown below. Even minor efficiencies can have significant impact on the form of housing. This table shows more FAR allocated to usable SF but a very similar overall allocation of FAR. This will also impact the height and design of street level podiums.

Figure 3-3 Parking Comparison: Mauka Rules to TOD Overlay Plan

	Mauka Rules (2011)	**TOD Overlay Plan & Right Sized**
Sample Lot Size	75,000 SF with a High Rise Mixed Use Building	
Total FAR (Ratio of Total SF/Lot Size)	3.5 Residential/ Retail FAR 1.8 Parking FAR 5.3 Total	4.0 Residential/Retail FAR 1.4 Parking FAR 5.4 Total
Estimated Units (Market Rate)	214	234
Estimated Units (Reserved)	95	103
Total Residential Stalls	371 1.2 stalls per unit estimated	311 .9 stalls per unit estimated
Total Commercial Stalls	28	12
Garage	3.5 parking levels	2.8 parking levels

Strategy LU7 Update and Expand An Incentive Program to Achieve Community Benefit

The Land Use intensity shown in Figure 3.4 includes two numbers. The first is a baseline developed in coordination with the adopted Mauka Rules (2011) and represents the "as-of right" allowable development. The second figure the maximum amount of capacity allowable with participation in a supplementary density program described following. The maximum capacity is not "as of right," but would be allocated only upon the contractual obligation for the timely receipt of identified public amenity.

The Mauka Area Plan (2011) already makes use of incentives to support the provision of affordable housing, and specific community benefits. With the TOD Overlay Plan, HCDA will update this incentive structure to better account for land value, development costs, and TOD planning objectives. This program will also coordinate with the Reserved Housing program and the City and County of Honolulu Affordable Housing Initiatives.

Existing incentives are summarized following:

- LEED optional incentives in the Mauka 2011 Rules (15-217-59)
- Reserved Housing Workforce Housing Bonus (15-218-55 d)
- Incentives for select uses such as industrial, nursing facilities and assisted living and life care facilities.

Who is Eligible?

In order to participate in TOD Overlay Plan height and density increases, a property must be large enough to support major projects or constitute the assembly of several parcels. An assembled site must also accommodate the design requirements for additional height and density such as, setbacks and spacing requirements, as well as parking, infrastructure improvements and access requirements.

Criteria and Metrics

Most cities using an incentive program develop a mechanism to apply incentives and density bonuses in a consistent manner throughout the district, (rather than negotiated on an individual site) allowing for both predictability and transparency. In some instances, incentives would be feasible only in certain development scenarios, or developers might choose not to participate in the program. The program could also include a mechanism to accommodate higher priority for particular amenities. For example, cities such as Seattle and Bellevue in Washington State apply a tiered system to prioritize one type of "required" amenity (such as housing) over another optional amenity (low impact development).

Amenity Categories

Mauka neighborhoods have identified public amenity needs as part of the on-going planning process. These amenities are distinct from public infrastructure. Four categories of amenities are listed following.

Figure 3-4 Kaka`ako District Supplementary Density Program

RESERVED HOUSING FOR THE HONOLULU WORKFORCE

The provision of a close-in supply of housing in Mauka (with unit sizes and prices that match available jobs) will help to meet the needs of working families in Honolulu. There is an identified need for lower AMI housing in the range of 80-100 percent AMI. While the existing HCDA Reserved Housing program requires on-site provision of lower priced housing (< 140 percent AMI), additional incentives could be incorporated as part of a TOD Overlay Plan supplementary density program.

SUSTAINABLE BUILDING DESIGN

- Hawaii's electricity prices are three times higher than the continental U.S.
- In 2015, Hawaii was ranked #1 among 50 states for energy prices
- Hawaii relied on oil for 70% and on coal for 14% of its electricity generation
- The State has targeted 100% renewable energy use by 2045

With high energy costs, and as discussed in strategies UD2 and UD3, HCDA will consider applying new incentives that promote low energy and higher performing residential buildings responsive to the Hawaiian climate.

Significant "greening" of urban development projects will create local examples of high performing buildings, bring leading edge innovations to the island, improve user comfort and enhance long term building quality.

ENHANCED SITE DESIGN

When living and working in urban environments, access to parks and the public realm is essential. Urban redevelopment projects in the Mauka area will incorporate appropriately scaled, well designed street-level public areas such as intra-block access lanes, greenways, pocket parks or other places for social interaction.

The TOD Overlay Plan supplementary density program will offer options for land owners to both create ground level open spaces or dedicate in-lieu fees to identified parcels for public improvements. The program will be designed to identify specific items eligible for bonusing at a higher priority; i.e. a new dedicated plaza associated with Civic Center Station.

SPECIAL COMMUNITY USES

Community uses in Kaka'ako such as small business incubators, spaces for local business, performing arts, civic organizations and/or public active recreation will encourage local, long term investments in the Mauka area.

Public benefit for the provision of these uses includes elevating and expanding Kaka'ako's cultural assets and providing access to Hawaii residents with the ability to both create and experience the arts.

TOD Overlay: Assessing Development Opportunities

To understand the potential for growth and for the purposes of the TOD Overlay Plan, HCDA conducted a systematic review of buildable lands to identify locations most likely to undergo redevelopment/land use conversions within the Plan time frame (2035). Of particular relevance to this process is an understanding of the "redevelopment tipping point." This generally means that the value of a proposed development must exceed the value of the existing return on the property. In the case of Mauka area, the relevant comparison is between the "as of right" development within the adopted Mauka Rules 2011 combined with the Master Plans for Kamehameha Schools, and the Howard Hughes Corporation properties (vested under the 2005 Mauka Area Rules (Chapter 22)). It is important that there is enough added development incentive in the TOD Overlay that the property owner would undertake risk associated with redevelopment and re-invest in their property to achieve both a greater intensity of use and greater returns despite the extra cost of providing public benefits such as affordable housing, enhanced public realm, parks and active spaces and increased street connectivity.

Mobility & Access

Available Services

Redevelopment Potential

Sites thought to have greater potential to redevelop under the TOD Overlay Plan would have a) high land assembly potential, b) a low land to improvement value ratio, and c) an absence of major encumbrances.

Criteria in this assessment focus on:

- Site control, existing property ownership, assembly potential, land tenure and development permits;
- Key policy priorities of the adopted Mauka and Makai Area Plans;
- Property impacts resulting from the three HART stations and alignment;
- Redevelopment potential as denoted by a "land-to-improvement value" ratio which helps explore land costs.

Findings conclude that there are a limited number of parcels likely to redevelop under the TOD Overlay Plan. However, in some cases, properties impacted by the light metro alignment will have a greater potential to redevelop. While this process provided the TOD Overlay Plan with a working framework to characterize future growth, it is important to note that infill redevelopment may ultimately take place at a variety of different scales, from full-block development to partial-block development, to small scale adaptive re-use projects.

Property Consolidation

Figure 3-5 shows the current assembly of property within the Kaka`ako district. Much of Kaka'ako is owned by only a select few major property owners including the State of Hawaii, the Office of Hawaiian Affairs, Hawaiian Electric Company, Howard Hughes Corporation (Victoria Ward Neighborhood Plan Area) and Kamehameha Schools. Both Central Kaka'ako and the Sheridan neighborhoods have limited property consolidation, and many individual land ownerships.

Acres	Major landowners in the Kaka`ako District
106.56	HCDA
55.71	State of Hawaii (DLNR + DOE)
53.66	Kamehameha Schools
58.8	Ward Center/ Howard Hughes Corporation
29.1	Office of Hawaiian Affairs
25.6	City and County of Honolulu
12	Hawaii Electric Company (HECO)

Redevelopment Potential

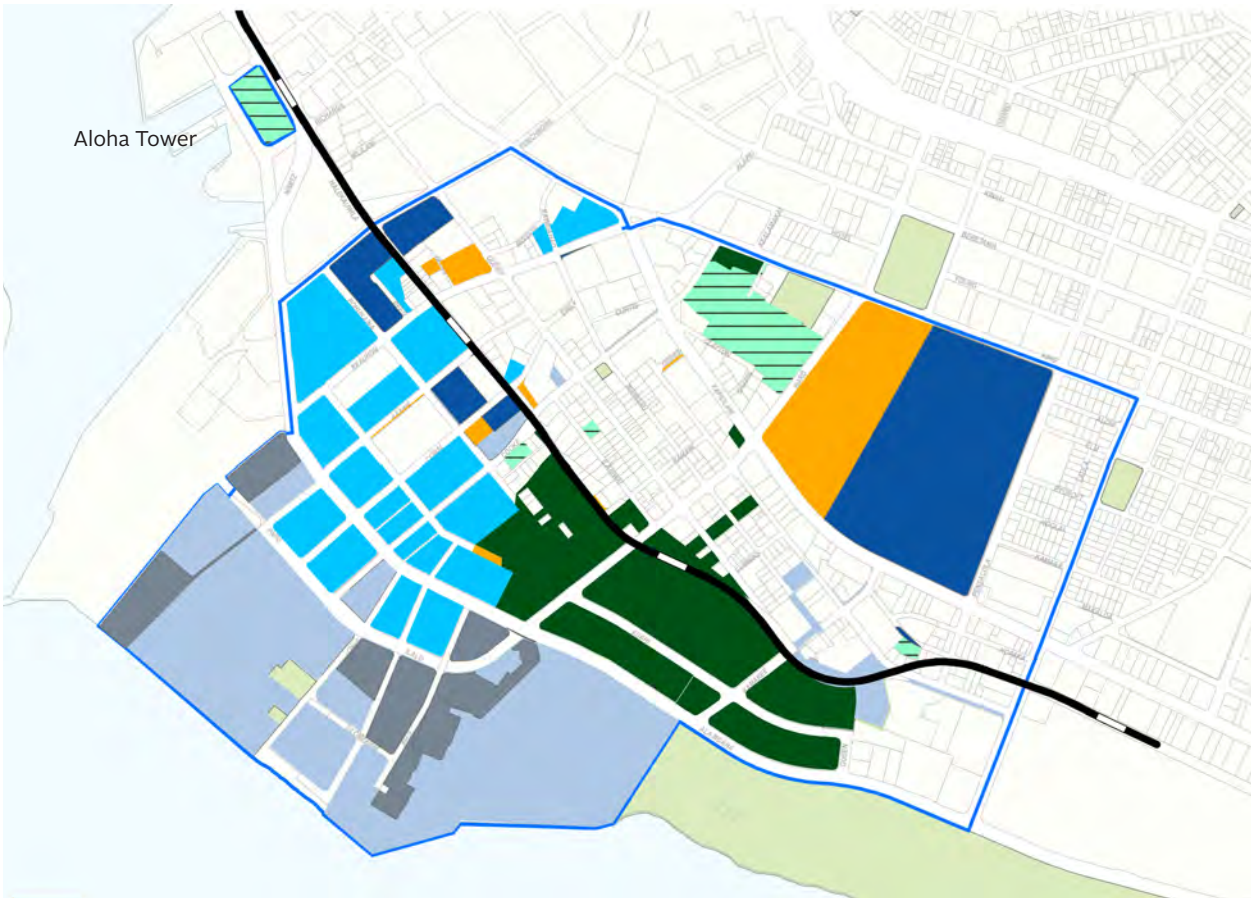
Current property development information in the Kaka'ako District is shown on Figure 3-6. HCDA Development permits, sites under construction, as well as sites in early planning stages are marked.[3] These types of properties have limited likelihood to redevelop within TOD Overlay Plan Rules, due to existing private investment, phasing of permits and timing.

The map also shows the boundaries of existing master plans entitled under Mauka Rules 2005 (Chapter 22) the Ward Village Neighborhood Plan, and Kamehameha Schools Masterplan, as well as the location of the Office of Hawaiian Affairs land holdings in the Makai area. Both Master Plans as of 2014 have entered into their phase one development, with several new projects underway. These Master Plans are important contributors to the future of Mauka and offer special opportunities to achieve area goals.

Figure 3-7 shows how a land to improvement value ratio can be used as a factor in estimating redevelopment potential. This map plots the ratio of a parcel's assessed value of improvements (buildings) divided by its assessed value of land. Parcels shown in green on Figure 3-7 are locations where the land is assessed at a value of at least three times as that of its improvements. Broad areas within the Auahi and Pauahi Neighborhoods are assumed as high redevelopment areas. Parcels that are less likely to redevelop or convert to a more intensive use under the TOD Overlay Plan in the near term tend to be those with higher value improvements. Parcels with improvements that are closer to half the value of assessed land are shown in yellow. Dotted parcels are those with building improvements scoring above 75% of land value. Existing multifamily residential projects, condominiums or other significant uses are in this category. It should be noted that while some parcels in the map are green, these may be otherwise encumbered as shown on Figure 3-9, or under construction shown on Figure 3-6. Land values throughout Kaka'ako are very high, which impacts the type of redevelopment project that is ultimately achievable. A financial calculation and proforma tool will be useful to understand the margin for future redevelopments.

3 Information on property development received 1-25-2013, updated 2-12-2016.

Figure 3-5 Major Landowners



Major Landowners

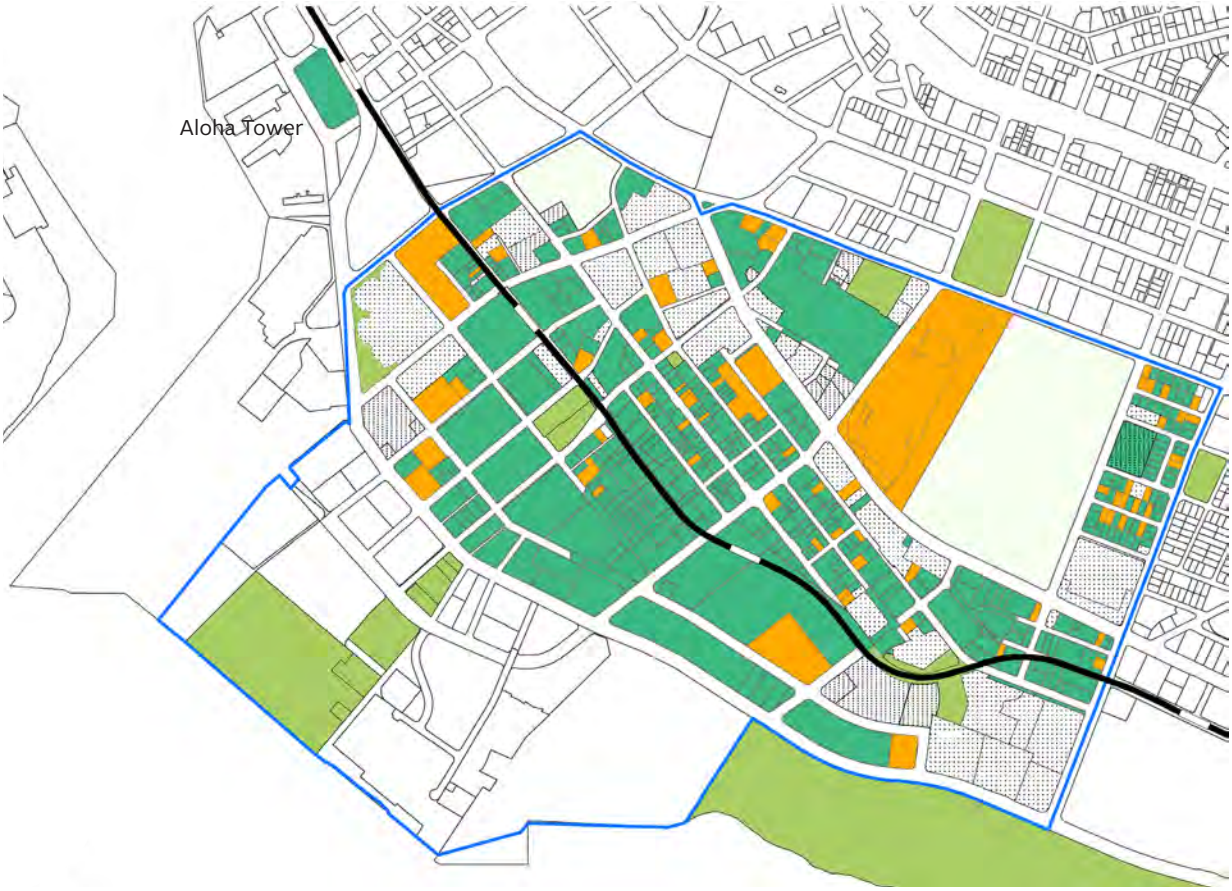
- Hawaiian Electric Company
- Office of Hawaiian Affairs
- HCDA
- State of Hawaii
- City and County of Honolulu
- Kamehameha Schools
- Victoria Ward
- Light Metro Station
- Light Metro guideway center line

Figure 3-6 Kaka`ako District Development Activity

Current Development Parcel Development Activity and Encumbrances (2016)

- HCDA Planning Stages
- Under Construction
- Development Permit Issued
- **Significant Encumbrance/ No Change:**
  - Institutional building
  - Major existing property development
  - Tower or condominium
  - Historic property
  - School
  - Other
- Recently Completed
- Kamehameha Schools Master Plan Area
- Ward Neighborhood Master Plan Area
- Office of Hawaiian Affairs Master Plan Area
- Existing Open Space or Park
- Light Metro Station
- Light Metro guideway centerline

Figure 3-7 Land-to-Improvement Value



Redevelopment Potential (Ratio of Building to Land Value)
(Tax Assessor Data Received March 2016)

- (0-.3) Significant near to mid-term potential
- (.3- .75) Reduced near term potential and/or longer term potential for land use conversion
- Greater than .75 Low potential for conversion under TOD Overlay Plan
- Regulatory Parcel (No information)
- Light Metro Station
- Light Metro guideway centerline
- Existing Open Space or Park

Figure 3-8 TOD Selected Sites and Catalyst Properties

The selected sites identified in Figure 3-9 meet identified TOD Objectives: Mobility and access, Availability of services, and Redevelopment potential.

Sites identified in blue are those that offer the best opportunities for redeveloping under the TOD Overlay Plan with potential capacity increases. In sum, these sites include consolidated properties (or may be consolidated with 1 or more owners), those that have a low improvement to land value ratio (a high redevelopment potential), do not have significant encumbrances or recent development, and are located within the eligible Mauka Area.

The sites not highlighted within the eligible area may also redevelop, but have less potential to meet all TOD requirements. Figure 3.9 provides an exploration of how these sites could provide new housing opportunities in Kaka`ako from the short- to long term.

TOD Joint Partnerships

TOD Sites held by HCDA or its public partners offer especially good opportunities for projects that can achieve higher levels of affordability and other benefits (see Figure 3-9). By providing both a vision for, and regulatory assistance to redevelopment projects, HCDA will create new local comparables distinct from the current market place offerings; cultivating developers with expertise in high-quality mixed-use development, innovative materials or systems, design treatments, urban parking management, and transit-friendly access strategies. The implementation of this vision will require a partnership among agencies over the course of the project to ensure that land use, transportation and access policies are coordinated for optimal outcomes.

The table below summarizes roles for the public sector (HCDA and City/County), private sector and HART in creating both transit-oriented development and influencing the creation of place at a station site.

Public Partner (HCDA and City/County)	Private Partner	Transit Agency
Development Regulations /Permits	Development Proposals	Alignment / Station Design
Land Acquisition and Consolidation	Land Assembly	Land Acquisition for System
Environmental Reviews	Architecture and Programming	Planning Partner
Community Facilitator	Entitlements	Construction Facilitator
Land Owner Incentives	Construction	Urban Design Guidelines for Stations and Alignment
Priority Infrastructure Improvements and Public Facilities	Occupancy/ Maintenance/ Selling	

HCDA is already working towards this goal. In 2014-2015, HCDA collaborated with **Art Space** a non-profit developer for the Ola Ka Ilima Artist Lofts at 1025 Waimanu Street containing 84 housing units affordable to households earning at or below 60% of Area Median Income. The building also has ground floor commercial space and a two story structured parking garage. The Project will be located on a 30,000 square foot parcel of land in the Central Kaka'ako District on a former surface parking lot.

Artspace Project

Image Credit: Weinstein A + U

Figure 3-9 TOD Selected Sites and Catalyst Properties

Joint Development Opportunities		
Site	**Property Owner**	**Discussion**
1. Blaisdell Center	City and County of Honolulu	The Blaisdell Center currently contains a major arena and convention center with a 6,000 space parking garage. If redeveloped these uses could be consolidated in an dynamic center for the arts, with associated residential uses, and park space. The City/County of Honolulu is currently pursuing a study on the redevelopment potential for the Blaisdell Center Site. Opportunities for the site identified by HCDA include: ▪ Consolidated land uses to extend historic Thomas Square Park across King Street ▪ A completed street grid with improved vehicular connections through Blaisdell, and a site design based on pedestrian access ▪ Reserved or workforce housing ▪ A redesigned performance center and arena ▪ Potential for a business-oriented hotel to meet demand for visitors coming to Honolulu's Downtown for work purposes ▪ Sustainable site design, and green building techniques
2. HECO Kaka`ako Site	HECO	One of the larger consolidated properties in the Mauka District, the HECO site is the location for company storage and staging. A partnership for TOD redevelopment would place significant housing opportunities in to this valuable, centralized location in addition to enhanced open space.
3. Aloha Tower Special District Site	HECO	Located on the waterfront downtown, and directly adjacent to a new light metro station, this area provides an opportunity for both new uses and transit integrated development. This will require coordination with other HI agencies. See figure 3.15.
4. McKinley High School	State of Hawaii	Joint and shared use agreements are an option for community oriented activities on a more urban campus at McKinley High School. In the long term, this generous school site could be redeveloped to support additional school facilities in Kaka`ako.
5. 690 Pohukaina Mixed-use Residential Project	HCDA Joint Development	HCDA is the owner of this site, adjacent to Mother Waldron Park. In partnership with a private developer HCDA has the opportunity to redevelop an existing surface parking lot on the `Ewa side of Mother Waldron Park with opportunities for new rental housing or other community use. Within close proximity to Civic Center station this project could offer: ▪ Significant affordability ▪ Pedestrian improvements that links Mother Waldron Street to Keawe Street to the west ▪ Natural drainage practices ▪ Elementary school, ▪ Sustainable building innovations ▪ Improved programming for Mother Waldron Park ▪ Public art ▪ Green landscaped plaza

Station Area Land Use Opportunities

The following section discusses opportunities at the three planned light metro stations.

Civic Center Station Opportunities

The District's major opportunities for TOD redevelopment are within close proximity to Civic Center station. The HART Station Area Development Potential Report (2011) asserts that Civic Center Station has "perhaps the greatest (redevelopment) potential of any station along the project alignment excluding the West O`ahu stations." Underutilized parcels here surround the station, existing uses include surface parking lots, low-rise warehouses and garages. The parcel directly makai of Civic Center is part of the Kamehameha Schools master plan area and is currently permitted for a high-rise housing project, and associated affordable housing.

Figure 3-10 Civic Center Vision and Opportunities

1 POTENTIAL FOR MULTI BUILDING DEVELOPMENT

2 OPPORTUNITY FOR PUBLIC REALM ENHANCEMENT WITH DEVELOPMENT

3 TRANSIT PLAZA HALEKAUWILA STREET

4 COMPLETE CORAL STREET

5 NEW PEDESTRIAN CONNECTIONS

6 HALEKAUWILA PLACE - WORKFORCE HOUSING

7 WORK WITH DEVELOPERS TO CREATE NEW ACCESS LANES TO CONSOLIDATE LOADING

Figure 3-11 Aloha Tower Special District Vision and Opportunities

1 HART DOWNTOWN STATION AT ALOHA TOWER SPECIAL DISTRICT

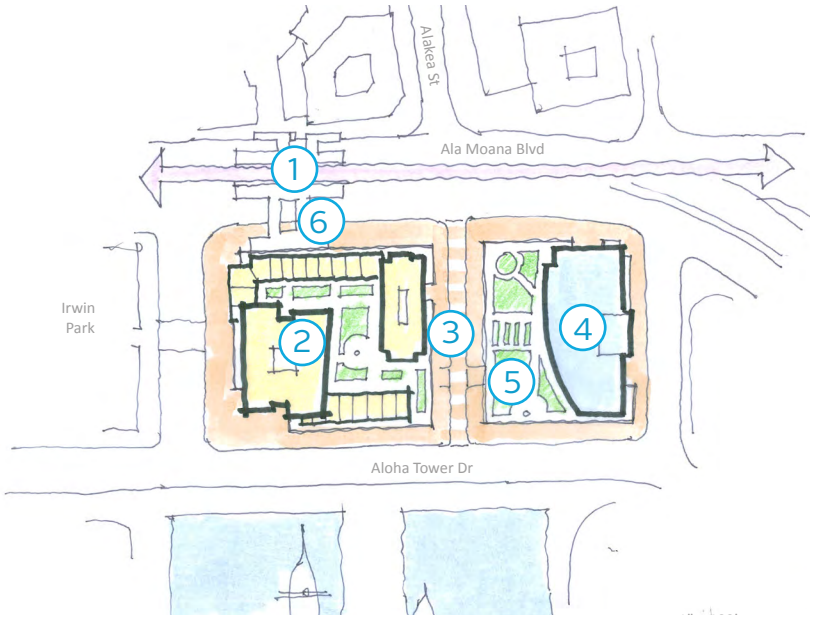
2 MULTIFAMILY RESIDENTIAL OPPORTUNITY SITE

3 SHARED STREET

4 COMMERCIAL OFFICE OPPORTUNITY SITE

5 INTEGRATED PUBLIC ACCESS

6 HIGH QUALITY PEDESTRIAN PLAZA AND INTEGRATED ROADWAY CROSSING.



Aloha Tower Special District, Downtown Station Opportunities

Downtown Station is within close proximity to the Aloha Tower marketplace, the downtown commercial core, Irwin Park and Honolulu Harbor. It is the primary station serving Honolulu's central business district. The HECO substation parcel adjacent to Downtown Station is particularly well positioned for TOD redevelopment for a range of uses, as it enjoys waterfront views and proximity to downtown. Under the TOD Overlay plan this site would be able to develop using an increase in capacity with more flexibility in off-street parking requirements. This vision is coordinated with the City and County of Honolulu Downtown TOD Plan (2012) that envisions the area as a mixed-use, high intensity district appropriate for high rise buildings. The Plan also recognizes an opportunity for revitalizing the Aloha Tower HECO substation complex into a citywide destination and community-gathering place.

Kaka'ako Station Opportunities

The current Ward Neighborhood Master Plan envisions a mixed-use, high-rise neighborhood encompassing Kaka'ako Station. The TOD Overlay will provide alternatives for both parking and local mobility in the District including district parking options as well as provisions for more intensive uses. The immediate station site and alignment include several adjacent residual or excess parcels associated with HART construction. These areas may eventually be good opportunities to incorporate future retail, public or civic uses. HCDA is coordinating with Howard Hughes Corporation to ensure that the transit station is well integrated to land uses.

4 URBAN DESIGN

4 URBAN DESIGN

Urban Design Framework

The Kaka`ako TOD Overlay Plan builds upon the vision established by the Mauka Area Plan to promote street-level activity, with safe, comfortable public spaces and a diverse array of uses. Urban Design strategies in this chapter clarify HCDA priorities for the relationships between people, the landscape, and the built environment, including planned rapid transit. The TOD Overlay Plan allows for selective introduction of both height and density into this already urban location.

This chapter designates a framework and a set of design principles and recommendations that will guide the placement and design of new building forms, balancing additional capacity with elements that help to create a comfortable, livable urban location.

Designing a Transit Rich Neighborhood

The Island of O`ahu is known as "the Gathering Place," and Honolulu is its center of activity. Its skyline, set against a forested mountain backdrop and the curve of Mamala Bay, is unmatched by many of the world's metropolitan areas. Kaka`ako is centrally located between the downtown core and Waikiki, and is well positioned to accommodate new housing in the form of tall, residential buildings in some locations.[1] Adding to Honolulu's skyline here will also visually connect these two recognizable areas, while providing a skyline that will be seen by visitors and residents from vantage points across the south shore of O`ahu.

Careful placement and design of tall buildings can help to create a sense of place by framing and focusing views between the built and natural environments. With limited remaining views to either the Ko`olau ridge or the ocean from the heart of the district, vertical development strategies have the potential to cultivate new views for residents, employees and visitors while also aligning to street end vistas identified in the Mauka Area Rules Mauka-Makai View Corridor. The neighborhood will create a skyline of framed peek-a-boo views through and between towers, as well as green spaces on podiums and vertical walls that will enhance views down from neighboring buildings and residential areas on the slopes of Punchbowl, Makiki and Pauoa.

1The height of buildings in the Mauka District is limited to 400' in addition to appurtenance and utilities.

TOD Overlay Plan strategies enable best practice in urban design, encourage exemplary buildings and advance the development of well-sited, climate sensitive, place-based architecture. Strategies are coordinated with mobility improvements, innovative parking tools, improvements to the quality of streetscapes and public realm. These urban design elements come together to produce a comfortable pedestrian-oriented environment while adding to the overall capacity in Honolulu's primary urban center.

HCDA is challenged to balance the goals and trade-offs between improved building forms and the goals of Kaka`ako as a Hawai`i resident-focused, high-capacity neighborhood. As such, High Rise Building Types must strike a balance between constraints on building mass and volume, aesthetics and market place feasibility. For example, more slender towers can become more luxury-oriented as the ratio of leasable areas to the circulation core increases, bringing up the cost of the building envelope per interior salable square foot. Additionally, a reserved parking space for each unit not only adds to A building's overall expense, but also impacts the street environment by increasing the height of garages.

Figure 4-1 A Transit Rich Kaka`ako

The Kaka'ako Mauka Area contains areas of change, and areas of stability, building upon the existing Mauka Area Plan Design Framework. Shown below are key opportunities in the creation of an urban, livable, high rise neighborhood.

These areas also benefit from complementary programs discussed throughout this Plan including pedestrian friendly streets, improved mobility and access, and public realm improvements.

1 KAMEHAMEHA SCHOOLS AND OTHERS - HOUSING NEAR TRANSIT SHORT TO LONG TERM OPPORTUNITIES

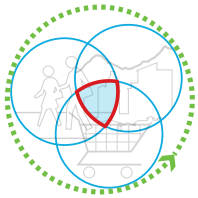
2 COMMERCIAL OFFICE KAPIOLANI BLVD LONG TERM OPPORTUNITIES

3 PUBLIC PRIVATE PARTNERSHIP BLAISDELL AND HECO SITES LONG TERM OPPORTUNITIES

4 TRANSIT RELATED HOUSING MID TERM OPPORTUNITIES

5 PEDESTRIAN IMPROVEMENTS THROUGH OUT STATION AREAS

6 WARD NEIGHBORHOOD PLAN SHORT TERM OPPORTUNITIES



Strategy UD1 Create an urban, livable high-rise neighborhood

Design of the built environment is the result of development economics, regulatory design standards and site geometries within the context of complex market realities. With a potential for increased capacities, the TOD Overlay Plan anticipates a redevelopment pattern that, depending on the size of the parcel, could accommodate multiple, inter-related buildings on a single development block. To avoid monolithic or overly uniform buildings and to encourage a skyline hierarchy that is both interesting and unique, larger-scale TOD developments with multiple tall buildings should be composed of at least two building types with significant height transitions between buildings (minimum of 3 stories), as well as changes in architectural character, volumes and massing. An exploration and analysis of proposed Building Types is included on page 4-10 of this chapter. A prototypical block development is shown below (Figure 4-2).

Figure 4-2 Block Development (Making use of all available incentives)

1 MULTIPLE BUILDINGS MAY BE SITED ON A CONSOLIDATED PARCEL. DESIGN REVIEW ENSURES NEIGHBORLY RELATIONSHIPS BETWEEN TOWERS.

2 INTERNAL AND SCREENED PARKING STRUCTURES ARE SHARED BETWEEN USES. GARAGE ENTRIES OFF OF ALLEYS OR NEW SERVICE STREETS.

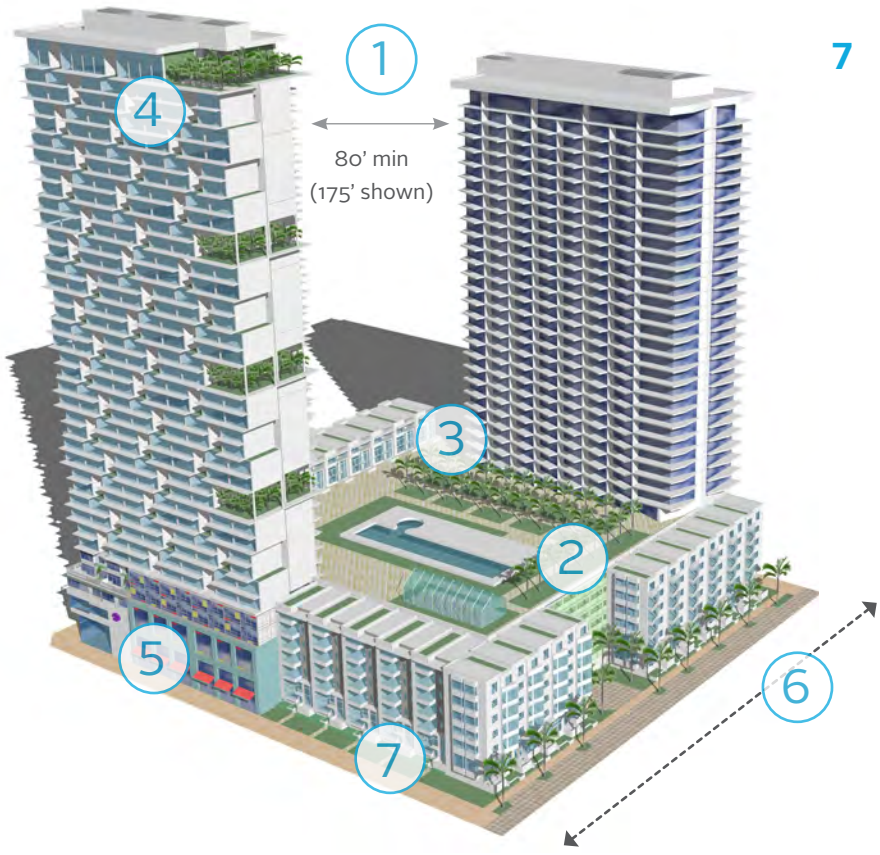
3 ROOF TOPS ARE OPTIMIZED AND MAY BE ACTIVATED WITH TOWNHOUSE UNITS

4 TOWERS OF DIFFERENT STYLES ANTICIPATE A VARIETY OF CONTEXTS AND CONDITIONS. HIGH PERFORMANCE BUILDINGS ENCOURAGED ON INTENSIVE SITES.

5 RETAIL IS PRIORITIZED IN CORNER LOCATIONS, IS DESIGNED TO ENGAGE THE STREET, AND ENHANCE THE PEDESTRIAN EXPERIENCE.

6 INTERNAL BLOCK CONNECTION FOR VEHICULAR AND PEDESTRIAN ACCESS ARE ACTIVATED WITH THE INCLUSION OF PEDESTRIAN FRIENDLY DESIGN, LANDSCAPING, AND ACTIVATING USES.

7 THE GROUND PLANE IS HUMAN SCALED. NON-COMMERCIAL STREETS ARE ACTIVATED WITH TOWNHOUSES, STOOPS, STREETSCAPE AND LANDSCAPING ENHANCEMENTS



Strategy UD2 Encourage world class, climate responsive design

The experience of living in a naturally ventilated, indoor-outdoor building is central to mild, tropical living. HCDA wishes to encourage the further development of climate sensitive buildings as an alternative to the cooler climate derived model of sealed, hermetic, glazed curtain wall buildings.

Design for climate benefits the user, in place experience, indoor air quality, thermal comfort as well as reduction of building energy use.

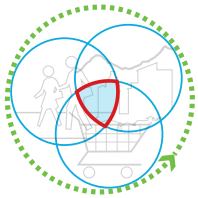
Design treatments include:

- Windows and facade treatments for shading, daylighting, reducing heat gain and low energy buildings
- Open air ventilation, and circulation including exterior corridors, stairways, internal gaps between podium liner uses and parking structures
- Arcades, atriums and breezeways with outdoor circulation at the street level, in courtyards and on ground floors that maximize access to the outdoors and takes advantage of the Hawaiian climate
- Provision of elegant and integrated shade structures on podiums, such as awnings and porticos and landscaping
- Orient buildings to manage the wind through and around the building
- On site energy generation, solar renewables, and wind energy, and district cooling opportunities

Action UD2 Revise existing green building incentives and explore the incorporation of climate responsive design, and sustainability performance measures.

Inyoue Regional Center at Pearl Harbor. This 350,000 SF building includes hydronic passive cooling, natural daylighting and no mechanical fans. Image: HOK

The Gold Coast district in Australia incorporates shading structures into building facade design. Image: Royal Elizabeth ElenBerg Fraser Architecture



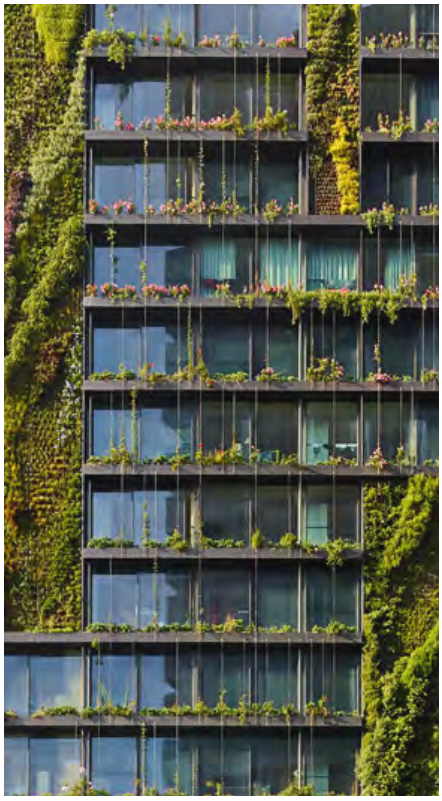
Strategy UD3 Green Buildings, Green Roofs and Walls

Multifamily buildings in Kaka'ako already incorporate landscaped podiums and other green roof elements to meet usable public open space requirements. However, in addition to providing open space, green roof systems can support rainwater management, reduction in urban heat, improved air quality, increased wildlife habitat and native plants communities, and noise abatement.

Green building treatments have many different forms and intensities, combining gardens, planter beds, native and drought-tolerant plants, local wildlife habitat, accessible open space, seating, and shelter or areas for gathering. Building facades may also be greened, from hanging gardens to planted balconies. Successful greening requires technical expertise and the integration of a considerable number of building and site elements, early design decisions and trade-offs.

Action UD3.1 HCDA will explore a green roof policy and provide technical support appropriate to the Hawaiian climate, with resources and guides for developers.

Action UD3.2 HCDA will implement incentive mechanisms, and city partnerships as necessary to increase the number, and standard practice for ecological function of green building elements.



Sydney, Australia is a warm climate city relying on both green roofs and vertical walls to insulate buildings and vegetate urban environments. The green walls shown above include 250 species of plants. Image: One Central Park by Ateliers Jean Nouvel

Golden Holiday Hotel, Vietnam's facade was designed to take advantage of the tropical weather with internal atrium, cross ventilation planted balconies with trees averaging 10' high. Image: Hiroyuki Oki Architectural Record Viet A Architects

Strategy UD4 Design Review for a Transparent Development Process

HCDA has developed a design review process for projects located in both the Mauka and Makai Areas. Design Review will be mandatory for all new projects and major renovations.

The composition of the Design Review Board may provide a variety of perspectives on the built environment, such as an architectural professor, a developer, a local architect and a local artist or cultural representative, a landscape architect and a member of the community.

Action UD4.1 Implement a mandatory design review program for all TOD buildings with guidelines that address site planning and massing, architectural building expression, streetscape, public amenities, and vehicular access/parking.

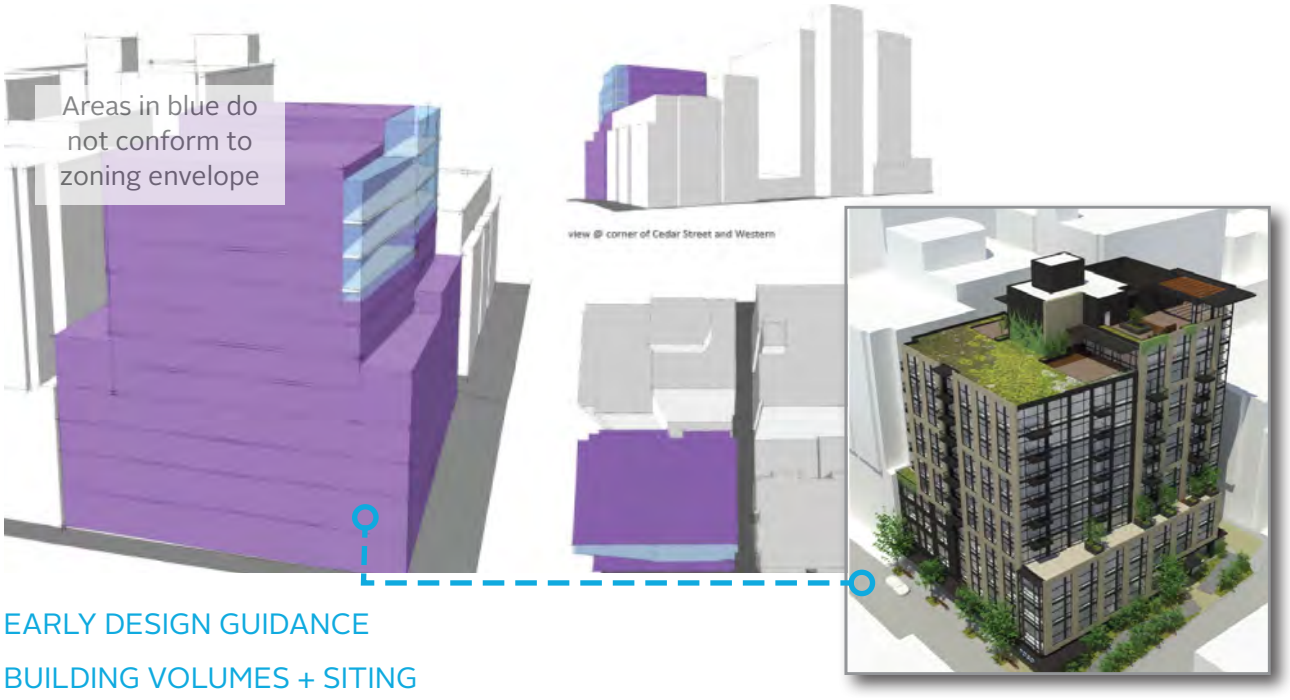
Action UD4.2 Establish design guideline principles and collect a set of precedent project images, diagrams and/or case studies showcasing of exemplary buildings and solutions for Kaka`ako.

COMMUNITY BENEFITS FOR DESIGN REVIEW

- Reviews and analyzes proposed projects to provide early design guidance in building siting, scale and relationship to neighborhood
- Provides a forum for public feedback
- Allows developers to respond to unique site conditions

DEVELOPER BENEFITS FOR DESIGN REVIEW

- Provides relief from prescriptive dimensional requirements such as setbacks and bulk
- Promotes community participation and acceptance of projects
- Encourages more flexible, creative and site specific design solutions



EARLY DESIGN GUIDANCE

BUILDING VOLUMES + SITING

REVIEW

FINAL DETAILED DESIGN

Strategy UD5 Promote an Integrated, Open and Accessible Ground Plane

Building a comfortable, cosmopolitan, diverse Kaka`ako means that each new building should be designed in context of an appropriate scale, respect adjacent public spaces, buildings and businesses and contribute to an improved pedestrian environment. The lower stories of buildings (the Street Element) have the greatest influence on the experience of walking and being in a place. Comfort in the urban realm is provided by the presence of strong edges along the walking path. Whether built form, walls, or terraced green, these elements create 'urban rooms' that reinforce and set the stage for complementary sociable activity in both the public and private realm.

Attention to and design of the urban landscape provides the spatial structure that encourages pedestrians to choose to walk along the street. The Mauka Rules (2011) Regulating Plan establishes a form based code with set of Facade and Buildings Types that address low rise to high rise forms. These standards prescribe street wall setbacks, building envelope and relationship to the street. The Mauka Rules also define a **Street Element** for all buildings as well as specific parameters for allowed building frontages, building placement and orientation and limitations on podium heights. The form based code establishes the following relationships:

- Podiums of tall buildings align with adjacent building facades.
- Strategic ground floor setbacks are encouraged and in some cases may be required for ground level open space, for example at building entrances, at plazas, courtyards or to create architectural interest.
- Podiums relate to the dimensions of the street. Smaller access lanes and internal block connectors, podium height is reduced.

Action UD5.1 Update and enhance controls on the ground plane to promote and enhance urban residential livability.

Illustrative plan of Mauka Area Street Characteristics
Image from VIA Architecture

Figure 4-3 Urban Design Recommendations

Control	Mauka Rules	TOD Overlay Recommendation
Building Siting	The Regulating Plan controls building siting and placement by block; i.e. 75% of Street Element façade to be within 5-10' of the build-to line. This provision for property line setbacks requires private sector contributions to public realm improvements such as sidewalks.	Maintain build to lines, and increase if necessary to ensure well designed and comfortable sidewalks.
Podium Height	The Mauka Plan maintains a maximum podium height of 65'. Stepbacks are designated by building type. Mid-rise Building Types (i.e. Urban Block and Lei Buildings) require significant stepping back of upper storeys.	Alter setback requirements to accommodate additional capacity. Allow flexibility to accommodate parking liners with top level uses such as townhouses. Parking reductions will also reduce overall volume and mass dedicated to podiums.
First Floor Use	Uses are mixed throughout Mauka. Retail uses and transparency are specfied on Promenade Streets: Punchbowl Cooke Ward Kamakee Auahi Pohukaina Ala Moana	Ensure that first floor uses are not over-regulated, producing unmarketable spaces. Ensure that ground floor facades maintain a high degree of permeability for both commercial and residential uses. Buildings should open up to the street and create the indoor-outdoor relationships and active street and public realm.
First Floor Height	Controls are differentiated by Frontage Types, Street Type and by Use. Currently, the first floor minimum for retail on Thoroughfare Streets is 12'.	Generous first floors and high quality architectural treatments should be required for mixed-use and commercially focused TOD buildings with ground level retail. In commercial spaces taller ceiling heights should be strongly encouraged.
Street Level Frontage	Frontage Types area defined and allowed according to neighborhood. However, the Terrace Frontage type is required for building frontages >100'.	Improve treatment of ground floor units, with the addition of stoops and/or semi-private garden elements to help taller residential buildings transition to the street, minimizing the impact of larger buildings above. Urban townhouses frontages that accommodate families can be integrated into larger building sites, and green, livable podiums.
Parking Garage Screening / Blank Facades	Requires three sides of parking garages to be screened. Ground floor retail has a depth of 40'-80', with potential for dividing walls every 30'.	Parking must be accessed from an alley where feasible. Unconcealed portions of garages should have enhanced landscape or other screening treatments. Chapter 5 of the TOD Overlay Plan includes many treatments and tools for parking.
Transparency	The Mauka Plan ensures that streets are active by adding form based controls,. i.e. 70% of a retail Thoroughfare Frontage Element to be transparent with views into storefronts.	The TOD Overlay Plan builds on this work, adding a variety of activation elements, but also ensure that variances allow flexibility for mechanical spaces, where no alley is possible, or retail uses are not feasible.

Strategy UD6 Enhanced Design: Slender, Sustainable Residential Towers

High Rise multifamily buildings in Kaka`ako already benefit from a transit rich location with existing infrastructure. As the premier redevelopment area in Honolulu associated with rapid transit, the TOD Overlay Plan will allow new projects to result in a variety of unit types in slender, well designed towers.

Towers are long and rectangular and may have a circulation core set to one side. Alternatively high rise designs may also place the core at the center. Building Types must have a smaller, streamlined structure width aligned with the Mauka-Makai Axis, meet tower separation controls and maximum width and length dimensions. New design guidance for tower volumes will apply. In some cases towers may have an open core to take advantage of cross ventilation, or low energy performance solutions. In these cases concessions may be appropriate on floor plate maximums. Preferred dimensions are illustrated following:

Design Criteria

- **1. Point Tower**: 9,500 SF Floorplate Maximum Structure width 100' unconcealed core or concealed core 12,000
- **2. Mauka High Rise**: 12,000 SF Floorplate Maximum/Structure width 120'/concealed core
- Maximum height 418'
- Align with Mauka Makai axis

Livability Attributes

- Design Review protocols
- Projects required to participate in an amenity program for sustainability and affordable housing
- Podiums are landscaped and provide recreational amenities for tenants
- Relationship between buildings ensure privacy and livability
- Podiums heights are coordinated to street types; 75' along Boulevards, 65' on other streets
- Active street frontages

1. Point Tower 9,500
* two towers allowed only with the Supplementary Density program

2. Mauka High Rise
12,000SF Floorplate

Sky gardens and balconies contribute to a green, low-energy building design

Active street frontage

WHAT IS A SUSTAINABLE HIGH RISE | GLOBAL BEST PRACTICES

Warm climate cities are shifting high rise residential design emphasis to focus on creating a more porous building envelope that enhances user comfort. For example, in Brisbane, Australia, it is now generally accepted that tower types derived in cooler climates are not appropriate for the climactic conditions of the tropical city, as their designs are inherently over reliant on air conditioning. According to the Council on Tall Buildings and Urban Habitat, "the point of difference... is the re-conceptualization of the external wall, or the line of enclosure. For air-conditioned buildings, the need for air-tight and moisture-tight barriers is crucial for energy efficiency."[1] However, in warmer cities the real opportunity for energy efficiency is to be more open to wind and passive cooling strategies with many punctuations that perforate the skin. This is a key issue to be worked through in the early stages of design, and will also have implications in regulatory, marketing, contextual systems. With a more comprehensive approach, designs results can be greener, more comfortable and better performing, improving livability and response to place.

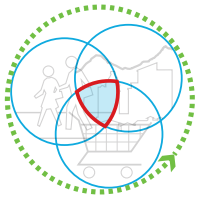
The Wave on the Gold Coast of Australia. The facade is made up of a lanai allowing each resident habitable outdoor space, views and shaded interior walls.
Image from DBI Design

The Met Tower, Bangkok incorporates outdoor spaces, balconies and sky gardens. In this project, cross ventilation is used to cool and ventilate the apartments. Communal spaces are included on multiple stories.
Image from WOHA designs

The Beckett Tower has a brightly colored facade with lanai acting both as shading and decorative device.
Image from Elen Fraser Architecture

1. Kennedy, Rosemary J. & Thompson, Shane (2011) The subtropical residential tower: An investigation by Design Charrette.

Council on Tall Buildings and Urban Habitat Journal, IV, pp. 24-29.



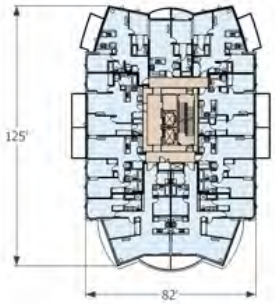
SUSTAINABLE HIGH RISE | BUILDING CODE CONSIDERATION:

SLENDER TOWERS

While the City of Vancouver is cited as a precedent for smaller floor plate towers, these building types result from different building codes, in particular, a consolidated core of both elevators and exit stairs made possible through the application of a "Scissor Stair." The scissor stair design is set of two intertwined stairs (like a double helix) located within one stairwell enclosure separated by a fire wall.

This innovation provides for more leasable area to offset construction costs, while also allowing for a condensed footprint. Although scissor stairs are used throughout the eastern US and in Vancouver, BC, building codes in the western US and Hawai`i treat them as a single exit for fire and life safety purposes, discouraging their use. Recently, there has been interest (and success) in locally modifying buildin code for the scissor stair in Portland, Oregon.

Typical IBC Tower Core
Alto - Seattle
8,000 SF Floorplate
12 units per floor
672 ave. unit (gross)
551 SF ave. unit (net)
1387 SF Core = 17%

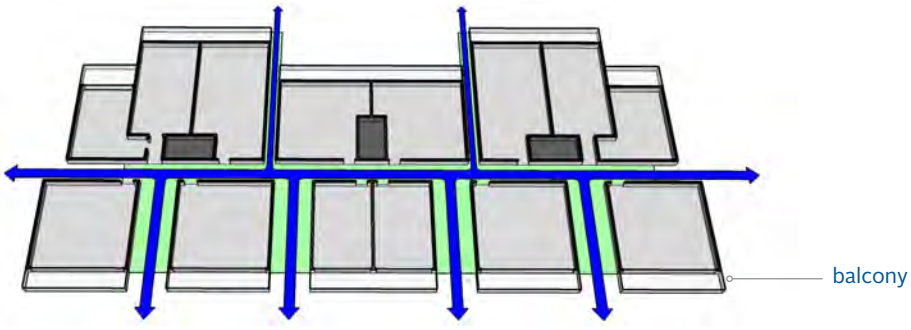


Scissor Stair Innovation
Plaza 88 - Vancouver, BC
8,000 SF Floorplate
9 units per floor
666 ave. unit (gross)
670 ave. unit (net)
1072 SF Core = 13%

PASSIVE ELEMENTS AND CROSS VENTILATION

Current building codes are based on mechanically ventilating well-insulated, tightly constructed buildings. However, in Hawai'i the warm weather climate results in less need to seal the building against the weather because outdoor temperatures are often comfortable with limited change between evening and daytime temperatures. Innovations in floorplates for cross ventilation resulting in high performing and low energy buildings are making their way across hot climate countries with Australia, Thailand and Israel leading the way.

These buildings can be smartly designed to capture breezes, incorporate outdoor spaces into both individual units and community sky gardens. In these new warm climate high rises, circulation elements are unconditioned spaces, similar to more traditional buildings. Design strategies to bring air into units include 1) placing windows both high and low in rooms 2) including facade projections and recesses that increase the number of exposures, and 3) separate cores in the form of interior courtyards and air wells, single loaded corridors, and floor through apartments. To introduce innovations to the Kaka`ako area, HCDA will partner with the University of Hawaii and the City/County of Honolulu to propose appropriate building code amendments to ensure that sustainable, cross ventilated floor plans are economically feasible, and legal.



AIRFLOW THROUGH UNITS

Strategy UD7 Introduce a Building Type for new Commercial/ Office

The TOD Overlay Plan allows for a limited number of commercial buildings with highly desirable, efficient floor plates allowing a developer to accommodate one employer on fewer floors. With limited commercial buildings, HCDA aims to help to promote diverse uses and activities during the day and evening hours that also support street level businesses. Restrictions on total GFA of High Rise Employment Buildings in the Mauka Area will maintain a diversity of use in the district, avoiding overly competing with downtown's commercial core. High Rise Employment buildings are desired within proximity to the Civic Center Station, and Kapi`olani Boulevard.

Design Criteria

- Floorplate maximum size 28,000 SF
- Height limit: 160' or approximately 12 stories
- Height limits mitigate impact on the skyline
- Generous ceiling height at the first story
- Indoor/outdoor design and atriums encouraged
- Facade treatments for appropriate solar shading

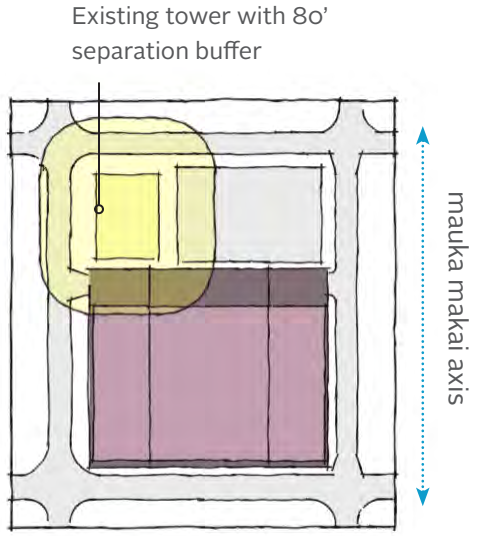
Livability Attributes

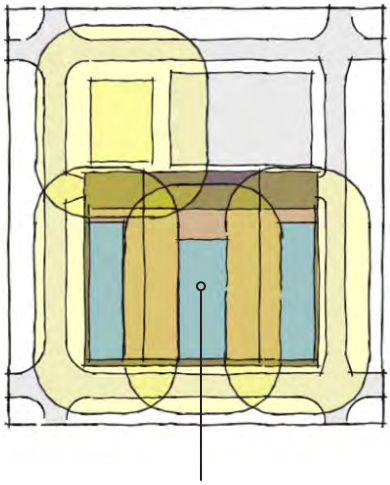
- Courtyards and indoor-outdoor spaces for employees
- Introduce passive ventilation for heating and cooling and daylighting of indoor spaces through courtyards or light wells.
- Provide access to green roofs on podiums or to landscaped, street-level common areas
- Facilities for bicycles, participation in transit pass programs reduce impact on traffic and parking footprint
- Consider activated first floors that complement the commercial nature of the project and provide useful services for building users and guests.

Strategy UD9 View Preservation

All structures, even those that are a single story have an impact on pedestrian views, obstructing sight lines to the ridge line and the ocean. Establishing view corridors that maintain and frame future views is of critical importance. The Mauka-Makai corridor is defined in the PUC Plan and HCDA Mauka Area Rules (see Figure 4-4). Tower Elements are required to be aligned parallel to the closest mauka-makai axis. Every development permitted under the Mauka (2011) Rules must submit a view impact study demonstrating that the ideal tower orientation was selected in order to maximize views.

The TOD Overlay Plan recommends guidance for view preservation as discussed in Figure 4.5. The Mauka District is maintained at a maximum of 400' with allowances for utilities and appurtances. Additional Form Based standards control the relationship of the tower elements to the street element and placement.





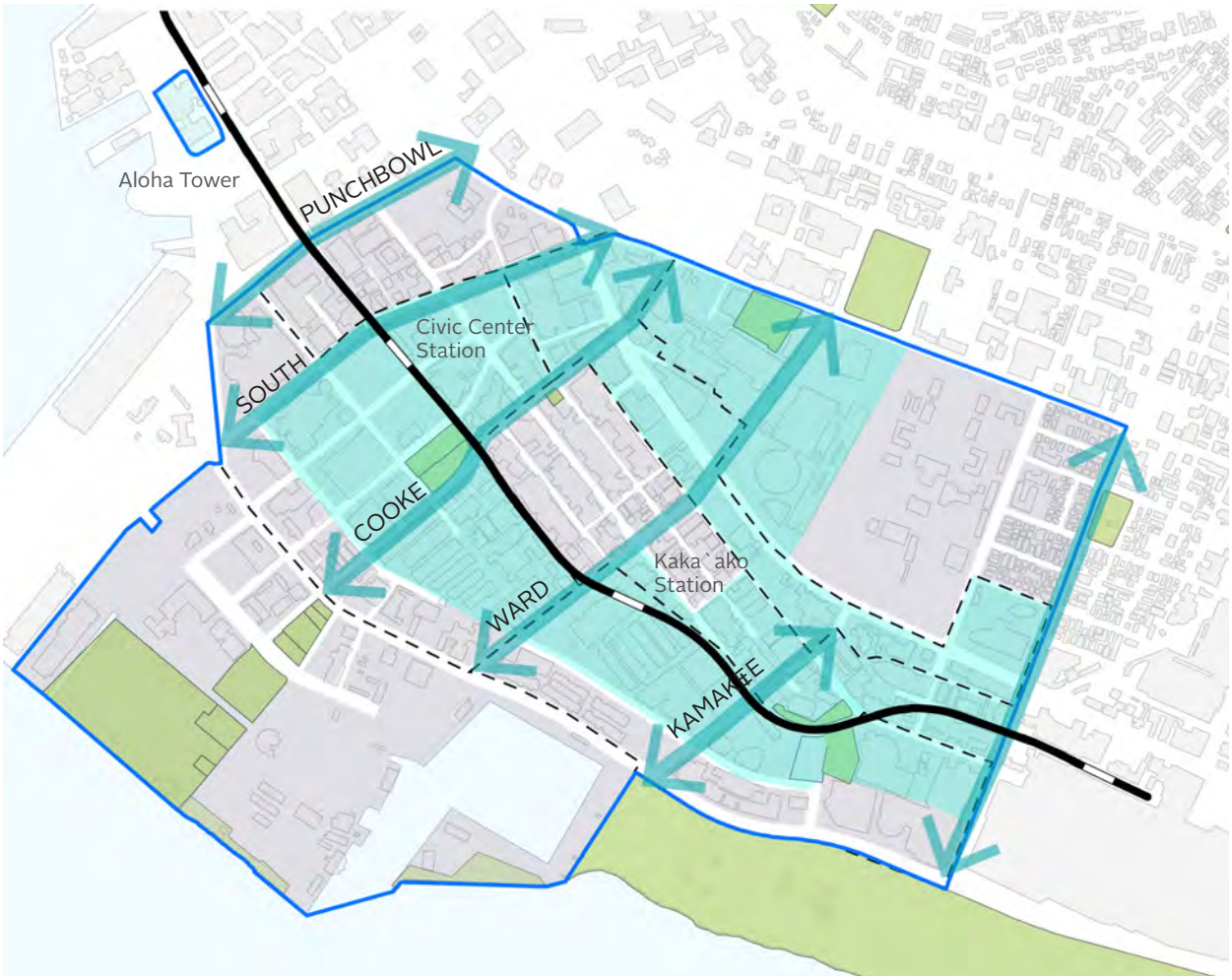
Preferred: Towers sited to accommodate neighboring parcels with long dimension following mauka-makai axis.

City of Vancouver 80' tower spacing required between residential projects (less for commercial projects).
Image from VIA Architecture.

Figure 4-4 Recommendations For High Rise Tower Siting and View Preservation

Control	Mauka Rule (2011)	TOD Overlay Recommendation
Mauka – Makai Corridor	Orient towers with long side of axis parallel to mauka-makai corridor. Min. 50' setback above 65' ft. Allows for 20% deviation from the view corridor per HCDA review.	Maintain the principle of short side axis orientation in the mauka-makai corridor.
Tower Floor-plate Controls	Towers maximum horizontal plan projection is 150' in one direction, with a maximum of 210' allowed between two farthest points of a tower floor plate. Specific floorplate controls are tied to block size.	High-rise buildings are updated with floorplate controls that will require more slender towers on all lot sizes.
Tower Spacing	All towers maintain a spacing of 80'. When any portion of a proposed tower falls within the mauka-makai zone, a minimum of 300' separation between the long parallel sides of neighboring towers is required.	Maintain minimum 80' separation between all towers. Create design guidelines for tower placement that encourage towers to be offset and horizontally staggered within a block.
Building Orientation	65% of one edge of a tower must be flush with a façade of the building or street element.	Add flexibility to street frontage setbacks. Include strategies to accommodate wind-down draft conditions.
Design Review	In Mauka, when required a Discretionary Advisory Board (DAB) reviews designs and provides comment within 30 days. Buildings in Makai are also subject to a set of guidelines produced in 2002.	A design review process will ensure quality design and will ensure complimentary relationships between buildings. Design review will focus on site planning for an activated, comfortable pedestrian realm.
Vertical Articulation + Tower Tops	Not required	Make use of mandatory design review as a tool for the reduction of the mass of upper portions and neighborly transitions in both height and scale between adjacent buildings.

Figure 4-5 Height and View Corridors



400' maximum heights (TOD Overlay Plan)

View corridor identified in Mauka Area Plan to establish mauka-makai axis for tower siting

Strategy UD10 Adapt to Alignment

HCDA will prepare for the construction of the new rapid transit system by working with HART, property owners and the City & County of Honolulu to activate land uses below the guideway where feasible, as well as create partnerships for the provision of active public spaces such as paths, exercise courses, community gardens, lighting and art, shops or storefronts. Integrating the overhead alignment into a working neighborhood requires special attention to shadow creation, and spaces around columns.

HCDA and HART will coordinate to

- Reduce impact of supportive dual columns that crowd the urban context.
- Locate ancillary buildings such as electrical transformers, maintenance facilities to provide both operational efficiency and better respond to urban context.
- Welcome users by activating ground levels with retail or other commuter uses, such as services or daycare and bike share stations.

Existing uses on Halekauwila St. include light industrial services, shops and a variety of walk-in trade establishments. Unintended impacts of the elevated rail include underutilized land or vacant storefronts adjacent to the guideway. HART is currently collaborating with HCDA to ensure that the design of the elevated alignment will address this areas incremental urbanization. In particular HCDA and HART will coordinate to ensure that the impact on the pedestrian environment is reduced. Space under the rail guideway, between the support columns could be used as liner parks, exercise course or community gardens.

Figure 4-6 Opportunities at Civic Center Station

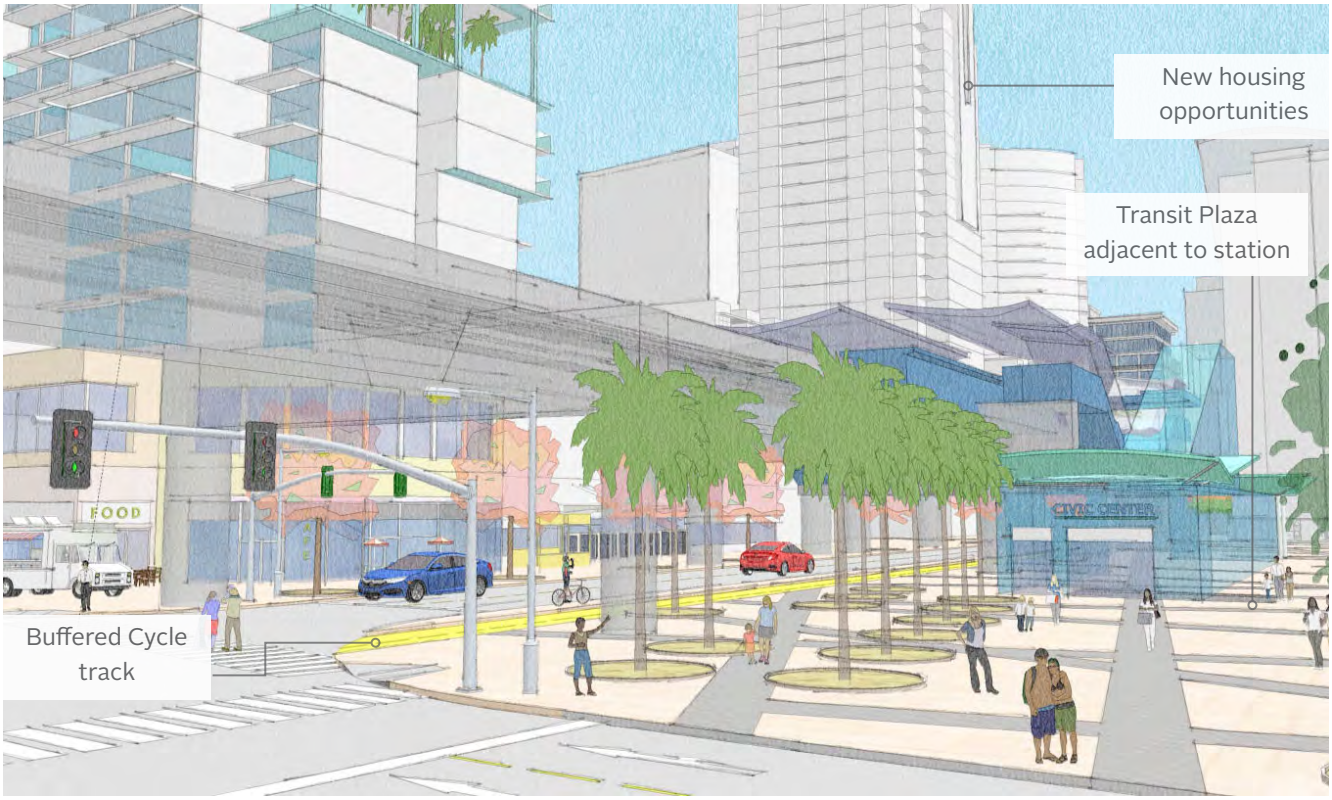
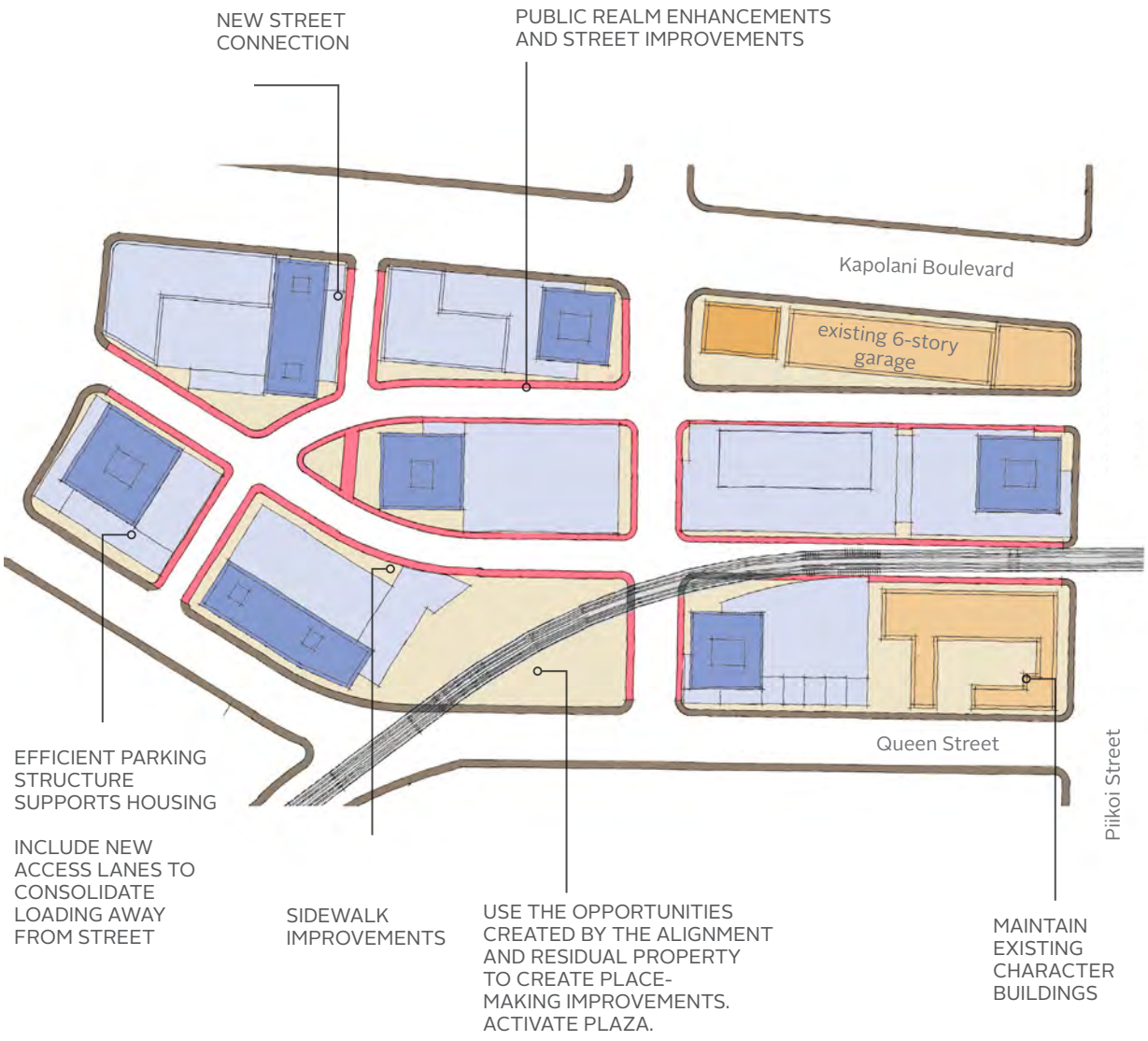


Figure 4-7 Alignment Adjacent Opportunities



Examples of Alignment Adjacent retail opportunities

Broadway /Commercial Station in Vancouver BC (shown below) integrates a low scaled retail building directly adjacent to an elevated rapid transit exchange. Retail within the building provides "eyes on the street," and an around the clock presence to keep people safe, provide a sense of place and wayfinding. This single story structure activates, provides a landmark for the area, and allows for adequate pedestrian movement for transfers to local bus service.

Broadway Commercial Skytrain Station Hub, Vancouver BC
Image: VIA Architecture

Broadway Commercial Skytrain Station Hub, Vancouver BC
Image: VIA Architecture

In Westlake Center in Seattle, WA (above) elevated retail is associated with a public plaza. Westlake center includes a significant open, hard scape plaza which also acts as a transit hub with connections to light rail, and regional and local bus service. Major developments are set back from the rail station by one half to one block. Image VIA Architecture

Parks, Public Realm and Active Space

As Kaka`ako evolves, the provision of recognizable, accessible, and multi-functional public spaces is essential to neighborhood livability. New community-oriented public spaces will serve many functions. These are outdoor living rooms where social interaction creates a sense of belonging, provides variety in the built environment and respite from city life. Usable green spaces on podiums will be particularly important in this vertically-oriented district, not only for the use of building tenants, but also to preserve and enhance views from other tall buildings.

In high intensity areas such as Kaka`ako, each development may not be able to accommodate adequate public open space on site. In these instances, provisions should be made to allow developers to allocate in-lieu fees for public spaces off-site, and a plan for contributing to a series of coordinated green spaces within the District. On par with existing Mauka Area Rule requirements, under the TOD Overlay, 7% net sq. ft. of buildings must be allocated towards livability improvements for building tenants. This includes balconies, shared common areas, recreation rooms or gyms dedicated for the use of tenants.

Public Parks

The City of Honolulu Department of Parks and Recreation's Standards and Design Precepts for Future Park Development (2004) provides recommendations and standards for various park types. Given the already built out environment and lack of publically held lands in Kaka`ako Mauka, most park lands will be located in the Makai area. In the Mauka area, as associated with the TOD Overlay, assessments will be allocated to improvements for existing District parks and the provision of possible new public spaces, and other identified cultural amenities (see figure 4-8).

Additionally, both Kamehameha Schools and the Ward Neighborhood Master Plan will build new distinctive public open spaces as part of their master plan developments. Negotiated individually with HCDA, both of the Master Plans have applied Public Facilities credits (allocated at 3% commercial and 4% of residential GFA) towards local improvements. The Kamehameha Schools Master Plan has also proposed lands for a Gateway Park in the Makai area (Cooke and Ala Moana Boulevard) as a significant linear greenway as part of Cooke Street's beautification.

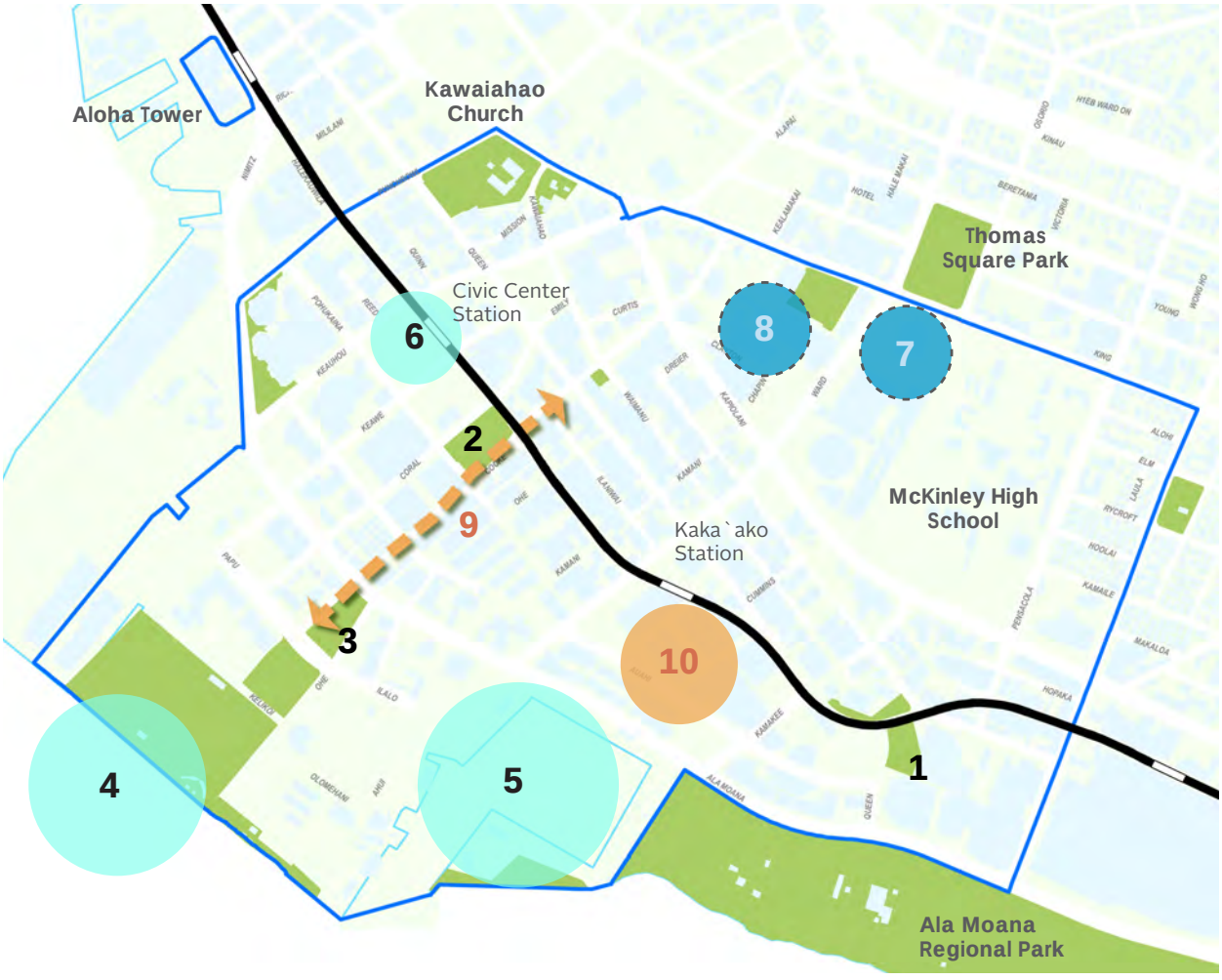
Figure 4-8 Public Spaces in the KCDD

1. KOLOWALU PARK (EXISTING)
2. MOTHER WALDRON PARK (EXISTING)
3. GATEWAY PARK (EXISTING)
4. KAKA`AKO WATERFRONT PARK AND PLANNED EXTENSIONS
5. KEWALO BASIN AREA WATERFRONT PUBLIC SPACE IMPROVEMENTS
6. TRANSIT PLAZA CIVIC CENTER STATION
7. POTENTIAL PARK ASSOCIATED WITH A BLAISDELL REDEVELOPMENT
8. POTENTIAL OPEN SPACE ASSOCIATED WITH HECO REDEVELOPMENT
9. COOKE GREEN STREET (KS MASTER PLAN) TOD OVERLAY PLAN
10. PUBLIC OPEN SPACE AND LINEAR PARK (WARD CENTER NEIGHBORHOOD PLAN)

Public spaces associated with redevelopment

Major planned or existing public spaces

Public space improvements associated with major Master Plans



Ward Neighborhood Master Plan include designs for a new linear greenway and park ending with a street connection to Ala Moana Boulevard. Improvements to the Kewalo Basin Park as envisioned in HCDA's Draft Makai Area Park Master plan also creates active connection to Ala Moana Beach Park.

In addition to the above, HCDA envisions additional coordinated park spaces in the Mauka District that could be established with TOD Overlay associated redevelopment:

a) Additional Public Park on a redeveloped Blaisdell Center Site

- A primarily landscaped park designed to reflect and extend the existing Historic Thomas Square Park (across King Street). This opportunity would create an active public destination adjacent to cultural institutions, the Blaisdell Arena and Performing Arts Center, and create a significant central green space for the area.

b) Transit Plaza associated with Civic Center Station

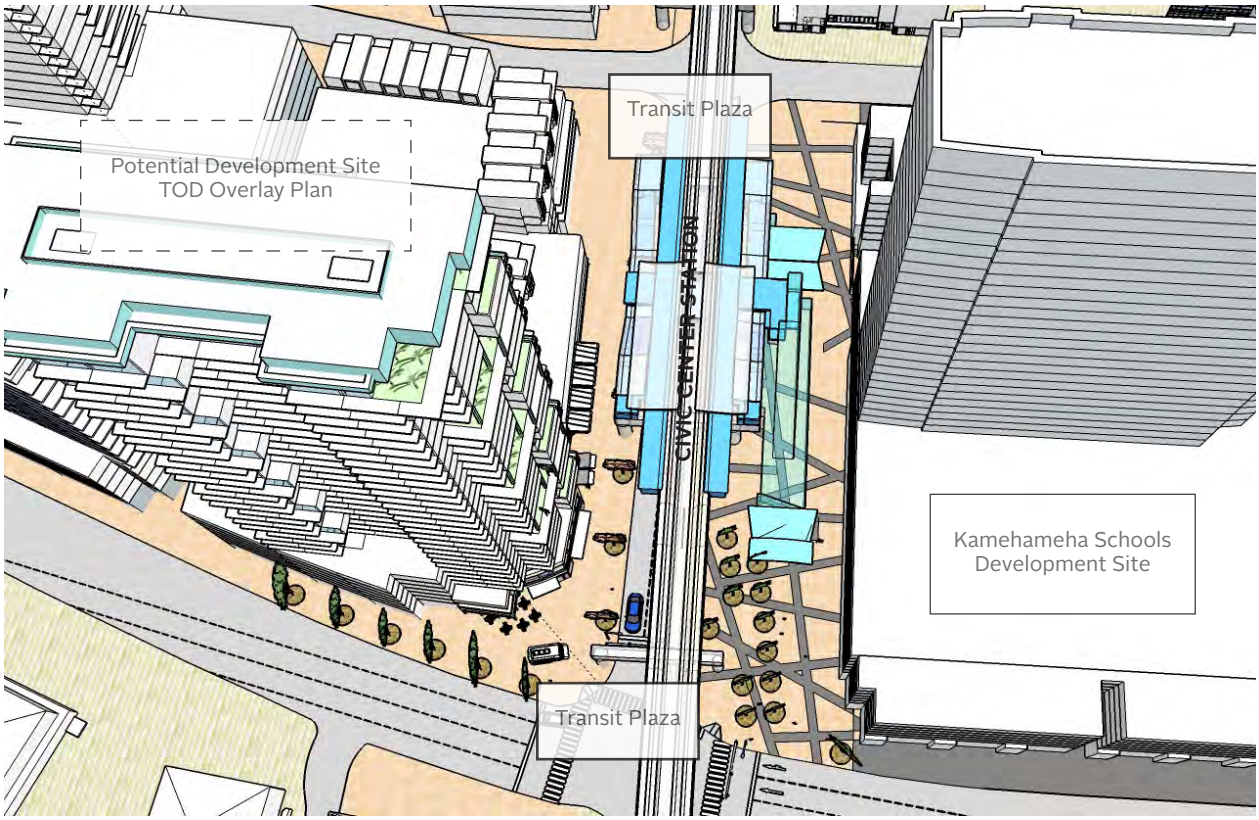
- A small transit plaza will be developed near to the Civic Center Station to act as a meeting point and destination.

c) Improvements to Mother Waldron Park

d) Potential linear greenbelt, cycle track under the transit guideway and pocket park on remnant transit parcels

e) Potential park/open space at the HECO parcel (see figure 4-8).

Figure 4-9 Conceptual Transit Plaza At Civic Center



Spaces for People

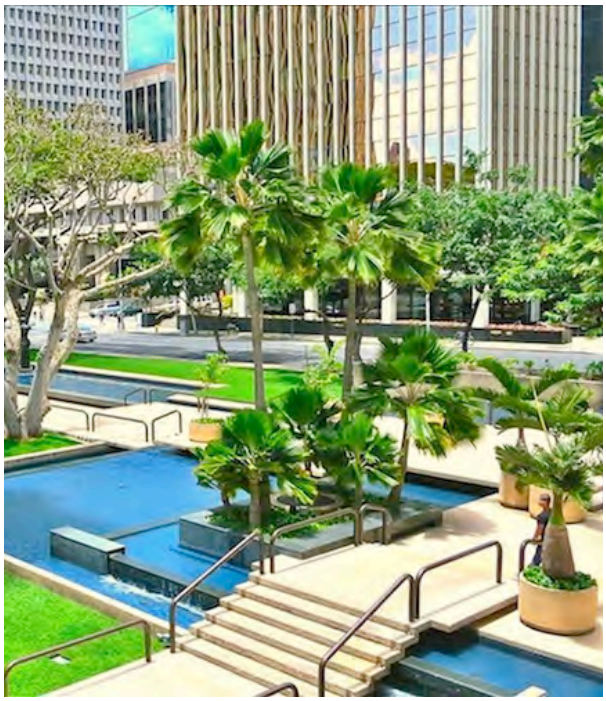
As noted, in Kaka`ako it is expected that a majority of new public usable open spaces will be built as part of redevelopment projects. These spaces will be found not only in civic-scaled public parks, but also in small pocket parks on streets (promenades), semi-public courtyards, publicly accessible interior spaces, public viewing plazas, and community gardens. These public spaces that are developed concurrently with individual sites may have full or partial public access (such as a grade-level or elevated courtyard, residential stoops or gardens) and may be either publicly or privately owned. In all instances, public spaces must be usable, neighborly, and provide for multiple functions where feasible.

General Guidelines

This section documents the types of public community spaces encouraged within the Kaka`ako District. New public community spaces should include the following attributes,

- Provide signage identifying place
- Support sociability by including some or all of the following: moveable seating: tables, chairs, sit walls, shade structures, trees and a balanced blend of hardscape and softscape surfaces.
- Locate public spaces where they will be visible from adjacent units or occupied spaces to ensure safety.
- Locate bike racks at the perimeter of public spaces where feasible and appropriate.
- Water and electrical outlets should be provided to allow for more flexible uses.
- Include shade structures / trees to protect seating and activity areas where feasible. The spacing location and type of required trees may be modified when adjacent to a plaza or other identified community space.
- Manage 75% of stormwater on site in community spaces, through permeable pavers, bio-filtration units or other low impact development features that drain to planted areas.

Small courtyard, Kaka`ako



Tamarind Square

- Use a blend of both hardscape and softscape features to provide a rich and varied texture.
- Consider any special user groups (such as seniors or children) when designing new community spaces.
- Consider design elements that will extend a community space's hours of use.

Public Plazas and Squares

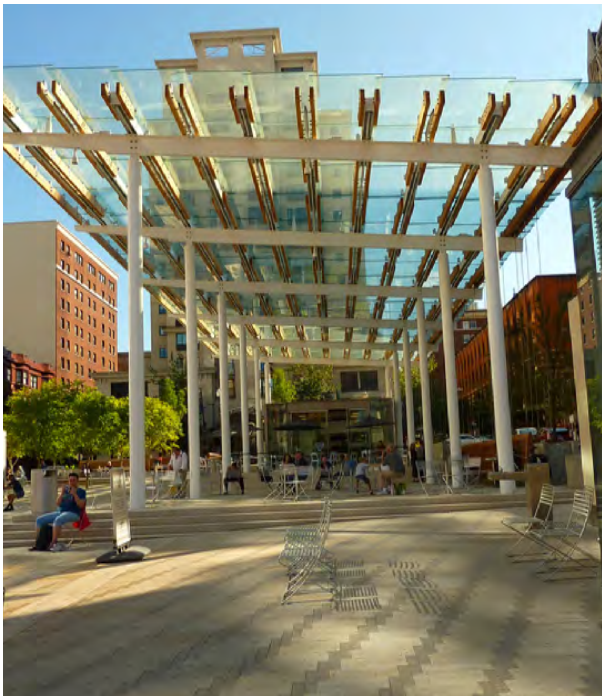
Plazas are tucked between two- or three sides of building facades, while Squares are bounded by streets on all sides. This type of community space may consist of primarily hardscape elements such as pavers or concrete. Including changes in plane are encouraged to add variety and visual interest. Landscape materials and art can be used to both provide texture and make it attractive. A portion of a plaza can also be used for reserved seating for a cafe or restaurant. Permanent structures may also be included within the plaza provided they do not preclude access by the general public. Structures in plazas may be enclosed or open air or potentially leased for commercial use.

Features and attributes for a Public Plaza:

- A variety of seating opportunities including moveable and fixed seating/ Options such as sit walls, boulders and other multi-use objects are also appropriate,
- Design opportunities for special events or small scale gatherings,
- Mounted or suspended lighting, or decorative lit bollards
- Architectural feature that will provide a sense of place

Community Gardens

Community gardens provide valuable space for Kaka`ako dwellers to create urban agriculture. In addition to locations on the ground, parking podiums can also be actively used as rooftop gardens. In these instances, buildings should incorporate load bearing capacity sufficient to allow their intensive utilization including human occupancy, gardening and significant landscaping.



Director Park Plaza, Portland

Civic Center's existing public spaces are associated with City historic landmarks

Features and attributes for a Community Garden:

- Sited with good sun exposure. Sheds or storage for tools
- Access to water such as hose bibs or rain barrels
- Adequate soil, planters and locations for garden plots
- Electricity
- Lighting over gardens, and pedestrian lamps in gathering areas
- Composting facilities, recycling and rubbish bins
- Rainwater catchment system
- Benches, seating, public art, community gathering or bar-be-que area

Small pedestrian resting area in South East False Creek, Vancouver

Promenades

Promenades are linear public spaces that enhance a circulation facility or internal block pedestrian connection. These areas are urban scaled environments that encourage social interaction and provide amenities for pedestrians including architectural features, water features or fountains, seating, landscaping, and hardscape. Promenades may incorporate low impact development features for water infiltration and detention. (See also Chapter 6).

Features and attributes for Promenades:

- Pedestrian lighting
- Elements such as bollards, benches, seating or architectural features that provide separation
- Landscaping or planters
- Shade structures or trees
- Drinking fountains and water features
- Stormwater and rain garden enhancements

Planter boxes, community garden area

Packard Foundation in Los Altos, CA offices include a courtyard for socializing, and access to light and air. To reduce energy use, the building's offices are daylit with skylights and clerestories.
Image from Jeremy Bitterman, EHDD Architecture

Activity Areas

Activity grounds may be incorporated into other community spaces. These areas include children play areas, outdoor exercise equipment, active dog parks and runs, games such as bocce courts or chess sets. Natural creative play elements for free and unstructured play can also be included. Elements do not have to be designed overtly for play, but should support and encourage play by children, examples include water that can be manipulated, outdoor rooms made from rocks, landscape berms, or hills.

Features and attributes for Activity Grounds:

- Fixed benches facing play activity or game or equipment
- Drinking fountains
- Adequate lighting
- Measures necessary to protect children's safety from vehicular traffic such as low fences or landscaping to provide a physical barrier
- Places where pets can be outdoors and use spaces

Outdoor activities for families

5 MOBILITY AND ACCESS

5 MOBILITY AND ACCESS

How Transportation Supports the KCDD Vision

A community's approach to providing transportation services and designing transportation infrastructure can have a tremendous affect on the quality of day-to-day life and how far a paycheck stretches. For the last 50 years, the single occupant automobile (SOV) has shaped community design and land use decisions. The result has been a diminution of community, cultural integration, and human health.

Rising obesity and disease related to sedentary lifestyles, climate change, rising energy costs, and loss of time for family and cultural exchange have led many to look for alternatives to auto-oriented community design. A new paradigm is taking hold around the nation as people chose to live in vibrant urban communities where walking, biking, and transit are viable alternatives, active transportation is part of daily life, and the cost of fuel does not comprise 20% of household spending. Kaka`ako is in a prime location to benefit from these trends and create a holistic community where residents young and old can find a sense of communal space, vibrant civic life and cultural resources, and help to improve human and environmental health on the island.

In other parts of Honolulu, such as Waikiki, the City and developers have made significant investments to create balanced, walkable urban streets.
Image from Nelson\Nygaard

The Kaka`ako TOD Overlay Plan takes a different approach to transportation. It assumes that mobility and access are not ends in themselves, but means for supporting these community outcomes. This portends future investments in complete streets prioritized to move people efficiently, safely, and comfortably.

Walkable, Transit-Oriented Communities

While there are many types of walkable, transit-oriented communities around the world, they share a common characteristic: people can walk, bike, or take transit from their homes to accomplish many of their daily activities including getting to work or school, picking up groceries, or going out to a restaurant or a special event. Transitioning Kaka`ako to a walkable community will require well-coordinated public investment centered on transit stations and nodes.

Modal Priorities

Developing a diverse multimodal transportation network is the only way to achieve the community outcomes discussed above; it is a matter of geometry. To provide sufficient space for civic life, shopping, comfortable sidewalks, and vital commerce, spatially efficient modes of transport must be prioritized. Locating jobs, housing, and services within walkable distances reduces the need for short, inefficient auto trips. The six "D" principles outlined in Chapter 2 describe how land use and transportation integrate to create a walkable, transit-oriented Kaka`ako.

When light metro comes online, many more people will travel in and out of Kaka`ako each day without a car. Since almost every transit trip is preceded and followed by a walking or bicycling trip, emphasis will be placed on improving conditions for non-motorized mobility and access. The quality

Great retail streets, like Robson Street in Downtown Vancouver, rely on transit to deliver people to the area and to reduce auto traffic making pedestrians safer and more comfortable.
Image from Nelson\Nygaard

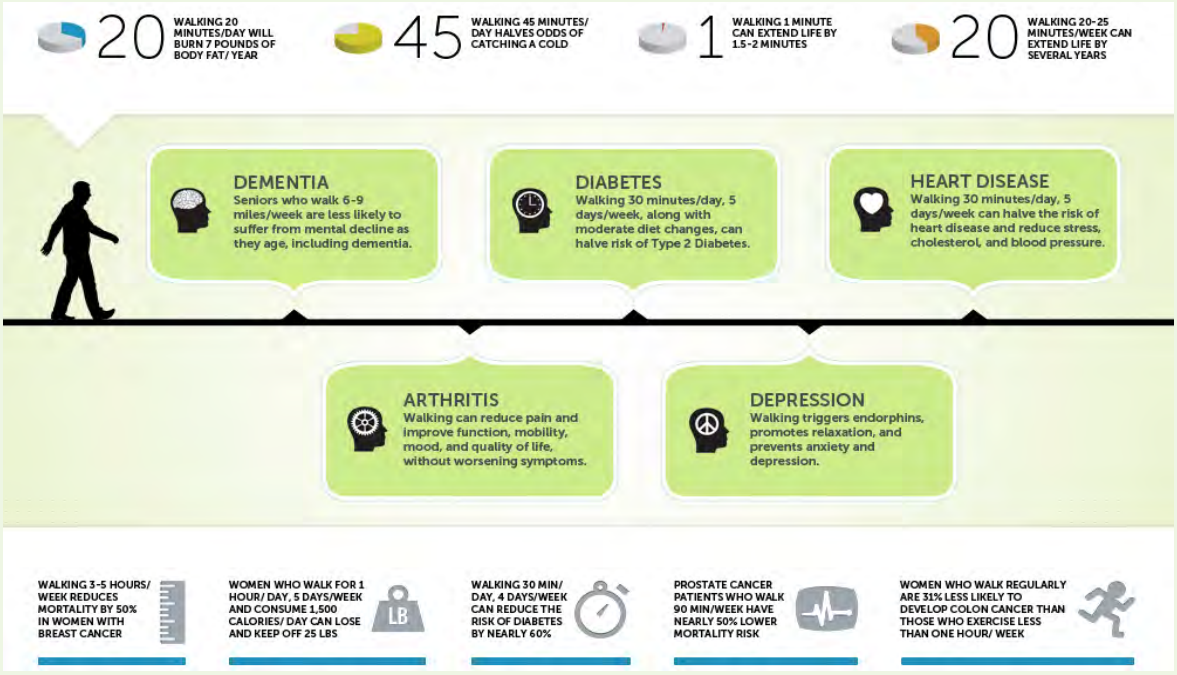


Image from EverybodyWalk!

BENEFITS OF A TRANSIT-ORIENTED KCDD

In addition to accommodating growth, a transit-oriented KCDD is by definition "green" and provides an opportunity to create both a sustainable Honolulu and a healthier planet. A walkable, transit-oriented KCDD will deliver:

Lower Overall Household Costs. Cars are expensive; household costs decrease when people are less dependent on them. In addition to increasing affordability, social equity improves when all citizens have good access to jobs, schools, healthy food, and other critical services. In efficiently designed urban neighborhoods with a range of quality access and mobility options, owning a car can be an option, not a requirement.

Improve Public Health. Residents of transit-oriented communities walk and bike more than their suburban counterparts, in part because everything is accessible. Recent research shows that people who walk and bike are frequently healthier than those who live in auto-dependent neighborhoods.

Support Diversity. Walkable, transit-oriented communities can support existing communities and businesses by reducing sprawl and keeping cultural assets accessible within a compact area.

Increase Safety. Over the past two decades, the U.S. has averaged approximately 2.5 million people injured on its roadways every year and motor vehicle crashes are the leading cause of teen deaths. Designing streets for pedestrians first makes our communities safer for people of all ages and abilities.

Enhance Local Business Districts. Compact communities with more businesses and residents create vibrant neighborhoods. Business districts thrive as more retail space is available and the people who live nearby evolve into a dependable customer base; residents have a reduced need to leave their communities in order to shop, eat, or play. HCDA will integrate existing light industrial and service businesses into the district.

Reduce Carbon Footprint. Per capita greenhouse gas emissions decrease when people are less dependent on cars. Households within transit-oriented communities also consume less energy per capita than households in auto-dependent communities.

Preserve Regional Open Space and Natural Resource Lands. Compact urban neighborhoods allow farms, forests, and coastline to be spared the intense pressure of development and be preserved for future generations. Reduced sprawl improves the health of the entire region.

Today, there are an increasing number of Honolulu residents who agree with Lewis Mumford's famous statement about cities: "forget the damned motor car and build the cities for lovers and friends." However, if the City and the region continue to accommodate the automobile as they do today, our streets will move fewer people over time, as buses are further slowed to a crawl by congestion and walking and bicycling become less attractive. The result would be a continued downward spiral with a degraded quality of life for everyone and a more vulnerable local economy with fewer economic opportunities.

of pedestrian and bicycle access to transit is largely dependent on factors controlled in the public street right-of-way. This plan recommends a policy hierarchy to guide transportation and prioritize transit access investments as the KCDD is redeveloped.

Figure 5-1 illustrates the modal priority that permeates the Kaka`ako TOD Overlay Plan transportation approach and direction on Complete Street design and development. HCDA and City/County investments in Kaka`ako streets will be based on the modal priorities represented in this graphic.

Complete Streets / Safe Streets

Moving forward, HCDA will plan a transportation system that is balanced, safe, efficient and equitable for all users. Of equal importance, the system must support the new development planned for the district and the vital civic life that will emerge with it. To do this, HCDA and its partners must adopt new principles for street design.

> *The safety and convenience of all users of the transportation system including pedestrians, bicyclists, transit users, freight, and motor vehicle drivers shall be accommodated and balanced in all types of transportation and development projects and through all phases of a project so that even the most vulnerable – children, elderly, and persons with disabilities – can travel safely within the public right-of-way.*

Chapter 6 describes in more detail principles, an approach and street types that will deliver on this vision.

Complete Streets Legislation

The State of Hawaii's Complete Streets policy, Act 054, states that, "The department of transportation and the county transportation departments shall adopt a complete streets policy that seeks to reasonably accommodate convenient access and mobility for all users of the public highways—including pedestrians,

Figure 5-1 Modal Hierarchy

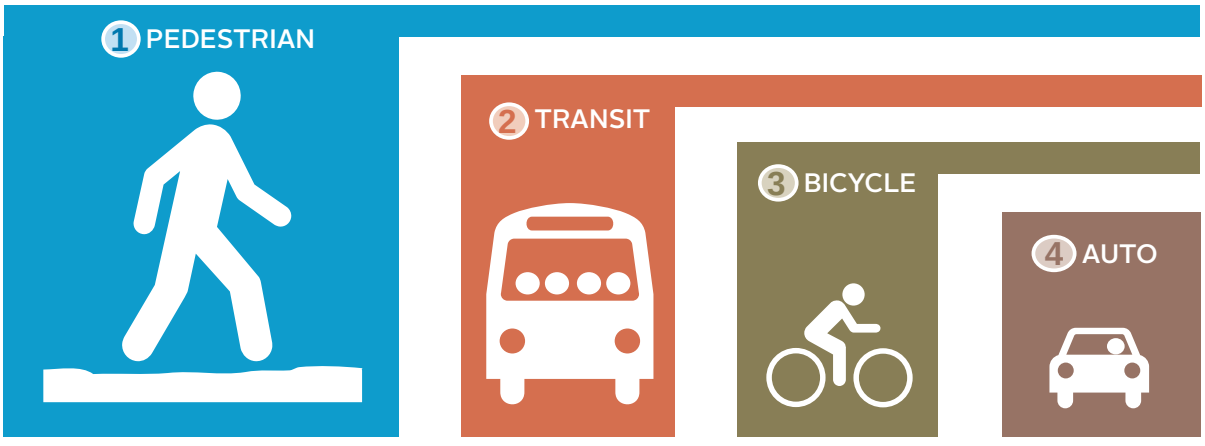
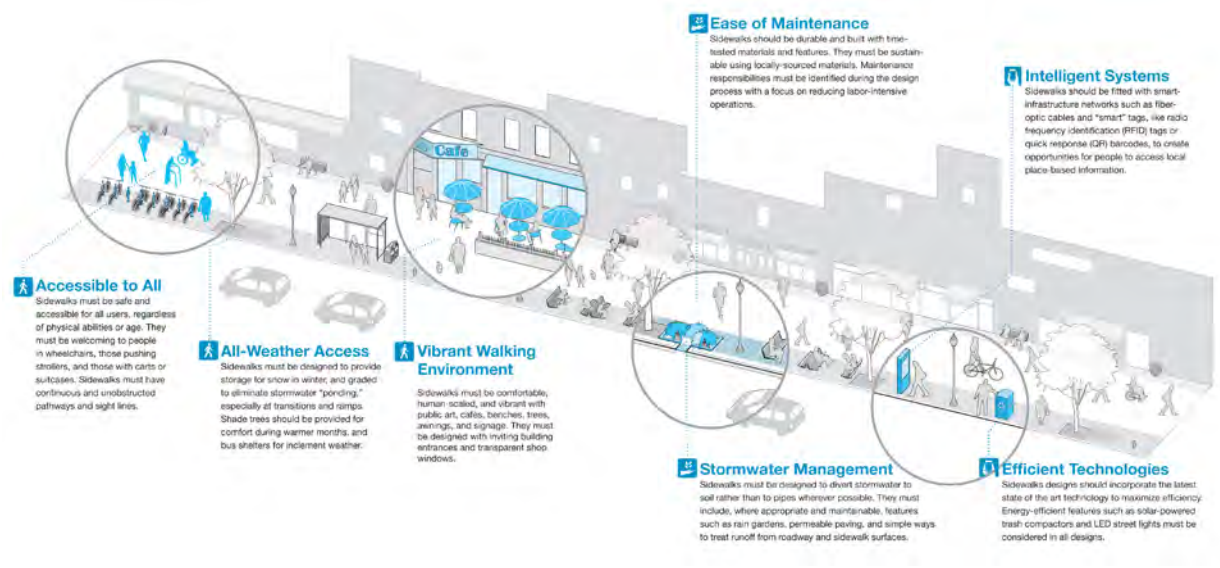


Figure 5-2 Pedestrian Elements of a Complete Street



bicyclists, transit users, motorists, and persons of all ages and abilities." This current legislation and the recently approved City and County Bill 26 warrant the design of complete streets in Kaka`ako and will ultimately assist in creating a balanced transportation system as prescribed in the PUC plan so that "streets are engineered to accommodate automobiles along with transit vehicles, bicycles and pedestrians."

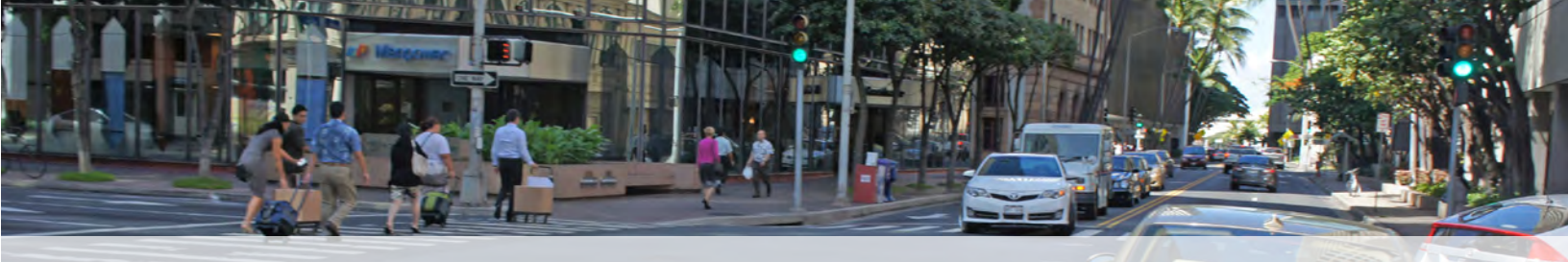
Current Transportation Systems and Use

The KCDD is positioned in the heart of urban Honolulu between the Downtown and Ala Moana Center; Waikiki lies just to the east. The district is flat with generally well connected grid of streets. There are three major Ewa-Diamond Head traffic corridors to the makai side of the H1 freeway; the Beretania/King couplet lies on the mauka side of the district, Kapiolani Boulevard runs through the district, and Ala Moana Boulevard, which is a State highway, bisects the district creating the HCDA mauka- and makai-side district designations.

Transportation and access in Kaka`ako is oriented toward automobile travel; however, there is excellent bus transit service operating through and on the outskirts of the district. The Hotel Street Transit Mall, the Alapai Transit Center, and the Punchbowl, King, and Ala Moana transit stops which is served by 13 bus routes, are among the busiest transit boarding locations in Honolulu. Other bus routes operate through the district on Queen Street, South Street, Ala Moana Boulevard, and Ward Avenue.

Walking is more prevalent at the western edge of the district given the proximity to Downtown. Protected bicycle access to the KCDD is limited, with the exception of the multiuse trail that runs on the makai side of Ala Moana Boulevard east of Ala Moana Park Drive.

Viewed through the lens of accessibility, no place in urban Honolulu is better positioned to accommodate dense urban growth while simultaneously enhancing the environmental, cultural, and civic offerings of the City.



Streets in Kaka`ako should not be one-dimensional. Streets should offer multiple user benefits and help to achieve TOD Plan goals.
Image from Nelson\Nygaard

TRANSPORTATION PRINCIPLES

The 10 principles listed below guide the mobility, access, parking, and transit access elements of the KCDD TOD Overlay Plan.

1. Measurement

Transportation is Not an End in Itself. Transportation is a set of investments to help us achieve KCDD community goals, and we should regularly measure how well the transportation system is meeting these goals.

2. Management

Transportation is a Limited Resource. Transportation and parking capacity are valuable assets that must be managed as a limited, renewable resource. We cannot build our way out of congestion. Instead, transportation and parking must be managed like water supplies: by implementing incentives to reduce demand, as well as increase supply, with a focus on the right level of availability at all times.

3. Street Design

Street Design Follows from Place and Function. Streets are designed and managed to support the places and neighborhoods they serve and to balance the needs of everyone who travels along them. While streets serve to accommodate movement, their design should follow first from what kind of place is being created alongside them.

4. Quality

Effective Transportation is More Than "How Far" or "How Fast." KCDD transportation choices are key to creating a high quality of life and a vital business environment, and these choices should be enjoyable for everyone who uses them and should reflect the different needs and desires of Honolulu's diverse population and visitors.

5. Public Space

Streets are Open Space. Streets are a primary component of Honolulu's open space and recreational system. The transportation system supports a vibrant social life. Streets are the largest publicly-owned land use and the biggest component of the City's open space network. In addition to their function as transportation facilities, sidewalks and streets also facilitate socialization and recreation on a neighborhood, community, and regional scale.

6. Energy

Transportation is the Solution to Energy Reduction. Heavily reliant on fossil fuels for its energy supply, Honolulu is looking to reduce its reliance on imported fuels. By focusing new development near transit, investing in TDM and ensuring local services are available within walking distance, KCDD and urban Honolulu can further reduce its impacts on the planet.

7. Public Health

Active Lives Benefit Everyone. Public health experts recognize that the best way for people to get regular exercise is to incorporate physical activity into their daily routines. Increasing the number of people who can safely travel by "active" transportation modes like walking and bicycling can significantly improve public health outcomes for KCDD and Honolulu residents. The health benefits of walking are especially important for seniors and children.

8. Affordability

Integration of Housing and Transportation Planning Creates New Opportunities. Reducing household transportation costs can make housing more affordable for everyone—especially by allowing families to eliminate a car by providing attractive alternatives to driving and more housing choices near transit.

9. Economy

Efficient Transportation Supports a Strong Economy. A healthy economy requires an efficient, balanced transportation system that optimizes the movement of people and goods. The transportation system must support KCDD's burgeoning entertainment scene while supporting the base of existing industrial businesses and commercial districts. A key transportation outcome is to place KCDD residents and employees within walking distance of their daily needs.

10. Safety

Safe Movement for Everyone, Everywhere, is Fundamental. The transportation system must be safe for all users at all times of day, regardless of age or ability, so that both *kupuna* and *keiki* feel safe crossing any street. The network also must accommodate the City's emergency response system.

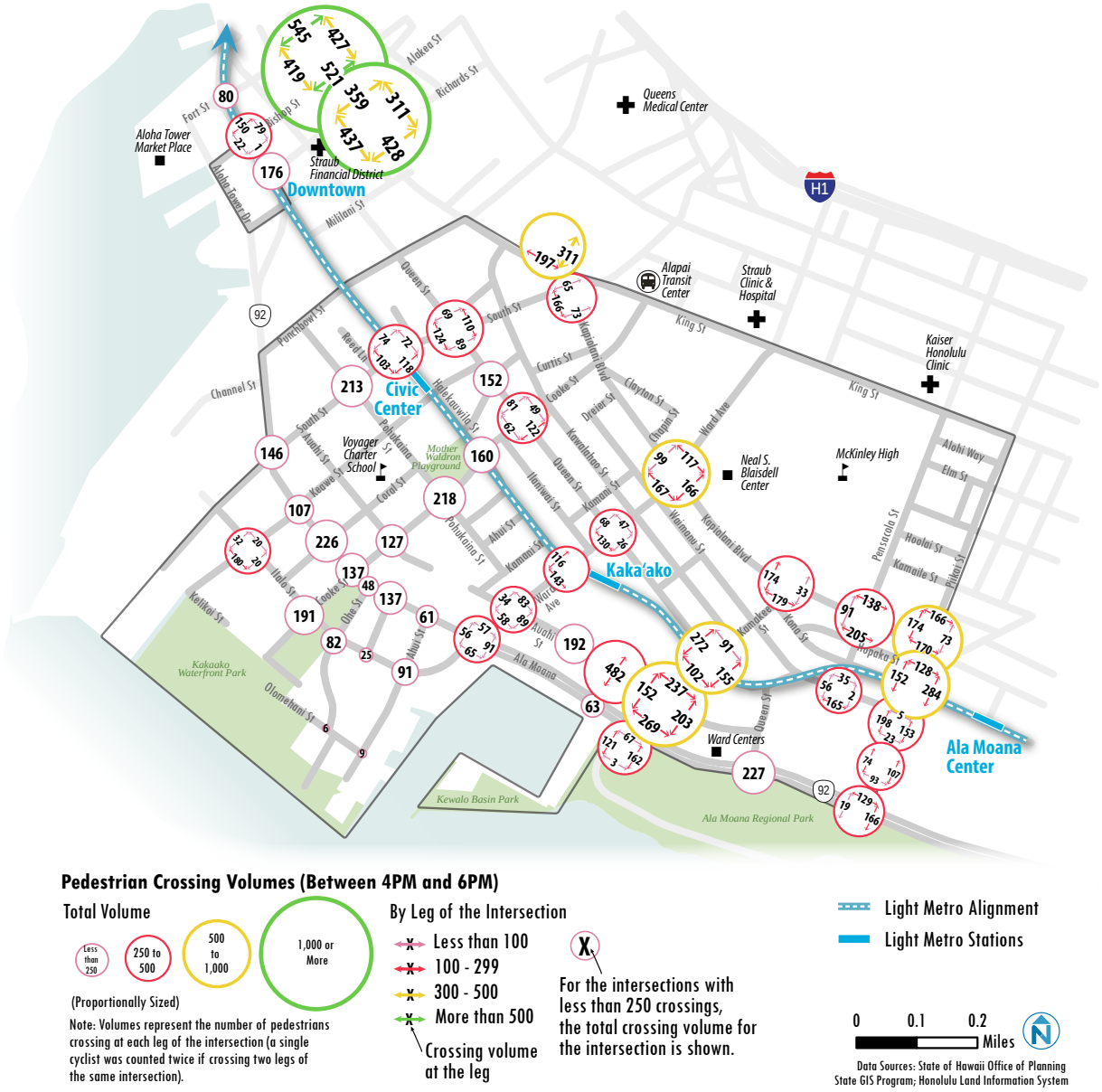
Mobility and Access in Kaka`ako Today

Pedestrian

Pedestrian traffic is low in much of the district, particularly compared to Downtown or Waikiki; many more people travel on foot on the western edge of the district adjacent to downtown and the government office areas. The highest level of pedestrian activity occurs near major transit stops (i.e., on Ward and Kapiloani) and in areas where there are higher concentrations of retail and services.

Figure 5-3 illustrates the level of pedestrian activity at more than 40 major intersections around the district during the afternoon peak period.

Figure 5-3 Pedestrian Volumes in the KCDD (2013 PM Peak Hours)



Transit

Figure 5-4 illustrates the current bus transit network operating in the KCDD as well as the proposed light metro alignment and stations. Actual average daily levels of passenger boarding by stop are indicated by the scaled circles; light metro ridership is average daily for the projected year of opening. The map indicates that while Ala Moana Boulevard is an important transit street, the majority of bus transit boardings occur along the northern edge of the district, particularly along King and Kapiolani. The largest boarding locations are at Punchbowl and King and at the Alapai Transit Center.

EXISTING PUBLIC TRANSPORTATION

Kaka`ako and the Greater Honolulu Area is interconnected with one of America's best transit systems. Ridership for The Bus has grown from 30 million passengers per year to approximately 71 million. It ranks in the top twenty for the most utilized transit systems in the nation.

Figure 5-4 Transit Service and Average Daily Boardings in the KCDD (2013)

PROPOSED LIGHT METRO STATIONS IN KAKA`AKO

The Honolulu Authority for Rapid Transportation (HART) is in the process of constructing a fixed guideway light metro system that stretches from East Kapolei to Ala Moana Center. The three transit stations adjacent to the end of the line (Ala Moana Center station) lie within HCDA development jurisdiction and influence the development of this TOD Overlay.

#18 Downtown Station *(at the Aloha Tower Special District).* This planned light metro station is located next to the Aloha Tower Special District including the Hawaiian Electric Company's downtown power station. The station will function as a connection between Aloha Tower and the Central Business District. A pedestrian overpass is part of the design for the station, which will play a significant role in safely moving people over Nimitz Highway.

#19 Civic Center Station. Located on Halekauwila Street between South and Keawe Streets, this station is adjacent to land that is part of Kamehameha School's Kalaulu O Kaka`ako Master Plan. A block away form the station is the historic Mother Waldron Park, which will be the beginning of Kamehameha School's planned park-to-park connection down to the Kaka`ako Waterfront Park and the Pacific Ocean.

#20 Kaka`ako Station. This station is planned to be located on property that is part of the Ward Neighborhood Master Plan. The site is positioned on the corner of Ward Avenue and Queen Street and will operate as the closest stop to Kewalo Basin Harbor, the Ewa side of Ala Moana Beach Park, the Diamond Head side of Kaka`ako waterfront and the Blaisdell Arena, Exhibition and Concert Halls.

Bicycle

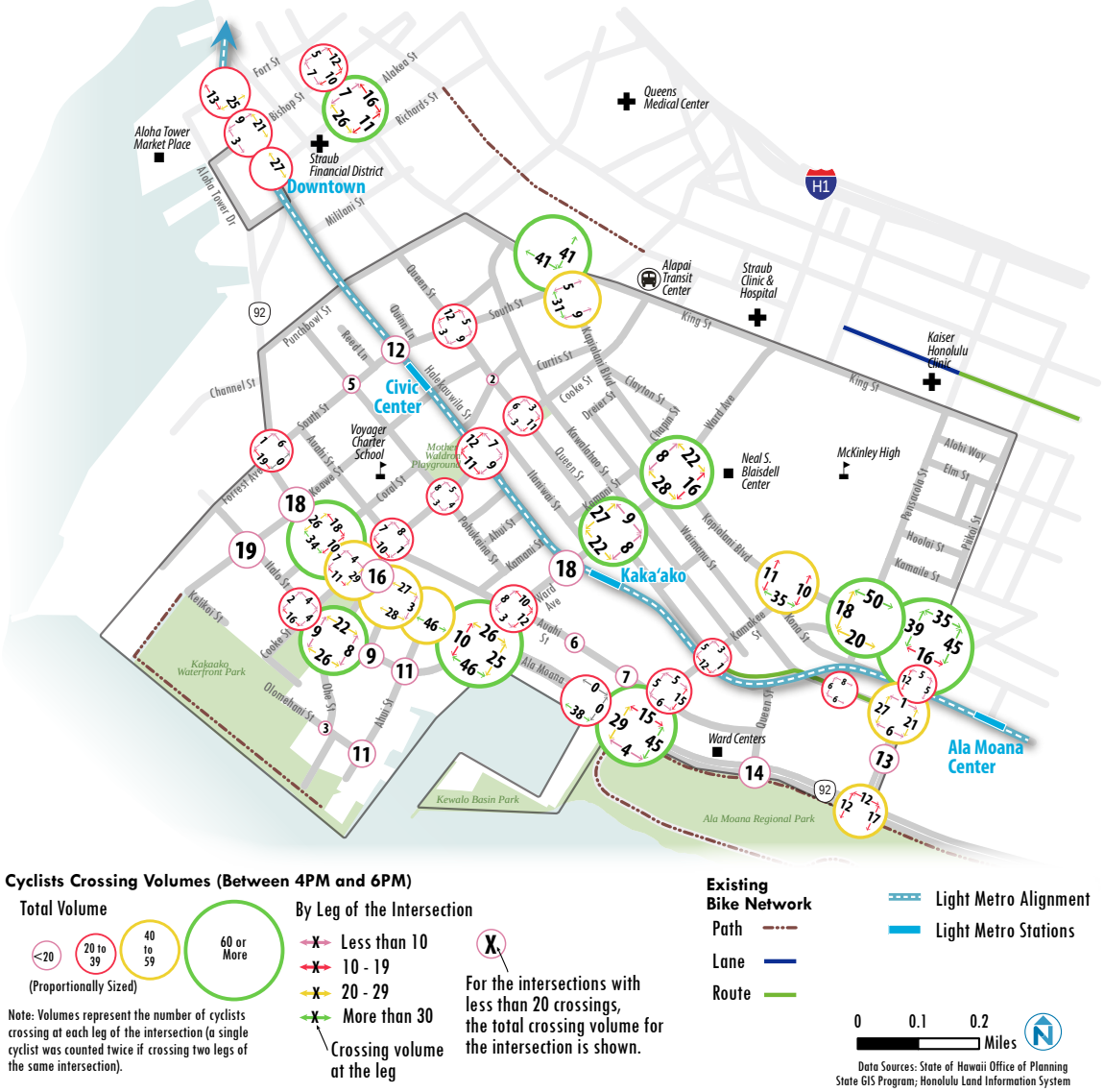
Relative to other U.S. and Canadian cities with well developed bicycle infrastructure, the rate of bicycle travel in the KCDD is relatively low. For example, a single intersection on a bicycle route on the fringe of San Francisco, Seattle, or Vancouver, B.C. downtowns might accommodate 600 to 1000 bicycles in a two hour peak period. Comparatively, the highest volume intersections in the KCDD have just over 100 bicycles entering the intersection between 4 and 6 PM. Bicycle volumes entering major intersections around the district during this time period are illustrated in Figure 5-5.

The highest volume of bicycle traffic occurs at:

- Intersections along Ward Avenue, particularly at Kapiolani, Queen, and Ala Moana
- Intersections along Ala Moana, including Kamakee, Ward and Coral. These are points where cyclists using the trail makai of Ala Moana might chose to cross
- Intersection of Kapiolani and Pensicola and Piikoi

The counts from which this data was derived did not track cyclists' use of the trail through Ala Moana Park, which is a popular cycling route.

Figure 5-5 Bicycle Volumes in the KCDD (2013 PM Peak Hours)

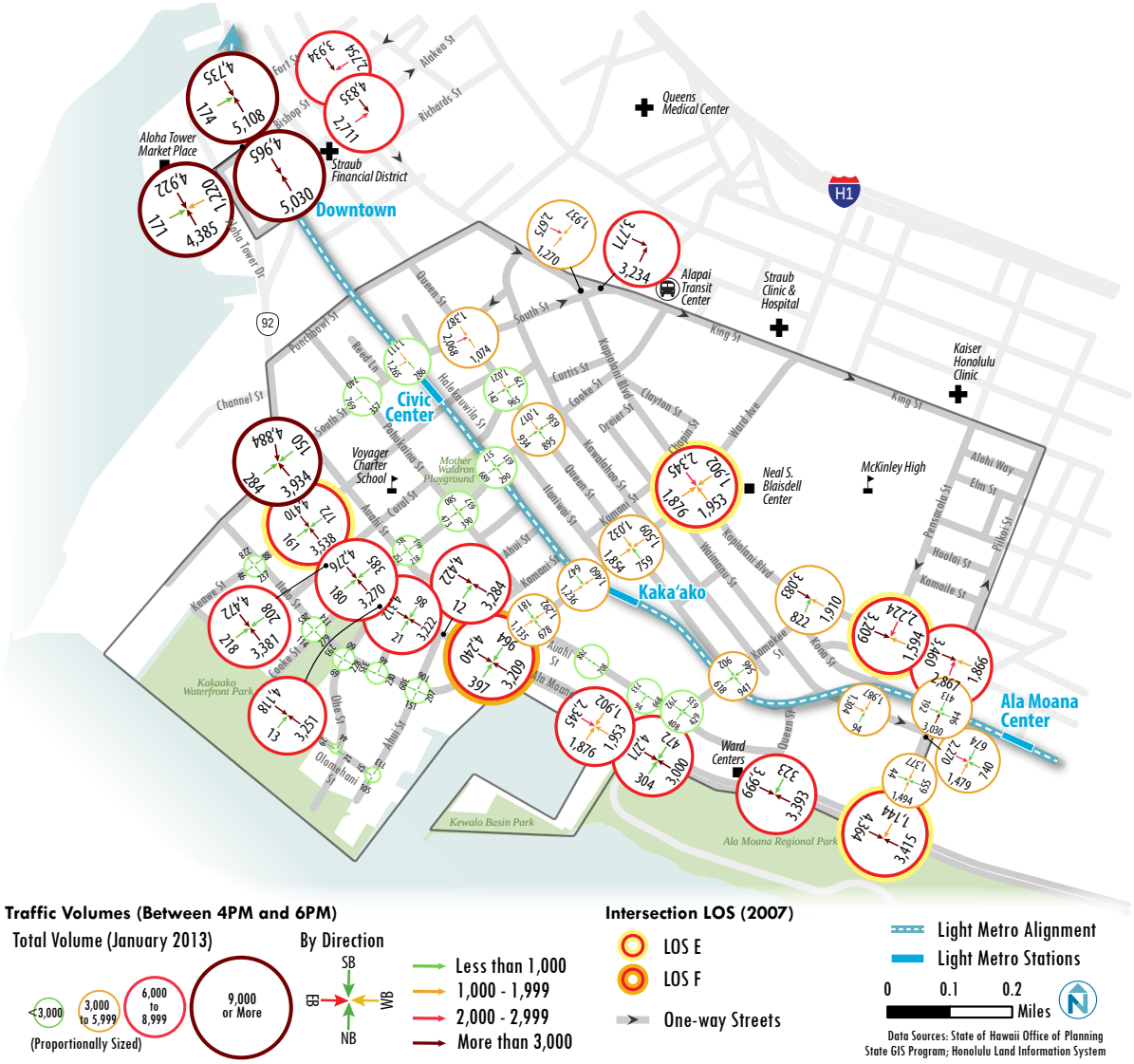


Motor Vehicle

Traffic volumes at over 40 intersections in the KCDD were counted during an average weekday in late January 2013. Figure 5-6 below shows the volume of vehicles entering each intersection during a two-hour period during the afternoon travel peak. The heaviest volumes of traffic occur on Ala Moana and along Kapiolani Boulevards. The map shows intersections where traffic delay is greatest, indicated by vehicle level of service (LOS) of E or F. These ratings indicated significant delay during the peak hours.

Truck traffic was also tracked during these counts showing that Ala Moana is by far the busiest route for large trucks moving through the district. However, even there truck traffic constitutes a low percentage of total vehicular traffic. Truck volumes account for only 2.9% of AM peak and 1.0% of PM peak period motor vehicle volumes on Ala Moana.

Figure 5-6 Traffic Volumes in the KCDD (2013)

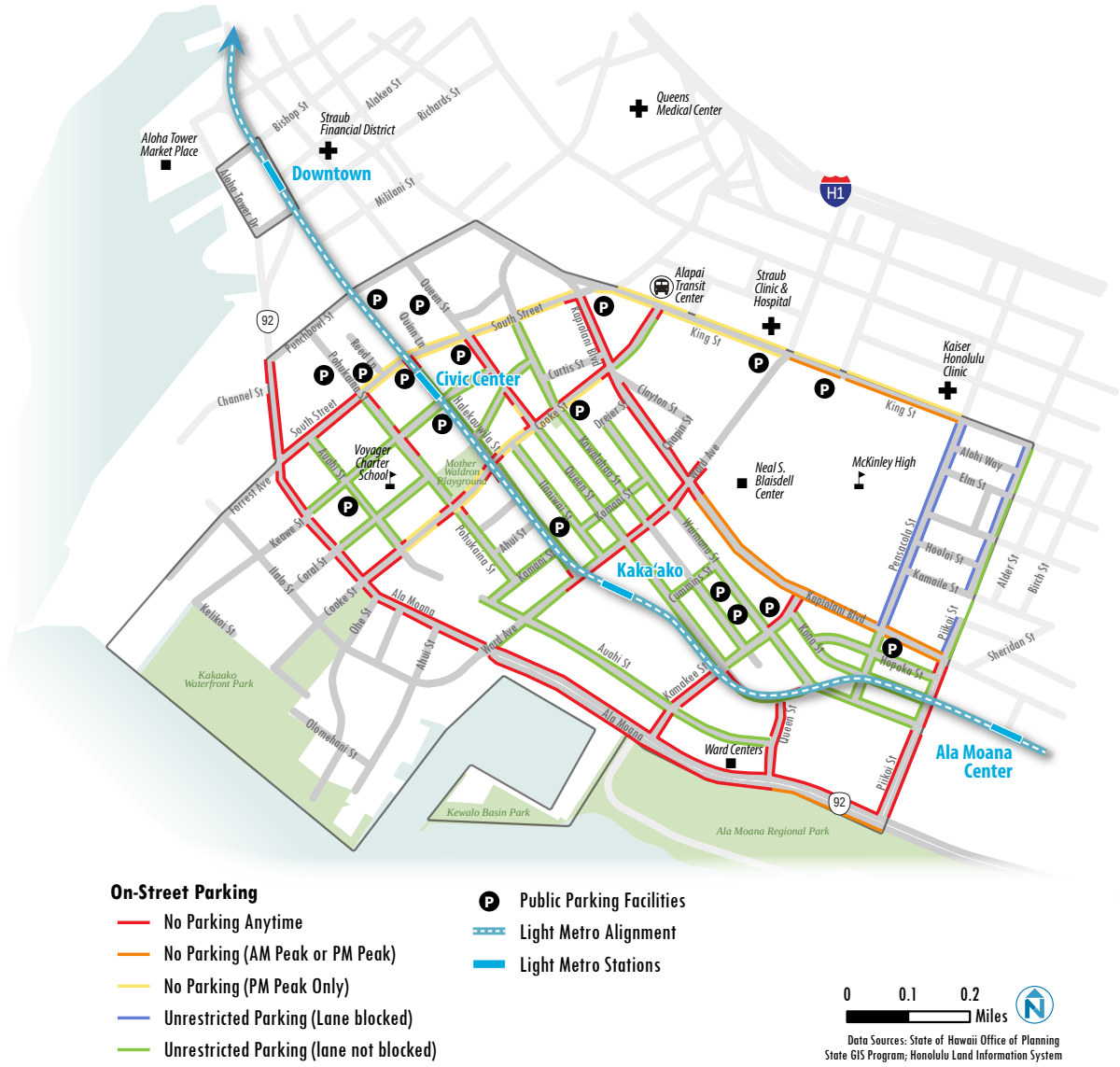


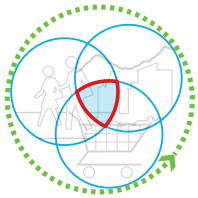
Parking

On street parking regulations vary from street to street in Kaka'ko. In some places curb parking is free and unregulated, in others there are time regulations, such as one hour time limits. There are also meters requiring parkers to pay during daytime hours. Several larger through-streets in the district prohibit curb parking entirely, or restrict it to off-peak periods. Figure 5-7 illustrates different curb parking treatments around the district. Unregulated on-street parking often fills to capacity early on typical weekdays by workers arriving to jobs in the district or parking for free in the district and walking to jobs in adjacent areas. There are 17 off-street public parking facilities including a large cluster of garages around the Civic Center area in the north-west side of the district. Under existing regulations, all private development must also provide a specified amount of off-street accessory parking.

Chapter 7 discusses parking management strategies for the KCDD.

Figure 5-7 Parking in the KCDD





Mobility and Access Strategies

As in other urban districts around the nation, Kaka`ako's streets have always served multiple functions. Earlier in the twentieth century, they were the primary component of transportation infrastructure, allowing people and goods arriving by boat to reach local destinations throughout the city. This led to vibrant, busy streets serving pedestrians, bicycles, streetcar transit, autos, and a number of other modes. As vehicle ownership and use increased dramatically in the second half of the twentieth century, the city had to accommodate the trend within the space for streets that had already been established.

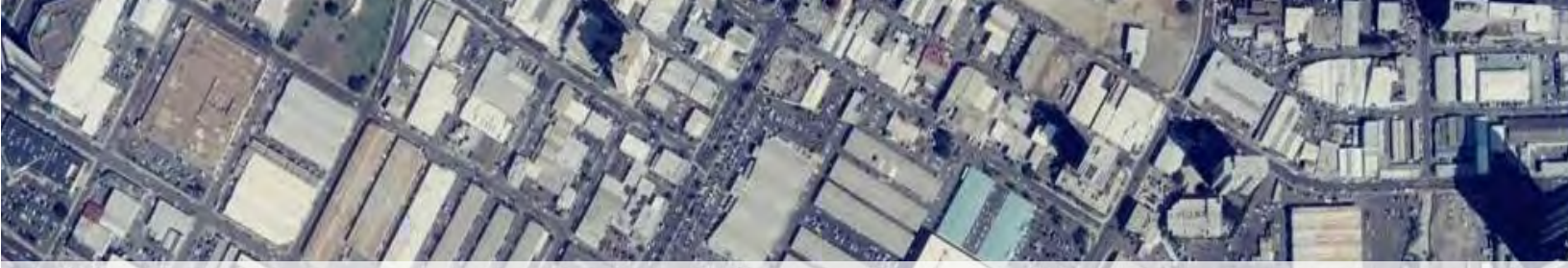
Over time, street design focused primarily on motor vehicle movement, and the emerging disciple of traffic engineering worked to safely integrate cars and trucks into pre–existing urban forms. While there were clear benefits to accommodating the automobile movement through the city, the negative effects have become increasingly evident over the last half century. The focus on automobiles has resulted in different forms of land development, namely emphasizing vehicle access (and not person access) to buildings and property, and has come at the expense of other uses of the street and other transportation choices.

KCDD TOD Overlay Plan builds on the Mauka Area Plan policy framework and proposes a comprehensive approach to the creation of a multi-modal transportation system that allows the Kaka`ako community to choose a different direction for its future and recreate a system of streets that balance mobility needs with the community-serving functions that streets have traditionally provided.

The TOD Overlay Plan treats the entire KCDD in a holistic manner as an integrated transportation management sphere with requirements for trip reduction, transit enhancements, pedestrian and bike improvements, shared parking and enhanced transit. Implemented simultaneously, these elements will result in walkable and bikeable streets, vibrant retail districts and enjoyable access for residents and visitors. In this approach, the KCDD streets are envisioned as verdant recreational corridors that contribute not only to mobility and accessibility, but to the District and City's overall public health.

The following sections identify strategies that will not only operationalize more efficient use of Kaka`ako's streets, but also ensure the district's streets establish a vibrant residential and commercial urban center while achieving broader community goals. Strategies are organized into two components—connectivity and the modal hierarchy established in Figure 5-1, and are supported by implementation-focused actions and regulatory changes.

Many of the strategies presented in the TOD Overlay Plan related to mobility and access are not the direct responsibility of HCDA and may require inter-agency coordination or partnerships to ensure implementation. In these cases, strategies appear as considerations and guidelines, rather than firm requirements.



Kaka`ako's street grid creates long block faces and skewed intersections. Future connectivity improvements will improve safety at intersections and reduce travel time for all modes.
Image from HCDA

CONNECTIVITY

A well-connected street network provides shorter travel distances and makes it possible for people to walk or cycle to transit services quickly and conveniently from the places they live, work, shop, and play, while also supporting walking and cycling as everyday transportation options on their own. When deciding whether to use transit, one of the most important factors people consider is the distance between their origin and a transit passenger facility (stop, exchange, or station) and again to their destination. What matters for the traveler is not the straight-line or 'as the crow flies' distance but, rather, the actual walking distance using the available streets and paths.

The Honolulu Brewery building on Queen Street is one of the few historic buildings surviving in Kaka`ako from the City's streetcar days.
Image from Nelson\Nygaard

In an area with long blocks and dead-end streets, the walking distance can be much further than the straight-line distance. Some destinations that are physically very close to a transit stop or station may still require a long walk. In contrast, a network that offers many closely-spaced streets with good connections between them shortens the walk to transit by providing more direct routes. While cyclists are not as sensitive to distance as pedestrians because they move more quickly, they are more sensitive than vehicle drivers, and so a well-connected street network also promotes cycling. In combination with a vibrant mix of land uses, a well-connected street network helps to create communities where many of the needs of daily life can be met within walking or cycling distance.

Given its flat terrain and historic platting, Kaka`ako has a relatively intact grid of streets compared with much of urban Honolulu. Mauka to makai block distances in particular are relatively short, enhancing the ease of navigation and walkability of the district. However, there are a number of large parcels and blocks that could benefit from a finer grained street network, or set of pedestrian connections.

Figure 5-8 illustrates intersection density in various parts of the KCDD.

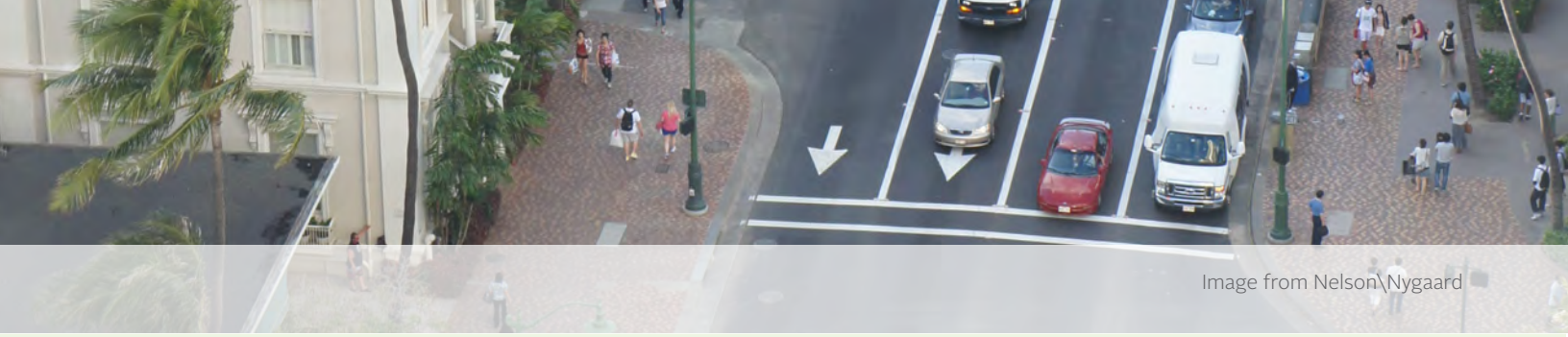


Image from Nelson\Nygaard

INTERSECTION DENSITY – PREDICTOR OF WALKABILITY

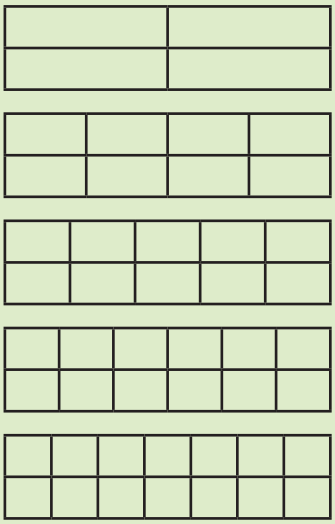
A recent meta-analysis researched and written by Professors Reid Ewing of the University of Utah and Robert Cervero of the University of California at Berkeley evaluated a number of factors thought to be predictive of people's choice to walk and bicycle in an urban setting. The results surprised many experts, pointing to Destination Accessibility as the top predictive factor. Destination Accessibility is the directness with which pedestrians and cyclists can reach destinations within a district or neighborhood.

As Ewing and Cervero put it: **'Almost any development in a central location is likely to generate less automobile travel than the best-designed, compact, mixed-use development in a remote location.'**

One of the best ways to measure this is by evaluating the number of intersections per square mile in an area or the granularity of the pedestrian infrastructure. Intersections are counted as a place where streets or pedestrian accessible paths, lanes, or alleys intersect. Intersection density is one of the measures used by LEED Neighborhood Design to rate neighborhoods and large developments. LEED ND assigns a top score to neighborhoods with 600 intersections per square mile. By comparison parts of Manhattan or Portland, OR have intersection densities over 1000 per square mile and suburban locations often have intersection densities in the range of 100 – 150 per square mile.

Since most people cannot visualize what 200 or 400 intersections per square mile looks like, the following relate these intersection densities in terms of block size:

- 140 intersections per square mile = 400' x 750' average block size
- 200 intersections per square mile = 400' x 350' average block size
- 300 intersections per square mile = 300' x 310' average block size
- 350 intersections per square mile = 300' x 265' average block size
- 400 intersections per square mile = 300' x 230' average block size



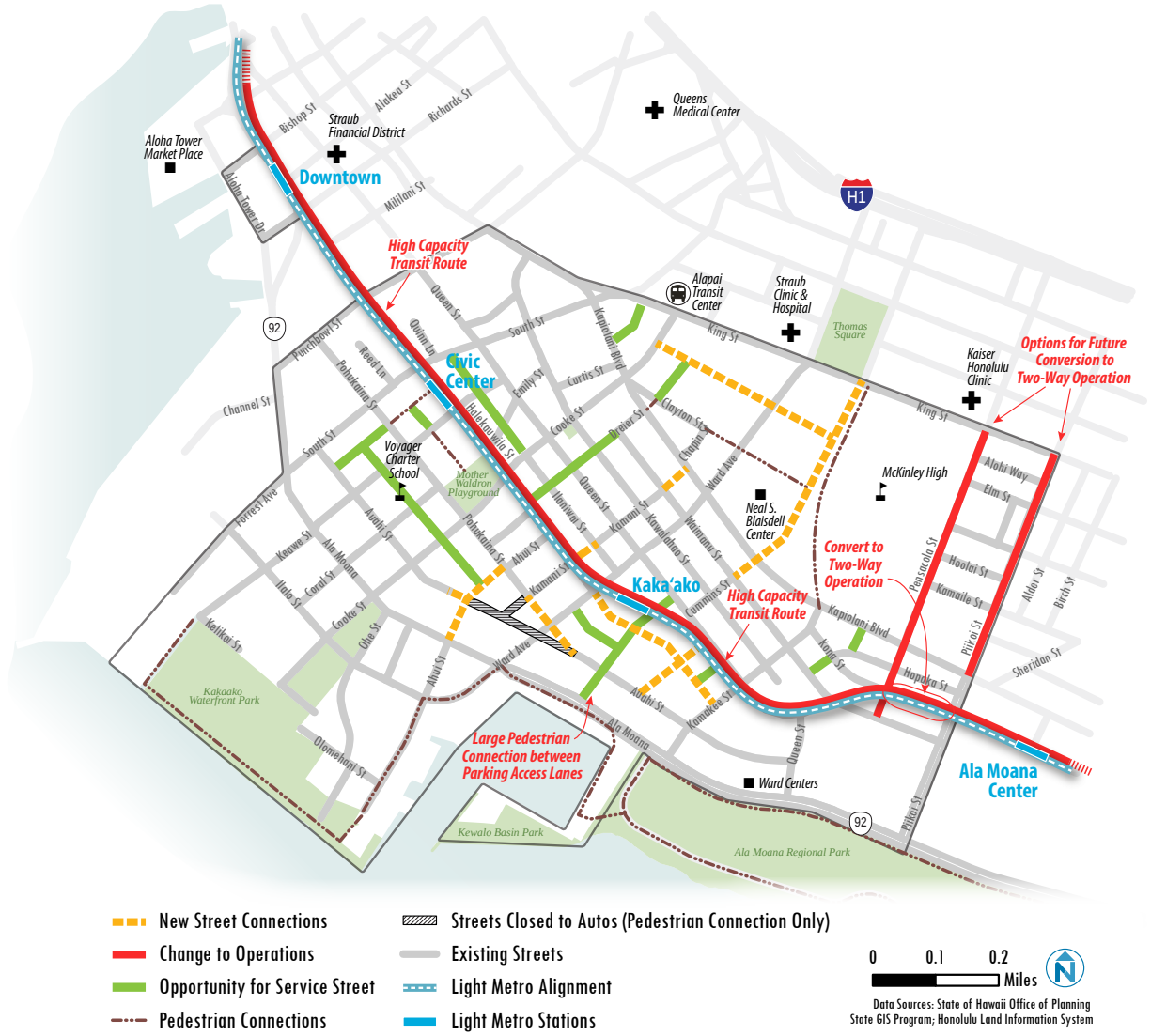
Source: Travel and the Built Environment: A Meta-Analysis. Reid Ewing and Robert Cervero. Journal of the American Planning Association, Volume 76, Issue 3, 2010.

Figure 5-8 Intersection Density in KCDD

Note: The following analysis only calculates intersection density for full street connections, not pedestrian and service alleys.

Redevelopment of large parcels within the district will improve network connectivity. Figure 5-9 provides guidance for HCDA when working with developers to subdivide large redevelopment parcels. This network connectivity concept builds on existing Kamehameha Schools and Ward Neighborhood master plans and suggests modifications and additional connections for autos, service vehicles, and pedestrians. Service streets refer to narrow street connections that provide access to off-street parking, delivery and loading needs, and limited amounts of on-street parking storage.

Figure 5-9 Current KCDD Street Grid and Potential Future Connections



MORE STREET CONNECTIONS PROMOTE WALKING, CYCLING, AND TRANSIT

Many researchers have found that higher levels of intersection density (i.e., more intersections) result in lower levels of overall travel by automobile and higher likelihoods of travel by sustainable modes. Schlossberg et al. (2006) used a student travel mode to school survey to show that higher intersection densities increased students' likelihood of walking by up to five times. Research from Ozbil et al. (2009) highlights the importance of street connectivity for transit users, specifically at the one-quarter mile distance from transit facilities, in increasing the likelihood of transit use.

Ozbil et al. (2009). "The Effects of Street Configuration on Transit Ridership." Proceedings of the 7th International Space Syntax Symposium. www.sss7.org/Proceedings/.../084_Ozbil_Peponis_Bafna.pdf

Schlossberg et al. (2006). "School Trips: Effects of Urban Form and Distance in Travel Mode." Journal of American Planning Association, 72(3), 337-346. www.pages.uoregon.edu/schlossb/articles/schlossberg_school_trips.pdf

The following specific strategies and actions will be implemented to improve street connectivity and the quality of the KCDD street grid.

Strategy MA1 Provide fine-grained street networks

Action MA1.1 Design block patterns to create a connected grid of streets that minimizes travel distances between points

Section 15-217-58-C (Thoroughfare Network) of the Mauka Area Rules regulates the subdivision of large lots to create a permeable network of streets and pedestrian ways. It provides direction on connections that will help to create a fine-grained mobility network in the KCDD.

Action MA1.2 Ensure that large developments provide internal streets and/or pedestrian connections that support the TOD Overlay Plan circulation network and which are permeable for public use by pedestrians, cyclists, and emergency vehicles

Increasing pedestrian connectivity is key opportunity as large industrial and commercial blocks are redeveloped with more urban uses. Section 15-217-58-C (Thoroughfare network) of the Mauka Area Rules regulates the division of large parcels. While the rules are sound they must be strengthened by requiring pedestrian oriented block sizes, encourage connectivity, and encourage mid-block service alleys.

The rules will require new street or pedestrian connections at minimum every 300 feet and by requiring that any new avenue or district street connect to the street grid on both ends (or be designed to provide that connection with further development phases) unless there is a compelling reason not to make the connection.

Both pedestrian streets shown above also provide mid-block access to parking facilities and are carefully designed to minimize the effect of auto access. This treatment eliminated curb cuts on the main street and allows enhanced pedestrian connectivity on these longer development blocks.
Images from Nelson\Nygaard

A pedestrian street in Boulder carries one-way traffic, includes a cycle track, and broad sidewalks. Brick treatment enhances the pedestrian zone.
Images from Nelson\Nygaard

HCDA may require through-block pedestrian connections when a substantial portion of a block is developed with commercial projects or when the ground floor uses are largely commercial. In cases where adequate lot size exists to develop two commercial projects on a block, a through block pedestrian connection will be required. Connections will be required at mid-block and have a minimum clear dimension of 20 feet both horizontally and vertically.

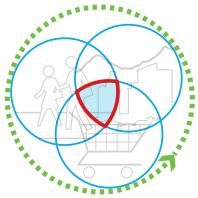


Figure 5-8 provides examples of intersection density in parts of the KCDD. Overall, the district currently has an average intersection density of 134 intersections per square mile (vehicular intersections only).

Requiring Kamehameha Schools, Ward, and major parcel subdivisions to achieve a minimum intersection density of 300 per square mile will ensure that a fine grained street network is developed. Intersection density measures will include well-designed pedestrian ways, shared streets, and service alleys that are adequately designed to provide pedestrian passage through a development.

Action MA1.3 Design surface lots in the interim for efficient and comfortable pedestrian movement

Because redevelopment takes time to occur, existing surface parking lots will be designed to include dedicated provisions for safe and direct pedestrian circulation, including adequate lighting, shade trees, internal walkways, crossing facilities (including raised crossings), and pedestrian priority paving treatments. Where larger areas of surface parking exist, introduce a street and block pattern within parking lots to enhance pedestrian access and enable the introduction of streetscape treatments.

Strategy MA2 Plan for coordinated, multimodal transportation networks

Action MA2.1 Classify streets by their level of priority for vehicle, transit, and goods movement, and also for bicycle and pedestrian travel, and apply street design and performance standards to match these levels of priority

The remainder of this chapter describes the priority street network and linkages for each major mobility mode. These priorities are not street classifications in themselves, but a method to consider how network needs for each mode within the proposed street grid and how those interact with other

CLASSIFYING MULTIMODAL STREETS

Under the conventional approach, or functional classification, streets are defined by the degree to which they emphasize through-movement versus local access. Arterial streets are designed primarily for through-movement, local streets are used primarily for local access to property, and collectors are used to connect them.

In cities that take a more multimodal, 'complete streets' approach, streets have a bigger role than just moving traffic. In addition to providing for the movement of all road users – including pedestrians, bicycles, transit vehicles, and goods – such streets provide access to adjacent land uses, accommodate utilities, and serve as a vital part of the neighborhood by offering open space for socializing and recreation.

There are four key elements of street design that are useful to understand and consider when classifying streets:

- Land use context
- Priority for the movement of each mode
- Relationship to other streets in the network
- Available right-of-way

In places where the functional classification system still dominates, a simple way to transition toward a more multi-modal classification system is to identify how street types fit in with land uses. This approach can help to break down rigid street types such as arterials into the types of urban environments they are likely to pass through, and consideration can be given to customized treatment of the roads (e.g., through special overlay designations) within those particular contexts.

More detail about street design and performance is provided in Chapter 6 – Complete Streets.

modal priorities and adjacent land uses. Chapter 6 – Complete Streets – considers these priorities in assigning KCDD street classifications and providing design guidance.

Strategy MA3 Manage delivery and parking access to reduce conflicts with pedestrians and optimize the efficiency of the street network

The existing Mauka Area Rules provide a good regulatory structure for reducing the impact of parking access, loading, and other service uses on the quality of the pedestrian environment and the functionality of district streets. The following proposed actions support and enhance the existing rules.

The shared street that evolved through the development of an older warehouse district in NW Portland became a favorite of locals, so much so, that the street character was replicated for new development fronting the street. These photos show a historic area in the neighborhood and more recent development.
Images from Nelson\Nygaard

Action MA3.1 Designate parking access and loading streets and require developers to provide ingress and egress from minor local streets

Section 15-217-63-B (Parking Access) of the Mauka rules requires parking access be located in the following priority order if feasible:

- From an alley
- From a designated parking access street
- From any available alternative parking access street

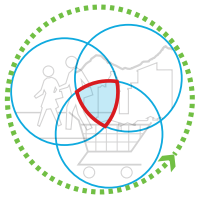
The rules provide developers an opportunity to submit an alternative access plan. As part of the alternative access plan allowed in the rules, cross-over easements will be allowed to expanded access to parking. These rules will be applied throughout the district and alley or parking access street entry/egress will be required on development sites large enough to require new alley/service streets.

Section 15-217-63-L (Loading Access) restricts loading zones on thoroughfares and promenade streets. This Plan recommends that these restrictions be updated to include boulevards and avenues (as defined in Chapter 6), particularly those designated for bicycle or high frequency transit uses.

See Chapter 6 for proposed locations and design guidelines for parking access and service streets.

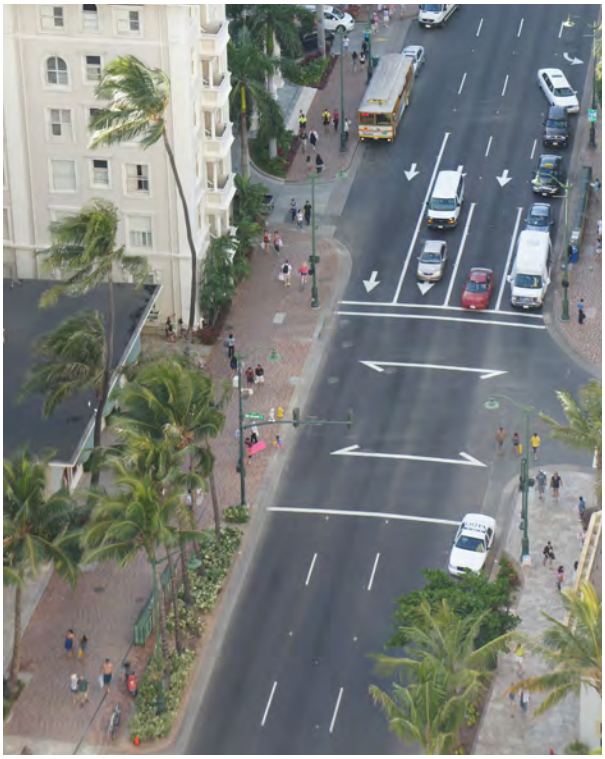
Action MA3.2 Encourage design that minimizes curb-cuts on all streets, particularly for high volume uses such as parking garages

HCDA can limit the number of curb cuts that provide driveway access on Commercial Boulevards, Commercial Avenues, and District Streets (conceptual street types; see Chapter 6). This will ensure access to off-street parking lots and structures is focused on lower speed Local Streets, whose main function is to provide access to parking. This strategy will reduce conflicts with pedestrians and cyclists and strategically and efficiently focus search-for-parking traffic. On top of the safety benefits of managing driveway access, this strategy will have ancillary capacity benefits for Commercial Boulevards and Avenues as well as District Streets by reducing delay from vehicles slowing to enter or exit a driveway.



- Establish maximum curb cut widths for driveways and parking facility entrances to minimize the impacts to the pedestrian realm and to create more consistent walking paths.
- Orient parking garage access points toward side streets or alleys to reduce the potential for conflict between cars and pedestrians on busy streets.
- Restrict the frequency of curb cuts by establishing maximum driveway density standards.

Section 15-217-63-C (Curb Cuts) of the existing Mauka Area Rules requires developers to minimize curb cuts to the minimum practical extent. Prohibitions on curb cuts for drive through facilities such as banks and gas stations will be set for all boulevards and avenues. No driveways used to approach or queue for such facilities will be allowed.



On Kalakaua Avenue in Waikiki, limited curb cuts and wide sidewalks help create a world-class pedestrian environment.
Image from Nelson\Nygaard

Strategy MA4 Make walking and cycling access to frequent transit as direct as possible

The distances people are willing to walk to transit vary depending on length and purpose of the trip and quality of the pedestrian environment, as well as on weather, topography, and demographics. Generally, people will walk further to access limited-stop transit services than local service and further still for light metro services. Paths of travel to and from transit passenger facilities must be as direct as possible, both to minimize the distance people are required to walk to transit and to maximize the number of people who have convenient access to it.

The network walk distance map on page 5-8 illustrates the network walk times for pedestrians using sidewalks to access stations in the KCDD and adjacent neighborhoods.

Strategy MA5 Implement a coordinated multimodal wayfinding program

Wayfinding strategies seek to efficiently coordinate movement within the district, pointing users of all modes of travel to the best access routes for their destination. Wayfinding can direct visitors, shoppers and residents to parking facilities, retail establishments, pedestrian and bicycle access routes, and other important destinations. Wayfinding represents an important part of a comprehensive circulation and parking management strategy, improving the customer-friendliness and expanding connectivity by improving network legibility.

> Kaka`ako can be a more competitive and attractive locale if spatial information depicted in wayfinding systems can accurately represent the image of the district to residents, workers, and visitors.

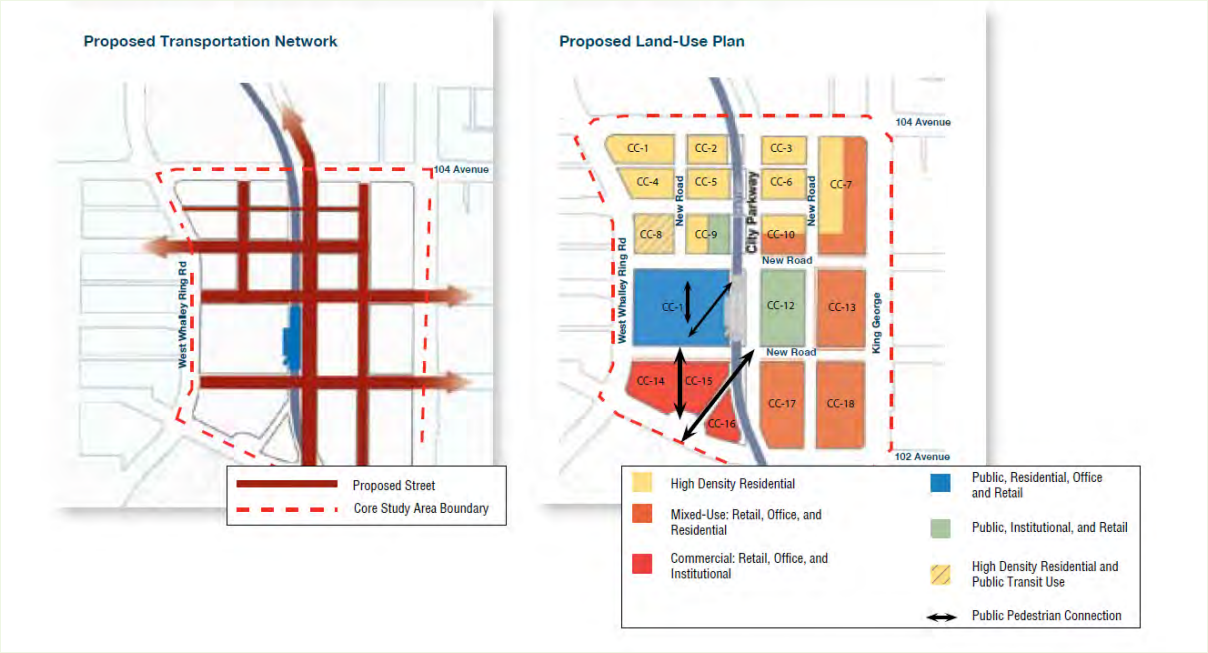
HCDA, in coordination with local partners, will establish a coordinated multimodal wayfinding program for the district using a single brand for all modal wayfinding signs. This program will help to orient visitors, highlighting key destinations and paths of travel for all modes of transportation. A key to success will be consistent signage and symbology across modes and throughout the district. A wayfinding program can be tailored to specific groups depending on contextual factors and

PROVIDING FINE-GRAINED CONNECTIONS IN SURREY CITY CENTER, VANCOUVER BC METRO AREA

Surrey City Center is a major urban development area in the Vancouver British Columbia metro area and is expected to attract significant amounts of new development over the coming decades. The City of Surrey has been redeveloping their City Center as a more pedestrian- and transit-oriented urban community that acts as a hub of activity south of the Fraser River. A key aspect of the planning framework is breaking down the current 'superblock' street pattern into a more fine-grained grid and reducing the average block size in the area from 1300 feet to a more pedestrian-oriented 300 – 500 feet. This change will be accomplished by adding three new east-west streets and two new north-south streets, providing significant enhancements to pedestrian, cyclist, and vehicle circulation while also creating efficient and practical development parcels.

New streets will be designed to have downtown-scaled sidewalks to support pedestrian movement. New signalized crosswalks will be added at existing and proposed intersections, and a minimum of one additional crossing of King George Boulevard will be added to improve access to retail services located on the east side of the main arterial. Bicycle access will be provided through the City Centre by way of a greenway, which will connect to the existing bicycle network, rapid transit stations, and local destinations.

The City Centre Plan focuses growth and development around the Surrey Central SkyTrain Station and civic plaza to optimize door-to-door travel times and provide a focal point for transportation and community activity. The orientation of a City Hall and public library toward transit – in combination with the integration of signage, public art, and distinctive public realm design in the plaza – will contribute to reducing perceived distance to transit.



desired outcomes; however, these tools are most relevant and important for those unfamiliar with the area. Wayfinding informs people of the best way to reach key destinations and transportation nodes/facilities, depending on their mode of travel, using factors like time, comfort, destination access, and even pedestrian cut-throughs.

A well-designed wayfinding sign in Portland, OR.
Image from Nelson\Nygaard

Action MA5.1 Establish a wayfinding program and study needs

The district will establish a formal wayfinding program, with staff time dedicated to the effort. It will begin by undertaking a detailed study of current wayfinding needs in the district and outlining a comprehensive program to meet these needs, addressing all modes of transportation. The needs assessment and overall strategy must be updated on a regular basis as development occurs.

Action MA5.2 Implement a wayfinding strategy

Once needs are understood, the district can implement a comprehensive wayfinding strategy that addresses all modes of transportation. This strategy may include both static elements, including signs and maps, and, where needed dynamic elements, such as real-time transit arrival and/or parking availability information. In addition to providing information signage will be designed to support a sense of place in the district, including design elements that are culturally relevant to Kaka`ako. The strategy must also take care to provide relevant information to people of all abilities, including those with mobility and visual impairments.

- **Bicycle and Pedestrian wayfinding: Maps, directional signs, and other elements will be provided highlighting safe bicycle and pedestrian paths of travel to key destinations.** Signs for pedestrians and bicyclists can direct those on foot or on bike to the safest bicycle and pedestrian routes, as well as the location of bicycle parking spaces, showers, changing facilities, and other bicycle and pedestrian amenities.
- **Transit: Sign and maps will be provided, particularly at and around stations and key stops.** Real-time transit arrival information will also be provided at the highest-demand stations and stops.
- **Parking: Parking signs can direct motorists to underutilized off-street facilities, freeing up the most convenient "front-door" curbside spaces, and maximizing the efficiency of a parking system.** Where needed, dynamic parking signage can also display real-time availability data, pointing motorists to facilities with available spaces.

Image from Transport for London

Image from Transport for London

MAKING CITIES LEGIBLE WITH MULTIMODAL, INFORMATION-RICH WAYFINDING

Image from Transport for London

Cities around the world are investing in high quality multimodal wayfinding programs to remain competitive as tourist locations and make their streets more legible for residents and visitors, alike. Transport for London's (TfL) *Legible London* is a map-based multi-user information system to help people navigate the city on foot and by bicycle and to improve walk time to transit and local destinations. It includes continuously updated, scaled, digital base maps and signs, which replace often inconsistent and redundant signs. Research found that people were relying on the tube map, which is out of scale, so it seemed destinations were farther by foot than they actually are. *Legible London* was developed by Transport for London in collaboration with the Central London Partnership, the Greater London Authority Walking Advisory Panel, local borough councils, and the New West End Company – a partnership of businesses in London's West End shopping neighborhood. Legible London includes a continuously updated digital base map, made available for many uses and to developers and others for installing anywhere. The maps and signs are intended to replace inconsistent and redundant signs installed by various entities across London. The program had five primary objectives: (1) increase the number of people walking in the city; (2) build confidence among pedestrians; (3) reduce the amount of clutter in the pedestrian environment; (4) improve the perception of walking in the city; (5) and reduce journey times.

Image from NYC DOT

New York City's new wayfinding system (near implementation) takes *Legible London* a step further by reinforcing the multimodal, and often intermodal, nature of the city and the need to accommodate directional information to different street users. The NYC system offers different directional sign types for different users (including people walking to transit or destinations within the neighborhood as well as people bicycling between destinations and neighborhoods) and layers multimodal and destination-based figures into information rich maps.

PEDESTRIAN

Walking

The Role of Walking

From walking the dog, to strolling to the beach, to getting to work or school, to running to the corner store for that last ingredient for a recipe, walking is the foundation of the transportation and civic life in KCDD. Walking is important for many reasons:

- **Walking supports the whole transportation system.** Every trip begins or ends as a pedestrian trip, whether it's getting from the bus stop to the office or from the store to the parking lot. A complete, high-quality pedestrian network is necessary to make all aspects of the transportation system function well. In particular, the success of the transit system is dependent upon high-quality walking routes to and from transit stops and stations.
- **Walking provides active recreation and promotes healthy lifestyles.** Walking is the most common recreation activity among Honolulu residents and visitors. This is especially true for children and seniors. Providing spacious sidewalks and pedestrian promenades lined with landscaping, public art, and interpretive design can encourage recreational walking in Kaka'ako, attracting visitors to the district and promoting active, healthy lifestyles for residents.
- **Walking provides a no-cost transportation choice.** Walking is the lowest cost form of transportation. Combined with a mixed-use pattern of development, better walking conditions accommodative of all ages and abilities can improve opportunities for disadvantaged populations by reducing the share of household income that must be spent on auto ownership and operation.
- **Walking promotes a vibrant economy and supports local retail.** Although less than one-quarter of KCDD's land use will be retail, providing connected, walkable and pleasant streets can catalyze and support lively retail streets. Compact, accessible, and mixed use districts foster employment, economic productivity, and tax revenues.[1] Property values begin to rise as neighborhoods become more pedestrian-friendly and increase access to goods and services.[2] Pedestrian-friendly design also strengthens the retail market. Studies have shown increases in sales tax revenue up to 30% in commercial areas retrofitted into pedestrian-oriented districts.[3]

> "There comes a time when people listen to their hearts and feet, getting back to the fundamentals leading to the basic qualities of health, vitality, security and life. All good towns—towns people are in love with—are based on walkability. Everything else comes second. Everything."
>
> —*Dan Burden*

Despite the importance of walking for the life of the District, Kaka`ako today lacks many of the basic elements of pedestrian infrastructure and amenities necessary to unlock the benefits detailed above. Developing a high-quality pedestrian environment in the KCDD is critical to meeting the goals of a lively, active, and transit-oriented community.

1 International Economic Development Council (2006), *Economic Development and Smart Growth: Case Studies on the Connections between Smart Growth Development and Jobs, Wealth, and Quality of Life in Communities*, www.iedconline.org/Downloads/Smart_Growth.pdf.
2 Mark Eppli and Charles C. Tu (2000), *Valuing the New Urbanism; The Impact of New Urbanism on Prices of Single-Family Homes, Urban Land Institute*.
3 Local Government Commission (2001). The Economic Benefits of Walkable Communities. Fact Sheet. http://www.lgc.org/freepub/docs/community_design/focus/walk_to_money.pdf

The Pedestrian Network

Every street in Kaka`ako must be a pedestrian street, first and foremost. Different types of streets play different roles in the district. Figure 5-10 illustrates where pedestrian design and investment are prioritized as the district develops and the TOD land use alternative is realized.

- **Primary** pedestrian priority streets are those that connect key destinations in or adjacent to the district, including light metro stations, and that will ultimately support active street front uses such as retail stores,

What is missing from this Kaka`ako scene? People. A great walking district will bring life to the streets.
Image from Nelson\Nygaard

Figure 5-10 Pedestrian Priority Streets in the KCDD

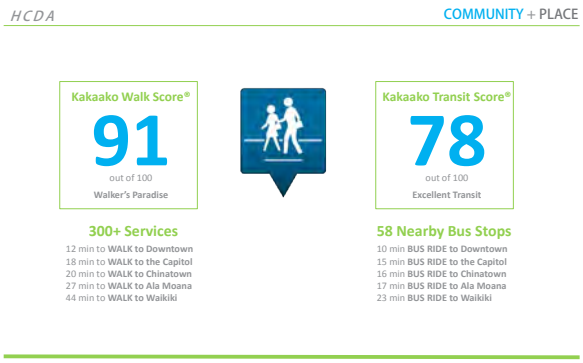
public plazas, and entertainment venues. These streets require spacious sidewalks and a high level of pedestrian amenity.

- **Secondary** pedestrian priority streets are those that do not provide direct connections to major destinations or have very high traffic volumes. While these streets may never be ideal for walking along for long distances, they must still be safe enough to accommodate walking, and they should be easy and safe enough to cross that they do not serve as a barrier to pedestrians.
- **Low speed** streets are generally service streets that may have narrow widths and where pedestrians and traffic may even be asked to mix in a shared right-of-way. Note that the term "low speed streets" should not be interpreted to suggest that high-speeds are promoted anywhere in the KCDD.
- **Greenway** connections are streets where there is opportunity to connect parks, greenspace, and public plazas with well-landscaped, shaded, and interesting walking routes.

The following strategies, in addition to those presented in Chapter 6 – Complete Streets - support the development of the KCDD as a highly walkable urban district.

Strategy MA6 Create a well-connect pedestrian network

Walkability begins with a well-connected street network. Short blocks and more intersections allow pedestrians to reasonably direct paths. Because people walking move much more slowly than people driving or riding bicycles, direct paths of travel are essential for allowing walking to be a viable mode of transportation. Street network connectivity is addressed in detail in the Connectivity section of this chapter.



Strategy MA7 Ensure that walking is safe and comfortable for everyone, everywhere in KCDD

Streets in Kaka`ako should be built and managed to prioritize the safety and comfort of pedestrians. The following actions will be necessary to create such an environment. HCDA will elaborate on these actions when it develops a set of Complete Streets Design standards.

Action MA7.1 Develop standards for safe and comfortable sidewalks and pedestrian crossings

HCDA will establish standards for high-quality pedestrian facilities in Kaka`ako. Important elements to consider will include:

- **Sidewalks and pathways: HCDA will build into its future Complete Streets Design Standards a set of standards for gracious sidewalks that invite pedestrian travel.** Attention to detail is vital in the design of the pedestrian environment: The most comfortable and functional sidewalks

have five zones that vary according to the street's land uses and pedestrian volumes: frontage, throughway, furnishing, edge, and extension zones. Each of these zones will be sized appropriately, according to land use context. When considering sidewalk width, standards will be set with attention to both forecasts density and land use context, so that sidewalks to accommodate existing and expected future pedestrian volumes.

- **Street crossings: Most pedestrian collisions occur when pedestrians are crossing a road.** To minimize the risk of collision and encourage walking by people of all ages and abilities, design standards will address signal timing and design; crosswalk placement and visibility; curb ramps; curb radii; sight lines; traffic calming, and illumination. Design standards will ensure that pedestrian crossings are also frequent and well-located relative to pedestrian desire lines, reducing the incentives for pedestrians to cross elsewhere.

Chapter 6 provides additional guidance on the basic principles of pedestrian design along and across the street.

An urban street alive with pedestrians in Chicago, IL.
Image from Nelson\Nygaard

Action MA7.2 Apply Universal Design principles to ensure that Kaka`ako is accessible to people of all ages and abilities

The public realm in Kaka`ako must be accessible to people of all ages and abilities. In designing streets, HCDA must take steps to ensure that all pedestrian facilities are fully accessible to people with limited mobility (including those using mobility devices), as well as people with visual, hearing, and intellectual impairments. Accessibility in public facilities is a requirement of the Americans with Disabilities Act. In addition, with an aging population, providing for people with disabilities will be increasingly important, both to providing for the needs of local residents, and for accommodating visitors to Kaka`ako. In Kaka`ako, providing for Universal Access will require the following steps:

- **Encode the principles of Universal Design into KCDD streets when Complete Streets Design Standards are developed.** Standards

Pedestrian countdown signals can assist help make crossing safer.
Image from Nelson\Nygaard

will consider issues such as curb ramp design and placement; minimum widths for sidewalk throughway zones; accessible bus stop design; signage placement and design; and time signal time allotted for pedestrian crossings.

- **Inventory the district and prioritize the highest-priority areas for remedial treatment of accessibility problems.** Development of street design standards will ensure accessible sidewalks are provided with future development. However, the district currently has many areas where accessibility is lacking, including missing curb ramps and sidewalks. Focusing on maintaining paths to transit and other important destinations, HCDA will coordinate with partners to create a prioritized list and funding plan for addressing accessibility issues in the near term.

Accessible curb ramp.
Image from San Francisco Department of Public Works.

Action MA7.3 Develop a district-wide traffic calming plan

Slower vehicle speeds lead to fewer and less severe collisions with pedestrians. Generally, when a vehicle is traveling less than 18 mph, it is very unlikely to cause a fatality in the event of a collision. Slower vehicle speeds also improve the feeling of comfort and safety for pedestrians. A traffic calming program will be established to manage vehicle speeds in strategic locations to speeds that are consistent with pedestrian comfort and safety. Elements of the program will:

- Encode into street standards a set of approved traffic calming treatments that are appropriate for each street type in the district, with variations depending on context. Traffic calming strategies can include elements like narrowed travel lanes and tight turning radii at corner; curb bulb-outs to visually narrow the roadway; chicanes; speed tables, and other elements.
- Monitor speeds and prioritize improvements. HCDA and the City must work together to monitor places where vehicle speed consistently exceeds posted speed limits for the street type and/or safe and comfortable speeds for pedestrians. A list of high-priority locations will be maintained, and funding sought to implement needed traffic calming treatments.

Mid-block crossing and “choker” island helps to reduce vehicle speeds (Portland, Oregon).
Image from Nelson\Nygaard

Action MA7.4 Develop criteria to prioritize investment in pedestrian facilities

There are needs for pedestrian facility enhancements throughout the Kaka`ako district. While some new facilities will be provided along with new development, HCDA and the City must set priorities for where investment in improved pedestrian facilities can do the most to create a vital, walkable district.

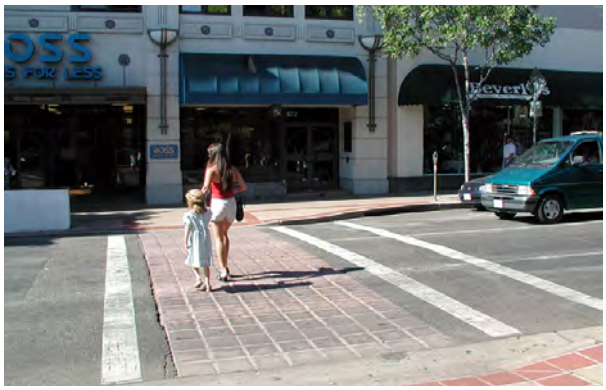
Key considerations include:

- **High density areas.** Areas with high concentrations of workers, residents, and visitors will have higher volumes of pedestrians. It will be important to ensure that sidewalks, crosswalks, and

other facilities have the capacity to support the intended uses. These areas will be prioritized for investment: in many cases, developers may be able to contribute to the cost of needed facilities.

- **Vulnerable residential populations.** Residential areas with large numbers of potentially vulnerable pedestrians, as seniors, people with disabilities, and young children, will be prioritized for pedestrians.
- **High collision streets and intersections.** Streets and intersections with a large number or high severity of vehicle-pedestrian collisions will be prioritized for remediation. Priority pedestrian safety investments will address collision "hot spots" and counteract potentially hazardous street design. Identifying clusters must be based on detailed safety analysis and will require conducting a Pedestrian Safety Action Plan.
- **Routes to transit.** Safe and direct pedestrian paths to transit stations and stops are essential for supporting the transit system as a convenient mode of travel. These routes will be prioritized for investment. Specific recommendations for access to transit stations are provided on page 5-77.
- **Routes to schools, parks, and community facilities.** Other community facilities serve as important destinations for pedestrians. Many communities have programs for Safe Routes to Schools projects, which have dedicated federal funding. Parks, and important community facilities such as libraries could also be prioritized for investment.

Planters are used to narrow the travel lane and create a tighter corner radius for vehicles (Honolulu, HI).
Image from Nelson\Nygaard



Pedestrian investments will be prioritized in high exposure locations near transit or other community-oriented land uses and experience relatively high incidences of pedestrian collisions.
Image from Nelson\Nygaard

Strategy MA8 Design buildings and public spaces to support a safe and comfortable walking environment in Kaka`ako

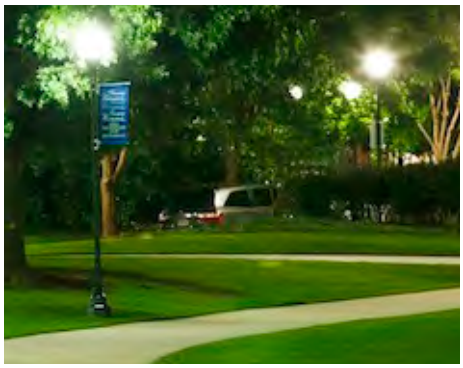
Far more than for other modes of transportation, the buildings and public spaces that surround the street are essential to the experience and utility of pedestrian travel. To support walking as a mode of transportation in Kaka`ako, HCDA will make a focused, coordinated effort to ensure that the district's built environment invites walking. Many of these actions below will be carried out through rule changes that are discussed in the Land Use and Urban Design sections of this plan.

Action MA8.1 Facilitate Crime Prevention through Environmental Design (CPTED) principles in the maintenance of landscaping and building design standards

Freedom from the risk of collisions is only one part of the feeling safe as a pedestrian. Also important is personal security. To encourage walking, it is important to reduce both the real and perceived risk of crime in public places.

Good design can help to enhance safety and security through the principles of natural surveillance and territorial reinforcement. This type of design is often referred to as Crime Prevention through Environmental Design (CPTED). Key principles of CPTED include:

- **Natural surveillance.** This is the principle that when there are many "eyes on the street," the public realm naturally becomes safer and feels more secure. Steps to encourage eyes on the street can include orienting building windows toward streets and public spaces; maximizing active uses like retail on the ground floor of street-facing buildings; designing lighting that eliminates blind spots and dead zones; and maximizing visibility between streets, sidewalks, and buildings by encouraging windows on the ground floor of street facing buildings.
- **Territorial reinforcement.** This is the principle that clear boundaries and transitions between public, semi-public, and private spaces can help establish the sense of ownership and indicate what activities are appropriate in which locations. Strategies can include using seating and other amenities to attract people and establish public 'ownership' of public spaces; using trees and landscaping to define the transition between public and private space; using fencing types to define the character of an area; and ensuring basic upkeep of buildings, lighting, landscaping, and other streetscape amenities, demonstrating to users that a space is being maintained.



LED lighting has high up front costs, but provides substantial safety benefits from its illumination levels and can help created 18-hour activity centers
Image from John Bamber

HCDA must seek to encode these principles throughout its design standards, including rules for private development; design standards for public spaces; and maintenance plans for public spaces.

Action MA8.2 Integrate high quality pedestrian design into the interim use of surface parking lots

In the long-term, this plan envisions significant new compact development in Kaka`ako, with few surface parking lots remaining. However, surface parking will remain part of the district's streetscape for a significant period of time.

Any development on a parcel that includes a surface parking lot will be required to make accommodations for pedestrians. Lots will cater to pedestrian desire lines (direct, optimal walking routes), providing dedicated sidewalks, path connections, and crossing facilities where needed. Trees, landscaping, shade, and other design features will be added to help integrate surface parking fully into a pedestrian-oriented streetscape.

An accessible pathway through a parking lot in Sausalito, CA.
Image from Greg Pasquali

Action MA8.3 Minimize curb cuts

Driveways across the sidewalk interrupt pedestrian paths of travel, and will be minimized whenever possible. Where possible,

vehicle driveways will not interrupt the sidewalk's grade and will be made of the same material as the sidewalk so it is clear to drivers that they are crossing a pedestrian zone. Entrances designed to require cars to make right angle turns help force traffic to slow down before entering. Where garage exits are present, visual contact and awareness between pedestrians and drivers will be supported through mirrors, pavement treatments, and noise signals. Mauka and Makai Area Plan rules already support limitations on curb cuts.

Strategy MA9 Provide a beautiful and lively pedestrian environment throughout the KCDD

In great cities, pedestrian travel is not just accommodated: it is welcomed, invited, and celebrated. Besides the design of sidewalks and buildings, the HCDA will carefully plan elements to improve the beauty and liveliness of public spaces in the district.

Action MA9.1 Encourage active sidewalks and transparent building facades

Buildings and streetscapes that activate the environment, such as sidewalk cafes and parks, build community and stimulate the desire to walk to reach destinations. Transparent building facades with windows at street level create interest and also open up the pedestrian realm, so people are not forced to walk beside an imposing blank wall.

Action MA9.2 Make alleyways and other public spaces district-wide "programmable"

The District's alleyways and designated Local Streets are a resource that can be used to provide space for community activities while bringing energy and vitality to the public realm. Alleyways will be made available for activities such as farmer's markets, bazaars, food truck sites, street festivals, and other events in order to activate these spaces. When alleys are built anew or altered as part of a development project, they will be designed specifically to accommodate these types of uses.

Children enjoying a public promenade (Burlington, VT)
Image from Nelson\Nygaard

Action MA9.3 Provide street trees, weather protection, and other amenities

Providing a range of amenities such as seating, public art, landscaping, pedestrian-scale lighting, and protection from the elements can help create an inviting and comfortable space where people can stop and linger. Amenities may include:

- **Public Art.** Integrate public art where feasible to enhance people's journeys, to bring a sense of liveliness to public space, and to express the unique character or cultural history of a place.
- **Lighting.** Place pedestrian-scale lighting in areas with high pedestrian volumes, retail and commercial corridors, and elevated transit corridors.
- **Street trees and landscaping.** Use street trees and landscaping to offer shade, improve air quality, alleviate heat island effects, provide natural stormwater management; and create a visual buffer between the roadway and the sidewalk, providing a sense of enclosure and comfort for pedestrians.

- **Other amenities.** In very high-volume pedestrian areas, dedicate public space to amenities such as restrooms, drinking fountains, food vendors, and others as appropriate to the context.

Active use of an urban alleyway in Boston.
Image from Nelson\Nygaard

TRANSIT

Transit Circulation

The Role of Transit

The City and County Honolulu currently has one of the most highly used (per capita) public bus systems of any city in the nation. The City/County seeks to improve public transit by increasing reliability, decreasing travel times, and ensuring rider safety and comfort along all legs of the journey, although like many transit providers budget challenges prevent service from reaching optimal levels. HCDA can continue to advance its status as a transit-rich district by working with the Department of Transportation Services (DTS) to ensure streets operate efficiently for transit, that passenger access to transit is excellent, and by advocating for greater investment in regional transit.

The most important improvement in regional transit currently underway is the development of the light metro rapid transit line, which will have three stations in the KCDD. These stations will provide a previously unattainable level of connectivity and convenience in travel for those moving between KCDD and many other parts of the Honolulu metro area. A key goal of this plan is to ensure that value of the new light metro stations in Kaka`ako will be optimized toward the end of creating the vibrant, culturally rich, and walkable urban neighborhoods desired by the community.

High-quality public transit can lead to greater social integration and greater options for members of the community who are unable or prefer not to drive. It can provide increased access to quality employment, educational opportunities, social opportunities and the many natural and cultural resources of the Honolulu area. Using public transit can save money for riders to spend on housing, education, and other essentials. Public transit vehicles produce fewer GHG emissions than auto trips, making it an important contributor to achieving Honolulu's environmental sustainability goals and ensuring that lands remain available for civic and cultural amenities.

The Transit Network

As the City and County of Honolulu continues to enhance public transit, it will be important to coordinate these investments with improvements in street design, establishing clear priority for transit on important routes. Some transit routes are more important than others, and different types of service require different strategies for integration with other modes. Designing streets to be sensitive to the needs of transit will require HCDA to develop clear, site-specific guidance for the different routes throughout KCDD.

Figure 5-11 illustrates streets where it is critical to consider transit operations in the design and allocation of right-of-way. The dark blue, or primary, corridors are those that carry high-frequency bus service and where dedicated rights-of-way or higher levels of investment in intersection priority treatments may be needed.

Figure 5-11 Transit Priority Streets

The introduction of rapid transit to the KCDD will significantly change the dynamic for access to the district and mobility between the district and adjacent areas on the line. Figure 5-12 illustrates the approximate walk time to a light metro station from different parts of the district. It also shows how new street and pedestrian connections proposed in this plan extend the amount of people and places within a 15 minute walk of a future light metro station. This analysis uses a network approach to mapping the shortest possible walk to a station using the grid of streets and pedestrian ways, not simply the "as the crow flies" distance, which does not realistically represent how people move through urban space.

Figure 5-12 Light Metro Rapid Transit Stations and Approximate Network Walk Times

Walk Isochrones

- 5 Minute Walk from HART Station
- 10 Minute Walk
- 15 Minute Walk

Note: Calculated based on an estimated walking speed of 3 miles per hour

- New Street Connections
- Light Metro Alignment
- Light Metro Stations

0 0.1 0.2 Miles

Data Sources: State of Hawaii Office of Planning State GIS Program; Honolulu Land Information System

The following strategies are recommended, in conjunction with the consideration of transit operations in the Complete Streets element (Chapter 6), to ensure that transit investments are optimized to meet the KCDD vision.

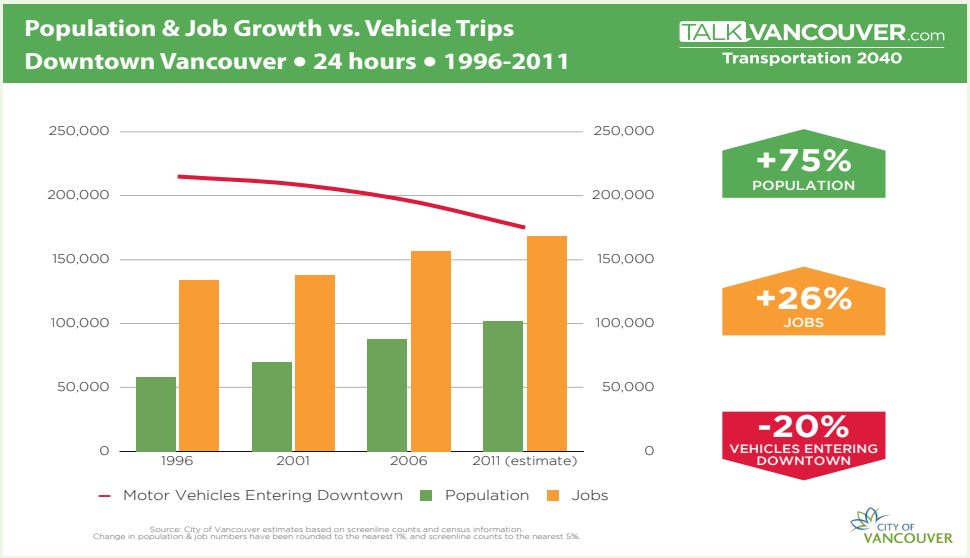
Strategy MA10 Maximize the value of light metro rapid transit by providing high quality access to the line/stations

HCDA will continue to work with HART on station access strategies that maximize ridership and total transit revenue, including parking pricing programs that ensure a few spaces are available to passengers at all times, shared parking, and access programs that deliver more riders at less cost than parking, such as feeder buses and new development.

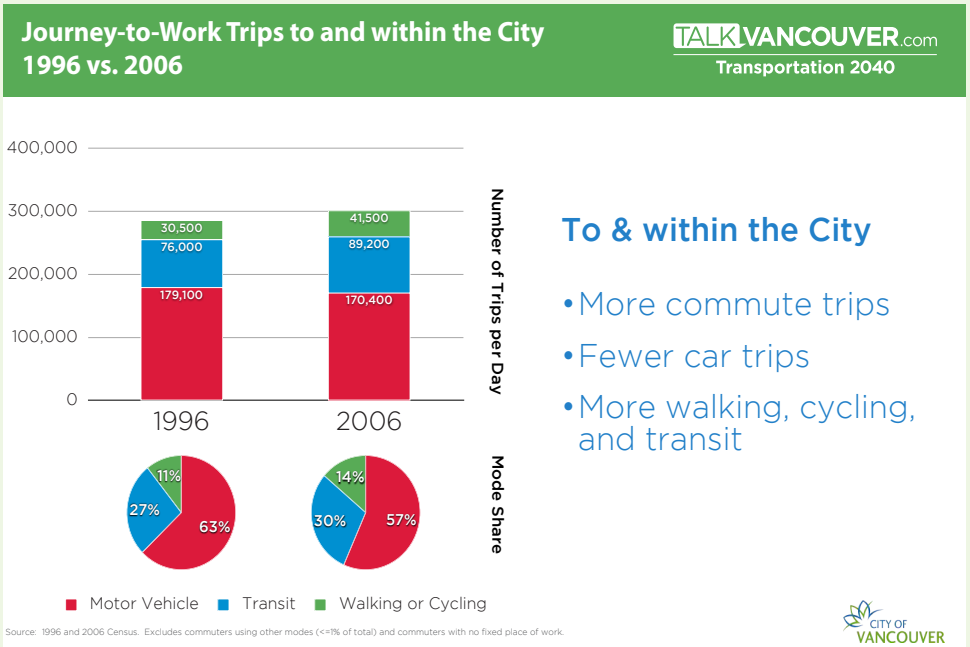
A number of additional strategies for managing auto traffic demand and increasing transit use are detailed in Chapter 7 – Parking and Transportation Demand Management.

Excellent regional rapid transit and quality urban design have allowed neighborhoods in Downtown Vancouver, B.C. to double their populations and create Thriving business districts while decreasing total auto trips.
Image from Nelson\Nygaard

RAPID TRANSIT KEY TO WALKABLE URBAN DISTRICTS



Between 1996 and 2011 the population of Downtown Vancouver grew 75%; during the same period vehicles entering the downtown dropped by 75% due to increased use of transit as well as walking and biking.
Source: City of Vancouver, B.C.



This graphic from Vancouver's 2040 Transportation Plan shows a demonstrable increase in walking trips created by the development of mixed-use urban neighborhoods where residents can walk to transit and all their daily retail and service needs.
Source: City of Vancouver, B.C.

Action MA10.1 Continue to collaborate with regional transit partners to ensure transit stops, stations and facilities are designed to ensure seamless transitions between transit modes and quality pedestrian-oriented places. This will include incorporation of guidelines for passenger facilities.

The influence of transit facilities does not stop at a station platform or bus stop. Systematically integrating facility design guidelines is a critical exercise for improving the quality of transit access and building transit-oriented neighborhoods. Transit facilities represent the public's interface with transit service in the KCDD; incorporating elements of thoughtful design to improve the transit experience sends the message that transit is a priority. Likewise, transit facilities are loci of intermodal connections, thus facility design plays a critical role in ensuring transfers are seamless and effortless.

Placemaking will be integrated into every design choice to ensure the transit experience is synonymous with navigating through great places. Transit facilities in the KCDD will create a safe, comfortable, inviting, and interesting space at each trip end. Transit facilities and their surrounding environs will be thought of as urban living rooms that fully integrate land use and urban design, encouraging people to stay.

Design guidelines provide the values and strategic vision for multimodal investment in transit environments. As the Honolulu transit network develops and matures, transit facilities must represent the needs of all transit users. Whether it is a transfer to another mode or route, or a last-mile connection on foot or by bicycle, transit facilities must ensure these movements are clear, tactile, secure, and protected from the weather. The Station Access section of this hapter provides detailed actions and regulatory changes that support:

- Creating seamless transitions between pedestrian, bicycle, and transit modes
- Providing clear, simple, and universal wayfinding and passenger information
- Creating highly-functional legible places around transit
- Ensuring spatial dynamics around transit stations create comfortable, not crowded, places
- Applying principles of Universal Design to make sure transit is accessible to all
- Focusing on passenger comfort at and around transit stations
- Ensuring transit stations and places are safe and comfortable at all times of day.

Action MA10.2 Fund and implement a Downtown/Kaka`ako/Ala Moana circulator that enhances access to light metro stations and key KCDD destinations and those in adjacent districts

While the KCDD has excellent local and regional bus service at its perimeter, parts of the district have limited transit service, such as the makai side of Ala Moana Boulevard. HCDA will pursue the funding of a district circulator route designed to connect major destinations in the KCDD, future light metro stations, major bus transit centers (Hotel Street and Punchbowl and King) and adjacent districts such as Ala Moana.

While the light metro alignment will create new opportunities for circulation between Kaka`ako neighborhoods, Downtown and Ala Moana, the implementation of rapid transit is likely to increase, not decrease, the need for local transit circulation in the area. Light Metro will bring thousands of additional transit passengers each day to the four stations between Downtown and Ala Moana, including the KCDD stations. Regional passengers arriving at these stations will seek last mile solutions to reach their final destinations, many of which will be more than a comfortable walking distance from the station.

Figure 5-13 shows a proposed route for a KCDD district circulator. The district circulator will expand its relevance if linked with a circulator connection between Ala Moana and Waikiki.

Developing a stable funding source to operate such a shuttle would be a potential challenge given stretched budgets at DTS. Other cities use local improvement districts, business districts, sale of advertising, station sponsorships, parking revenues, private business contributions and fares as funding mechanisms to operate downtown or district circulators. Future on-street parking revenue (see recommendations in Chapter 7) will be explored as a source of operating revenue for a local circulator.

Figure 5-13 Local Circulator Options

Action MA10.3 Develop a longer-term plan for a higher capacity street-level circulator system

Figure 5-13 shows a potential streetcar circulator route that would connect key KCDD destinations and neighborhoods with Downtown, the Civic Center, Ala Moana, and potentially with Waikiki. As stated above, introduction of rapid transit in Kaka`ako and adjoining districts is likely to increase overall demand for bus and surface transit, as more people come to the area without a personal

vehicle. New, compact and mixed-use development will create significant demand for short circulation trips, particularly as local services such as grocery stores come on line to support an increased residential population.

With the results of the Waikiki Regional Circulator Study, HCDA will consider opportunities to extend or connect to the preferred mode and alignment of that study. This might require further study to determine how to accommodate transit on local streets, to integrate operations, and to develop a viable capital and operating plan.

Today there are privately operated trolley bus circulators operating in Downtown, Ala Moana, and Waikiki that carry close to one million passengers annually, even though they run limited hours.[1] These services are largely designed for and almost exclusively used by tourists. Fare options and stops are designed to cater to visitors making leisure tours of urban Honolulu. TheBus routes operating in the central area of Honolulu are more common means of circulation for local residents and workers (as well as more intrepid visitors). However, many local buses are highly crowded, particularly between Waikiki and Downtown where longer regional trips overlap with the need for short-distance circulation.

Several other U.S. cities have added local streetcar circulators in downtown areas to help address need for local circulation trips, reduce demand on regional systems, and improve last mile connections to regional rapid or high capacity transit stations. For example, the Portland Streetcar carries 4 million annual passengers on a route system that previously had no bus transit and that serves two of the city's major master planned neighborhoods – the Pearl District and South Waterfront. As a point of comparison, both districts have allowable floor area ratios within 3 blocks of the alignment that are lower than those allowed by the existing Mauka area rules.

Implementation of a streetcar would require additional study of routing options, capital costs and funding, operating scenarios and methods

1 Estimated based on Waikiki Trolley website information regarding historic ridership.

LOS ANGELES DASH DOWNTOWN CIRCULATOR

Los Angeles DOT operates a system of local bus circulators, with five routes operating in the downtown area at 15 minute headways during the day and early evening hours (6 am to 7 pm). The DASH system includes a number of other routes operating in neighborhoods and business districts around the City. In all, the system carries almost 7 million passengers each year. The downtown routes are among the highest ridership routes in the system. The City is currently developing a modern streetcar route that would replace part of the DASH system with a high frequency rail circulator.

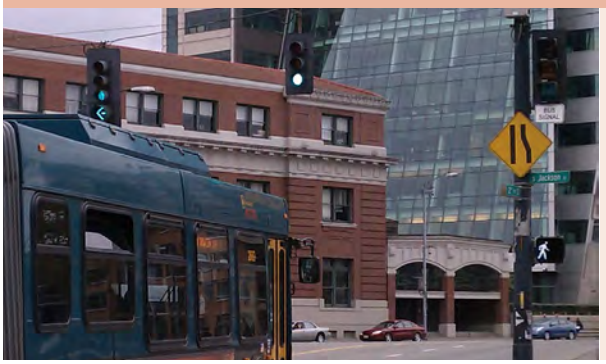
The planned Los Angeles Downtown Streetcar would connect South Park, the Fashion District, the Jewelry District, the Historic Downtown, Bunker Hill and the Civic Center as well as making ties to the Red/Purple, Blue, Gold, and Expo regional rail lines.

Figure 5-14 Roadway and Intersection Treatments for Transit Reliability

HCDA and the City and County of Honolulu will work to implement some of the following transit reliability measures on transit streets like Kapiolani Boulevard, Punchbowl Street, South Street, and Queen Street.

ROADWAY TREATMENTS

Transit Signal Priority (TSP)



Definition

At traffic signals, buses communicate with the traffic signal system to provide a green signal indication to an approaching bus. Delay for buses may be reduced at intersections as a result.

Constraints / Applicability

Less effective when signals are operating at capacity (ie, Ala Moana Blvd).

Effectiveness

Up to 10% reduction in signal delay.

Queue Jump Lanes

Definition

At signalized intersections, a bus is provided with a lane, adjacent to general-purpose traffic, and an advanced green signal indication to bypass congested areas. Buses "jump" the queue of waiting cars.

Constraints / Applicability

Lane must be as long as the typical queues.

TSP makes these much more effective, particularly if there is no far-side receiving lane.

May increase pedestrian crossing times.

Effectiveness

5-25% reduction in travel times at a signal.

Dedicated Bus Lanes (Business Access and Transit or BAT Lanes)

Definition

A lane is reserved for exclusive use by buses. It may also be used for general-purpose traffic right-turn movements onto cross streets and for access to adjacent properties. This treatment would speed bus travel times.

Constraints / Applicability

Conflicts with right-turn and delivery vehicles.

Often opposition from businesses that may lose on-street parking.

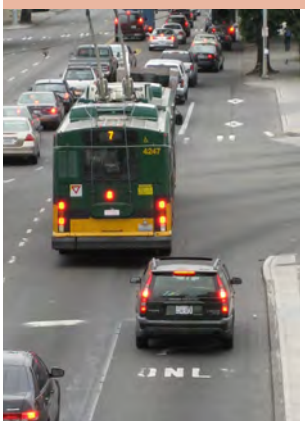
Effectiveness

5-25% reduction in travel times.

Note: The measures of effectiveness are derived from data found in the Transit Capacity Quality of Service Manual, unless a specific local measure is cited.

ROADWAY TREATMENTS (continued)

Limited or Time Prohibited General Public (GP) Turning Movements:



Definition

GP turning movements are restricted at all times or during peak periods. May be implemented with queue jump or dedicated bus curb lanes.

Constraints / Applicability

Impacts on other roadways from diversion of GP traffic/ turning movements.

Effectiveness

Highly effective means to implement peak period queue jump lanes or transit only lanes.

Innovative Bus-Bike Treatments

Definition

Treatments to provide bicycles with safe routes along high-volume transit corridors, manage bicycle-transit vehicle interactions, and allow bicycles to share transit lanes. Examples include shared lane markings, colored pavement, and bicycle-only signals.

Constraints / Applicability

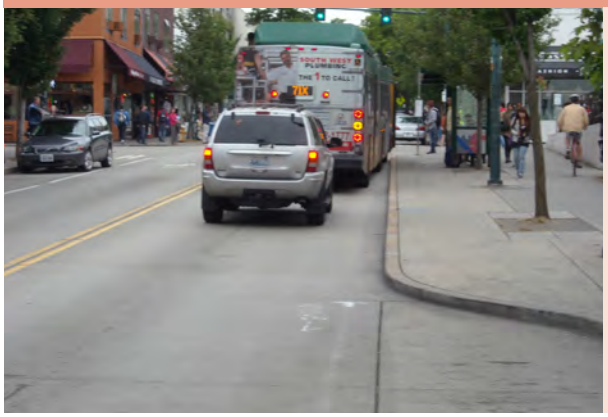
Highly contextual and must be considered within balance of person travel delay/benefit for specific street or corridor conditions.

Effectiveness

Difficult to measure impacts on transit, but can reduce transit delay on busy bicycle corridors and improve bicycling experience.

STOP TREATMENTS

Curb Extensions/ Bus Bulbs/Boarding Platforms



Definition

Sidewalks are extended into the street so that buses would stop in the lane of traffic. This prevents buses from getting trapped by passing vehicles, unable to return to the flow of traffic. The delays from merging back into lane may be minimized as a result.

Constraints

Only applicable where an on-street parking lane exists.
Impacts to traffic flow must be taken into accounted.

Effectiveness

Depends on traffic. 8 seconds per stop is an average assumption.

Note: The measures of effectiveness are derived from data found in the Transit Capacity Quality of Service Manual, unless a specific local measure is cited.

New glass and steel transit shelters and covered bicycle facilities on the Portland Transit Mall provide weather protection while creating an open, inviting and safe pedestrian environment
Image from Nelson\Nygaard

PLACEMAKING: TURNING TRANSIT STREETS INTO ACTIVE ENVIRONMENTS

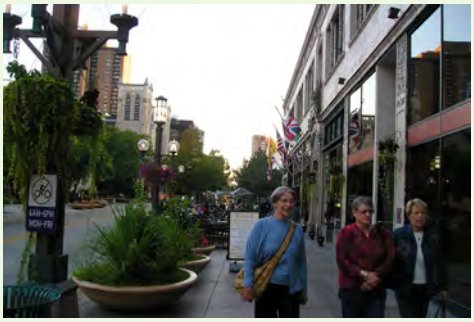
Increasing transit mode share to and through the KCDD will require building high-quality transit facilities that integrate seamlessly with the street environment. Along with the transit stop, the streetscapes that characterize transit priority streets are the user interface for transit. Thus, the importance of placemaking cannot be overstated. Urban placemaking for seven major center city nodes or intersections was the foundational element of the redesign of Portland's Downtown Transit Mall. The desire for 24-hour active streets that support retail and activities helped drive decisions to retain a general purpose traffic lane and to reduce bus volumes by routing key services perpendicular to the transit mall and to provide a high-frequency rail circulator. In addition to the transit priority features in place, Portland's Transit Mall incorporates wide sidewalks with distinctive paving, a variety of seating options, well-lit and covered bus and light rail stations, and public art. Similarly, Minneapolis' Nicollet Mall provides wide sidewalks with café seating, pedestrian lighting, park benches, and continuous retail activity.

Denver has taken a unique approach to designing a primary transit street. Sixteenth Street is a transit and pedestrian-only street that elevates the transit experience by turning the street into the destination. This mixed-use pedestrian street bisects the core of Denver's Center City and offers a bevy of street activity, restaurants, and cultural events. The 16th Street Mall FREE MallRide runs every two minutes during peak hours, allowing customers to look up the street and see a vehicle approaching at all times.

In each case, these linear transit corridors offer some level of tactility from increased accessible design and detectable warnings to textured pavement design and installation of brick pavers. As is the case in Minneapolis, Denver, and Portland, the most pedestrian-friendly corridors are synonymous with access to frequent transit service. Below is a list of components that transform transit corridors into great places:

- Active retail frontage
- Expansive sidewalks (in the range of 15 to 30 feet)
- Continuous and themed lighting schemes
- Pedestrian buffers such as trees and landscaping
- Space for café seating
- Coordinated public art program
- Curb extensions and pedestrian crossing features
- Level boarding features
- Enhanced bus shelters and stop amenities
- Wayfinding signage

16th Street Mall in Denver
Image from Nelson\Nygaard



Nicollet Mall in Minneapolis
Image from Nelson\Nygaard

Passenger volumes on Queen Street overwhelm the existing sidewalk.
Image from Nelson\Nygaard

In Seattle, weather protection and seating fo transit passengers was incorporated in the design of this building façade.
Image from Nelson\Nygaard

A well designed civic plaza has trees that provide shade for waiting transit passengers and is permeable to keep the pedestrian pathway clear.
Image from Nelson\Nygaard

for funding ongoing operations, traffic and transportation impacts and benefits, and integration with major developer master plans.

Strategy MA11 Support reliable bus operations in KCDD

Action MA11.1 To the extent practical and based on funding availability, work with DTS to eliminate transit delay and improve transit reliability on regional and connecting transit streets through physical and policy improvements.

Transit priority treatments are relatively inexpensive improvements (when compared to major corridor transit projects) that reduce delay and increase speed of transit services. Effective transit priority treatments optimize management of city streets to increase transit speeds while minimizing impacts on other users of the street. This section describes some intersection and roadway treatments that can help to keep bus transit operating reliably, even as urban congestion increases. These tools will be considered in conjunction with other street design and operations considerations detailed in Chapter 6.

Strategy MA12 Increase transit ridership for all types of trips

Action MA12.1 Around rapid transit stations and major bus transfer points, prioritize land uses and patterns that generate high transit ridership

BUS PRIORITY LANE IN SYDNEY AUSTRALIA

Sydney, Australia applied a continuous red color overlay to bus lanes that were previously marked by pole-mounted "Bus Lane" signs and "Bus Lane" pavement markings. Surveys were conducted at three locations along the bus route after the red overlay was applied to the full lane. Results indicated that lane violations were reduced between 4% and 17%.

Image from Flickr user Scotticus

Like many U.S. cities, streetcars were a staple of local mobility in urban Honolulu until the 1930s. This scene shows a streetcar operating on King Street in 1925.
Image from Everyday Life in 20th Century Honolulu by Tiffany Hill, Michael Keany and A. Kam Napier in Honolulu Magazine

The Seattle South Lake Union Streetcar has been a key mobility component of the district's redevelopment. Private companies such as Amazon have contributed financially to its operation to increase service and provide employees and residents better connections to regional light rail and services in the adjacent downtown retail and entertainment districts.
Image from Nelson\Nygaard

With plans to more than double its residential population in just a few decades, the KCDD will need to focus on walkable, compact land uses to reduce vehicular travel demand. To gracefully accommodate planned growth, HCDA will need to carefully link land use planning and transportation system development. In particular, planners must agree that land use cannot be shaped by transportation, rather land use and urban form must be recognized as the most powerful tool for shaping people's decisions about where they live and how this affects their travel patterns.

The Vancouver, B.C. story is very instructive and worth telling. The sidebar describes Vancouver's unique success in coordinating transportation and land use.

Action MA12.2 Provide developer incentives to improve bus facilities adjacent to new development; improvements will include new bus shelters, wider sidewalks, concrete bus pads, benches, changeable message signs, secure bike parking, bike-share stations (where appropriate), and trash receptacles.

Too often the development of high quality curb-side bus stops is ignored in the development review and developer negotiation process. In a dense urban district, the placement of bus facilities in the sidewalk space and the spatial planning and design for passenger queuing and pedestrian throughput is critical.

- Bus stops will be placed to assure customer convenience and provide for the safety of pedestrians and vehicles. Stops shall be visible, near crosswalks and well lit.
- Bus stops will be clearly and consistently identifiable with up-to-date information for riders about services at the bus stop.
- The design of bus stops will be sensitive to the community setting and where possible incorporate features that identify the stop with the community (such as art, bus stop naming or inclusion of a community bulletin board).
- Where reasonable, bus stops will be accessible and meet Americans with Disabilities Act (ADA) requirements.
- Bus stops will be located in support of institutions and with clients having special needs, large employers and community centers.
- Bus stops will be spaced to maximize the efficient operation of transit service while not requiring riders to walk more than a quarter mile to the bus stop.

Good bus stop design requires local jurisdictions, community partners, and land developers to work together in creating a functional and aesthetically pleasing deign.

TriMet, the public transit provider in the Portland Metro Region, has an excellent set of bus placement and design standards available on line: http://trimet.org/pdfs/publications/bus-stop-guidelines.pdf. Bus stop design will be specified when HCDA develops its Complete Streets Design Standards.

Action MA 12.3 Encourage schools and major employers to provide prepaid access on the TheBus and light metro systems for all of their students and employees.

When an employer or institution purchases free transit passes for all employees—or when an employee or student ID card is also valid as a regional transit pass—the transit ridership impact is greater than merely providing free or discount passes to regular transit users. Pass programs available to all employees encourage those who have never taken transit to try it, and this way, they may become regular riders. To be most effective, transit passes will cover both TheBus and future rapid transit service. Such transit pass programs have been shown to reduce employee commute trips by 5 to 10

COORDINATED LAND USE AND TRANSPORTATION PLANNING IN VANCOUVER, B.C.

The broad strokes of the so-called "Vancouver model" are well known to American planners: develop dense, mixed-use and walkable neighborhoods in and around downtown. Many of the details of Vancouver's approach to land use, however, are less understood—including the relationship between land use and transportation policy.

Vancouver's "Living First" policy, adopted in 1991 as part of the Central Area Plan, rezoned 8 million square feet of space from commercial to residential use; since the policy was implemented, the population of the downtown peninsula has risen from 47,000 to 88,000 (in the 2006 census). However, former planning director Larry Beasley has explained that the policy's success "is not just the result of favoring housing and changing the zoning to allow it to happen. Nor is it just the result of a vibrant market...The first principle has been to limit commuter access into downtown and let congestion be an ally in a household's profound first decision to live downtown or in the suburbs. Walking, biking, and transit get priority for both space and spending."*

The growth of the SkyTrain system has helped Vancouver's downtown peninsula—which is connected to the rest of the city only by a narrow bottleneck that might otherwise be choked with traffic—to remain a major civic and commercial center, with 10% growth in employment between 1991 and 2001, even as outlying areas have continued to grow. (Downtown growth may have mitigated suburban sprawl, but the entire region is growing rapidly.) The share of downtown trips made by car has remained relatively constant and even declined: from 46% of all trips in 1994, auto mode split had fallen to 40% by 1999 and continued to decline through 2011. In 1999, transit accounted for 28% of all trips and walking accounted for 31%.

With so much residential growth downtown, trips into and out of the core are increasingly less important than trips within the downtown peninsula. Morning peak trips entirely within downtown increased from 18% of all downtown trips in 1974 to 21% by 1996; these trips were expected to reach 27% by 2021. While trips to downtown destinations from outside downtown were expected to grow by 18% by 2021, trips within downtown were expected to grow by 64%.

To accommodate the continued growth of downtown, the city's 2002 Downtown Transportation Plan built on the 1997 City of Vancouver Transportation Plan, which made explicit the following hierarchy of transportation priorities: pedestrians, bicycling, transit, goods movement, and private automobiles. The 1997 plan also made clear that "(o)verall road capacity to the downtown will not be increased above the present level." In the 2002 plan, a "Pedestrians First" policy was established, and it was further noted that:

"Over the next 20 years, the total number of trips to downtown will grow by 30%. Some kinds of trips will increase more than others. Commuter trips on foot and bike are expected to double. Rush hour transit use will rise by 50 to 60%. Car and truck trips are projected to stay about the same."

The city has doubled the total length of bike lanes downtown, on top of a twofold increase between 1994 and 1999. It projected an 85% increase in transit trips within downtown during the morning rush hour, accommodated by local bus routes. It also projected that rail would accommodate 90% of all new non-walk and bike trips into downtown. The total number of commercial parking spaces per employee, meanwhile, was expected to drop from 0.44 in 1990 to 0.32 by 2021.

With congestion declining, the plan projected a 3% increase in average vehicle speeds, with average transit speeds increasing by 14%.

Criticisms of Vancouver's downtown transportation policy have focused on its land use policy: with housing prioritized over offices and limited remaining space for commercial growth, downtown is becoming something of a "bedroom community" with increasing numbers of commute trips from downtown to outlying jobs.

Since the 2002 plan, the city has taken additional steps toward a sustainable long-term transportation policy. In 2006, the South Coast British Columbia Transportation Authority, or TransLink, implemented a parking tax on all non-residential properties of $0.78 per square meter (since repealed). A "demonstration" streetcar line between the Olympic Village Canada Line subway station and the popular Granville Island shopping area opened in time for the 2010 Winter Olympics; it is the first phase of a greater downtown network. The Canada Line, the latest installment of TransLink's driverless metro system, opened between the airport and downtown just before the Olympic Games. The Olympic Village area itself is now being redeveloped into a neighborhood and will be the first community in Canada to offer car-share vehicles throughout its entirety. The Southeast False Creek Plan forecasts that 60% of all trips in the area will be made without a car and that the neighborhood will generate 25 to 50% less greenhouse gas emissions than similar urban districts.

* "Living First" in Vancouver, American Planning Association's Zoning News April 2000

percent or more and can be adopted for residential buildings or neighborhoods.

Universal transit passes will be provided to residential developments or neighborhoods through resident associations or assessments. Examples of places this has been implemented include Santa Clara, California and Boulder, Colorado.

More detail on these strategies is included in Chapter 7.

UNIVERSITY OF HAWAI`I AT MANOA, SEATTLE, AND BOULDER UNIVERSAL TRANSIT PASS PROGRAMS

The UPass is a University-issued bus pass available to enrolled students at UH Manoa on a semester basis. UH Manoa has plans to expand the successful UPass program to employees starting in 2013. HCDA will coordinate with the City and County of Honolulu to establish a similar district based pass program. Employer, district, and institutional UPass programs have proven to be very effective at reducing vehicle trips. For example, the University of Colorado at Boulder instituted free ridership for students, faculty, and staff in 1991. Between 1991 and 1998, ridership increased a marked 400%. In Seattle, the Downtown Seattle Association buys bulk passes from the transit agency at a discount and provides small employers an opportunity to purchase an unlimited ride pass for all their employees at a significant discount. Unlimited access transit pass programs are estimated to reduce vehicle trips (in VMT) up to 15% on average.

Image from Nelson\Nygaard

BICYCLE

Bicycle (Routes and Facilities)

The Bicycle Network

The flat terrain, short distances between destinations, and mild climate of Kaka`ako are ideal to make cycling a healthy, convenient and pleasant way to meet everyday transportation needs in the district and surrounding neighborhoods for residents and visitors of all ages and abilities.

Many people already bicycle in Honolulu for recreational and utilitarian purposes. An active and passionate cycling community has emerged, increasingly reminding decision makers that there is more to be done to improve connections, create a safer environment and increase cycling as an alternative to driving. HCDA is a strong supporter of an improved cycling environment and has been active in this conversation.

Cycling Supports HCDA's TOD Overlay Plan Vision

Bicycling has a clear role to play in achieving the goals of the TOD Overlay Plan; new development can be gracefully accommodated by ensuring residents and workers have a broad range of mobility options including spatially efficient modes such as biking and walking. An increased rate of bicycling can help ease congestion, free up auto parking capacity and reduce air pollution and noise levels. Bicycles are a tried and tested, simple, cheap and zero-emission technology.

A desired outcome of the HCDA TOD Overlay Plan is to make Kaka`ako the most bicycle friendly district in Honolulu.

Strategy MA13 Create a complete network of high-quality bicycle facilities, including a minimum of one new mauka - makai and one Ewa - Diamond Head protected bicycle facility, with the aim of increasing the number of people who use bicycles for everyday transportation

Providing efficient mobility and access is a key challenge for the HCDA in realizing its goals to develop a compact, walkable, vibrant urban district that is well connected to adjacent districts. Cycling can play a key role in ensuring that short- and mid-distant trips are made by spatially efficient and environmentally friendly means.

Action MA13.1 Develop a complete network of cycling facilities in KCDD, including at least one Ewa – Diamond Head and one mauka – makai direction protected bicycling facility (see Figure 5-15)

A top priority for KCDD is the development of high-quality bicycle facilities that allow residents, workers and visitors to travel to and through Kaka`ako safely and comfortably. The HCDA will work with the City/County of Honolulu DTS to implement a complete network of bicycle facilities.

Figure 5-15 illustrates where cycling facilities will be prioritized. Primary streets are those where fully separated facilities (i.e., cycle tracks or buffered bike lanes) or on-street bike lanes will be considered. Secondary streets are those that will be signed and marked for bicyclists, but where cyclists would

Cycling is a normal part of daily like in Copenhagen, DK, and helped make the city one of the most livable in the world.
Image from Nelson\Nygaard

CYCLING SUPPORTS THE KCDD VISION

- Connects People with Destinations. Planned facilities connect the KCDD and neighboring commercial districts, schools, and recreational amenities, facilitating resident and visitor access to daily needs and destinations. In the strategic areas near transit where new complete mixed-use neighborhoods are encouraged, bicycle facilities are introduced and enhanced to encourage access for all. New mauka-makai and Ewa – Diamond Head backbone connections tie the KCDD to the City.
- Supports Bicycling as a viable Transportation Option Alternative to Driving. For many trips, the bicycle provides more convenient access than a car, often allowing you to park closer to your destination, bypass congested intersections and arrive in a timely manner. Most of the KCDD can be reached within a ten minute ride as can many neighboring districts and destinations.
- Improves District Streets. District streets are great places for bicycling, and improvements like sharrows, bike lanes and calming features support the slower local-serving character of the places along these streets. Increasing bicycling in the neighborhoods encourages using the public streets as recreational and open space that encourages social interaction.
- Preserves and Enhances the KCDD's Community Character. Bicycles fit well with the KCDD's growing reputation as Honolulu's creative core and emerging home of environmental organizations. The TOD Overlay Plan recommends innovative bicycling facilities and programs that encourage residents and visitors to celebrate Kaka`ako's history, beautiful climate and setting. Whether carrying a surfboard or a briefcase, the TOD Overlay Plan aims for all people to feel comfortable riding their bike in the KCDD.
- Balances Roadway Use. The TOD Overlay Plan recognizes that streets serve many roles and users. The bicycle is the most space-efficient personal mobility device, taking up a minimum of roadway and parking space. Introducing a network of varied bicycle routes, paths, lanes, cycletracks, and other facilities will encourages cyclists of all types, and roadway users of all modes, to share the road.
- Supports Transit Connections. The bicycle is a perfect "last mile" connection between other modes and destinations. For people using transit, bicycles are a great tool to get to and from the stop, expanding transit's effective reach throughout the City. Bikes can help motorists get to and from their parking spaces, expanding the reach of surplus parking locations. For pedestrians, bike-sharing facilities can bridge longer distances, allowing quick movements between different walking destinations.
- Capture Tourist Business. Few tourists chose a destination so they can use a car, but increasingly active tourism is an important consideration. Honolulu is among the most visited cities in the world, but relatively few visitors seek out destinations in Kaka`ako. Creating a district that is accessible and comfortable for cyclists and connected to places such as Waikiki and Aloha Tower with high quality facilities is a promising way to increase tourist traffic in the District.

share the lane with traffic. Low speed streets are those that have design features which calm traffic and require motorists to drive at speeds that allow cyclists to easily integrate with traffic.

Figure 5-15 Cycling Priority Streets

Priorities

- **Primary (Path/Separated)**
  Streets with speeds, volumes, and dimensions supportive of separated bicycle facilities; Streets with high bicycle demand or clear bicycle desire lines
- **Secondary (Shared)**
  Shared bikeway; facilities recommended to enhance bicyclists' visibility
- **Low Speed Street**
  Streets with speeds calm enough to ride without separated bicycle facilities
- **High Stress Bicycle Street**
  Streets with high volumes and speeds; Only comfortable for experienced and fearless bicyclists

- Pathway
- Light Metro Alignment
- Light Metro Stations

0 0.1 0.2 Miles

Data Sources: State of Hawaii Office of Planning State GIS Program; Honolulu Land Information System

While it may take many years to complete the cycling network illustrated in Figure 5-15, there are specific projects that will be prioritized based on their importance in completing the network and coordination with upcoming projects.

An active partnership with DTS and local bicycling groups will be needed to realize this plan.

WHAT ARE THE GLOBAL CYCLING LEADERS DOING?

Surging interest in bicycle transportation is sparking U.S. and North American transportation agencies to institute innovative bikeway designs, new and more effective programs, and monitoring technology that can help communicate the value of cycling investments. Looking to global cycling leaders can inform HCDA of potential opportunities to advance innovative infrastructure improvements in the KCDD. A sample of these leading practices are presented below.

Examples of Leading Cycling Practices And Trends

Separated bikeway design, intersection countermeasures, and signal priority

Cyclists in many great cycling cities are afforded priority signals and greater visibility at intersections as well as separation from motor vehicle traffic along key travel corridors.
Images from: Flickr user Kyle Gradinger (left) and Flickr user Cheryl & Rich (right)

Full service end-of-trip facilities and public bike share

Bikestations (left) offer cyclists a space to change and store their bikes and clothing. Bike sharing (right) provide bicycles on-demand to cover the last-mile connection for transit trips and support quick trips in dense locations.
Images from Bikestation® (left) and Nice Ride Minnesota (right)

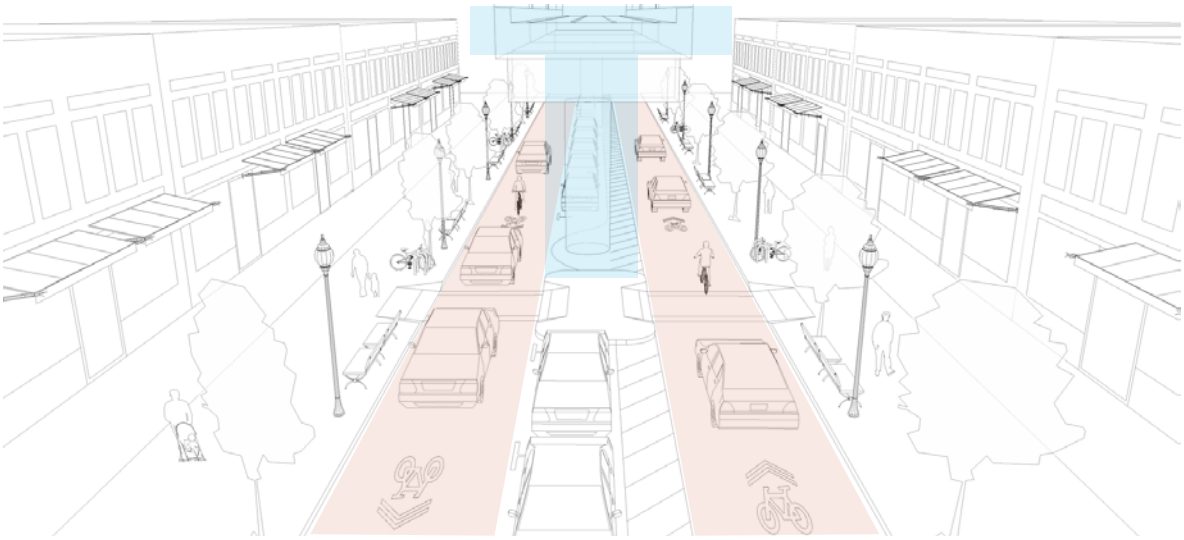
Innovative education programs and promotional campaigns

"What's your most ridiculous car trip?" campaign seeks to get people out of their cars for short trips in Malmo, Sweden.
Images from Green Citizens of Europe (left) and Flickr user Gary Leonard/CicLAvia (right)

Context sensitive solutions and design guidelines that ensure consistent bikeway design

An excerpt from the NACTO Urban Bikeway Design Guide (left) and Transport for London's approach to context specific cycling solutions in the suburbs (right).
Images from NACTO (left) and Transport for London (right)

Figure 5-16 Potential Shared Lanes on Halekauwila

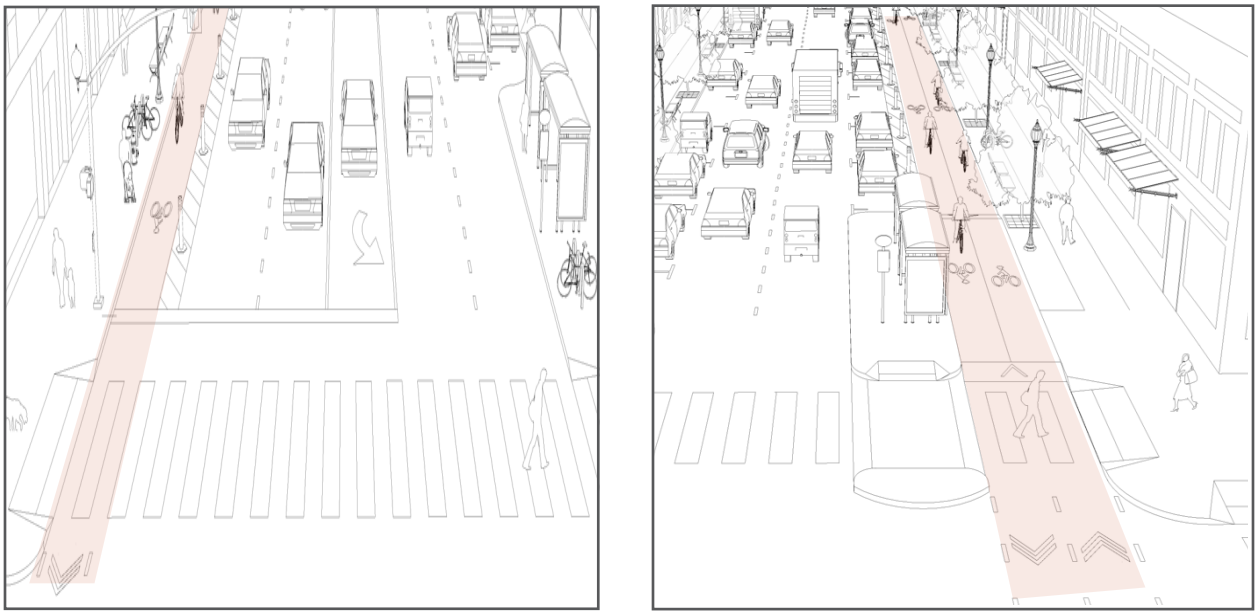


The guideway column for light metro highlighted in blue in this illustration presents a concept for use of the light metro guideway to create a shaded route for cyclists.
Image from Nelson\Nygaard

- **Halekauwila Street shared lanes:** The development of the rapid transit guideway Ewa-Diamond Head through the district presents an opportunity for dramatic transformation of this street. This relatively low traffic volume street will become a major mover of people through the district. Eliminating Ewa-bound traffic would allow for the development of a 2-way cycle track perfectly positioned to provide bike access to light metro stations and with excellent shading from the sub (created by the guideway). Figure 5-16 provides an illustration of how the street could operate with one-way traffic, a center parking lane, and a protected two-way bicycle facility.
- **Ward Avenue bicycle lanes:** Ward Avenue provides a critical mauka-makai connection through the KCDD and given its modest traffic volumes is well positioned to be a pilot Complete Street redesign project for HCDA. A redesign of the street could include standard 6-foot bike lanes with on-street parking or protected bicycle lanes. Connections to the Kaka`ako station from mauka and makai could be supported by this facility.
- **Auahi/Pohukaina Streets shared lanes:** The proposed connection of Auahi to Pohukaina as part of the Howard Hughes development presents an opportunity to

For Ward Avenue, bike lanes like these on a commercial street in Santa Monica, CA could be implemented.
Image from City of Santa Monica

Shared lanes for Auahi/Pohukaina Streets could be similar to these green sharrow lanes on a commercial street in Long Beach, CA
Image from Dan Burden



For South/Punchbowl Streets, one-way or two-way cycle track design could be implemented.
Image from Nelson\Nygaard

create a pedestrian-oriented commercial street. This street would provide a secondary bicycle connection allowing local bike traffic to access retail and services from this corridor. A standard sharrow treatment and bicycle wayfinding signage would be appropriate for this corridor.

- **South/Punchbowl Streets protected bicycle lanes:** On the Ewa side of the KCDD, the South and Punchbowl couplet provides an opportunity for new bicycle facilities. Both streets are wide and could be redesigned to accommodate protected bike facilities in the major flow direction. Alternatively, South could be reconfigured to accommodate a two-way cycle track.

Each of these projects would require more detailed engineering and design review.

Other KCDD area bicycle facility projects included in the O`ahu Bike Plan, such as Ala Moana bicycle lanes, are supported by the TOD Overlay Plan.

Action MA13.2 Promote KCDD as a cycling district

There is a small segment of the population in any city that will chose to cycle no matter the quality of the bicycle facilities, weather, or availability of

CYCLING MARKETS

Research in cities around North America and beyond shows that the majority of residents rate themselves as interested in cycling, but unlikely to cycle due to safety, weather concerns, or lack of quality bike storage and trip end facilities. This "interested but concerned" market will be the target for bike planners in Honolulu.

Approach developed by the City of Portland, OR

Bike friendly businesses in Long Beach receive stickers to show cyclists consumer benefits
Image from BikeableCommunities.org

BICYCLES FOR BUSINESS AND JOB CREATION

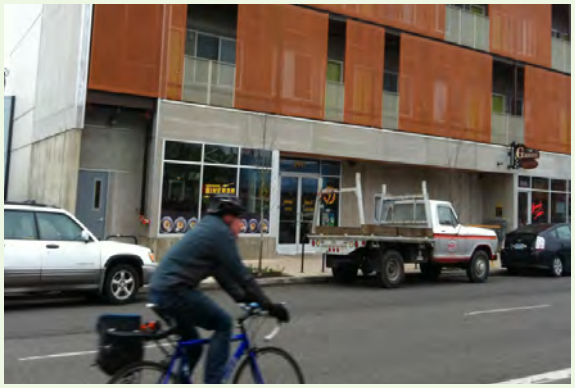
BUSINESS ACCESS

In the age of Amazon, urban storefront retailers are struggling. As people buy less from bricks and mortar establishments, retail spaces are increasingly occupied by lifestyle establishments – bakeries, coffee shops, flexible work spaces, independent specialty retailers, and places where people can congregate and find community lost in the age of internet retail. In bike friendly cities, like Portland, Vancouver, and Boulder, CO, retailers are finding that bike lanes and sufficient bike parking are a great way to bring people to their front doors. In Portland, developers are increasingly looking to build along bikeways, as small retailers and restaurateurs will pay a premium for that space.1

JOB CREATION

A study by the University of Massachusetts Political Economy Research Institute found that building bike lanes created more jobs than any other type of transportation investment — 11.4 to be exact for every $1 million spent on design, construction and materials. That compares to 10 jobs per $1 million spent for pedestrian projects and 7.8 jobs per $1 million for road-building projects.

A 2008 report on the affects of the cycling industry in Portland, OR estimated that cycling businesses bring $90 million in annual revenue to the local economy. The report only estimates direct bicycle-related business activity (gross revenues and incidental expenditures by event participants) in Portland, and does not include bicycle-related benefits to residents' health, traffic congestion, air quality, or quality of life.2



In Portland, these developers chose to build along one of the city's busiest bike lanes. Neither development provide parking (for cars) and both cater to bicycle friendly businesses and residents whose primary mobility choice is a bicycle. The residential building has bike parking on each floor and parking for large utility bikes and trailers.
Images from Nelson\Nygaard

1 http://greenlaneproject.org/blog/view/location-location-portland-retailers-swoop-into-storefronts-along-bikeways
2 http://www.altaplanning.com/App_Content/files/fp_docs/2008%20Portland%20Bicycle-Related%20Economy%20Report.pdf

parking and storage. Far more people fall into the category that has been named by bicycle planners as the "interested, but concerned." These are people that would like to bike more, but have reservations, fears, or uncertainties that keep them from cycling regularly (see sidebar).

HCDA can sponsor community cycling events that bring cycling into the mainstream and promote the KCDD as a hub for cycling and bicycle oriented businesses.

KCDD as Bicycle Business District

As an emerging business district, the KCDD will develop a program to promote local businesses as bike friendly and accessible. Adaptive reuse projects such as the Salt Blocks will benefit from such a district designation that cements Kaka`ako as Honolulu's creative core.

Long Beach, California is emerging as a leading cycling city. It has invested heavily in cycling to meet health, environmental and economic development goals.

In June 2011, Long Beach launched its "Bike Saturdays" program to encourage people to shop by bike—the first of its kind in the U.S. The City of Long Beach worked with area businesses to develop four bicycle-friendly business districts that offer a discount to shoppers arriving by bike on Saturdays.

The initiative encourages local residents to take short trips by bike instead of car, and ensures that dollars are being kept in the local economy instead of driven out of the community and spent elsewhere.

The program is funded by a $72,000 grant from the Los Angeles County Department of Public Health through Project RENEW[1] (Renew Environments for Nutrition, Exercise, and Wellness).

Open Street Events

HCDA will work with community organizations to sponsor one or more annual open streets events in the KCDD. As described in the call-out below, such events help encourage walking and cycling by taking over space from autos and will promote the value of Complete Streets in Kaka`ako.

Action MA13.3 Work with local partners to develop a bike share system in Kaka`ako and adjacent districts of Honolulu

Miami's Deco Bike is one of the world's most successful warm weather bike share systems; it has the highest ridership per bike of any system in the U.S.
Image from Deco Bike

Providing publicly accessible bicycles around the KCDD and adjacent districts will give more people the opportunity to ride, even for just one trip leg. Public bike share bikes will encourage visitors to choose Honolulu and the KCDD over other destinations, and to feel welcome in the area without a car. Bike sharing will facilitate connections to light metro and bus transit and replace short auto trips to local retail.

HCDA and many other community partners share a goal to create a comprehensive system of bike share stations in visible, on-street and off-street locations dispersed throughout the District and the City. An early system in KCDD could include 20 or more stations and 150-200 bicycles and would be most effective combined with a city system that also served Aloha Tower, Downtown, Ala Moana Center, Waikiki, University of Hawai`i and Honolulu's many popular parks and beaches.

Providing helmets and transit subsidy incentives to new users to incentivize trial use of both bike sharing and transit will be explored.

Demand for Bikeshare

Successful bike share systems are dependent on a variety of factors including population and employment density, proximity to schools, colleges, universities, proximity to transit, availability of bicycle infrastructure, and proximity to tourist-based destinations. KCDD is well positioned to be a central destination in a future regional bike sharing system. Bike share also has potential to provide local mobility as the area grows and services and destinations diversify.

Bike sharing in Kaka`ako, and the broader urban Honolulu area, will attract a variety of riders making trips for many different purposes. Bike share programs in other U.S. cities, particularly those operating in warmer climates and cities with high levels of tourism, are instructive as to the likely users markets in Kaka`ako and Honolulu as a whole. The following are some key markets and considerations for where each will create demand for bike share stations:

1 Project RENEW is a 2-year grant funded from Federal American Recovery and Reinvestment Act in partnership with the Centers for Disease Control and Prevention. Project RENEW consists of 10 health-related initiatives in the Los Angeles area.

CicLAvia in Los Angeles, CA reconnects this auto-centric city to the street and offers perspective on bikeable distances.
Image from Flickr user Gary Leonard/CicLAvia

OPEN STREETS EVENTS

The open streets movement was founded largely in Bogota, Columbia when Ciclovia was established back in the 1960s. Ciclovia Bogata is held every Sunday; it closes over 100 km of city streets to cars and provides a network of open streets for pedestrians, cyclists, and all types of human-powered transportation modes. Open streets events invite and encourage people to enjoy the streets car-free, connect with new parts of the city, interact with neighbors and people from different walks of life, and try active modes of transportation in a safe environment. The community benefits from an environmental, economic, social, and cultural standpoint.

Modeled largely after Bogota's Ciclovia car-free Sunday movement, cities in the U.S.—from Tucson, Arizona to Baltimore, Maryland—are temporarily closing off city streets to encourage cyclists and pedestrians to enjoy the city's streets without the threat the of cars. Although open streets events are seen as costly due to road closures and police traffic control, studies show that the health, retail, and mode shift benefits outweighs the monetary cost. In May 2013, Kaka`ako will host its first open street event.

SUNDAY PARKWAYS, CITY OF PORTLAND, OREGON

Portland Sunday Parkways promotes healthy active living through a series of free events that open the city's streets to walkers, bikers, and roller skaters. The goal of this program is to significantly increase the community's awareness of active transportation, foster civic pride, and stimulate local retail sales.

Image from Nelson\Nygaard

Since 2008, the City of Portland has sponsored the events. One Sunday a month during the summer between 10 and 13 kilometres of streets in rotating neighborhoods are opened up for people, not cars. Sunday Parkways aims to reach a large cross section of the community by rotating the location of the event each Sunday. In 2011, over 100,000 people came out to enjoy Portland's streets.

Funding for Sunday Parkways originally came from a combination of City of Portland, Regional Travel Options funding from the Metro regional government, and donations from area businesses and organizations, such as local bike shops and health insurance providers. In recent years, the Sunday Parkways event has been so successful that the Metro Regional Travel Options program has expanded its funding to other jurisdictions in the Portland region.

CICLAVIA, LOS ANGELES, CALIFORNIA

CicLAvia began in 2010 and closes roughly 16 kilometres of Los Angeles' streets on several Sundays throughout the summer months. The most recent CicLAvia event attracted an estimated 130,000 participants, the majority being bicycle riders. CicLAvia is a non-profit organization whose mission is to encourage safe, vibrant public spaces, sustainable transportation, and public health through car-free street events.

Beyond the mission of opening the streets for active transportation, CicLAvia partners with area businesses and artists-that provide entertainment and programming along the route. In October 2011, the CicLAvia Walks initiative began, which allows participants to discover the many architectural, cultural, and culinary destinations along the route.

CicLAvia's events are funded by both private and public partners. Sixty percent of funding comes from individual and corporate donations; 40% of funding comes from the City of Los Angeles to cover traffic operations, sanitation, and public safety efforts. The event costs the City of Los Angeles roughly $219,000—under $2 per participant. The City supports the event largely because they see it as a transit ridership strategy as participants are encouraged to come via public transit. The goal of CicLAvia is to eventually spread and interconnect the region.

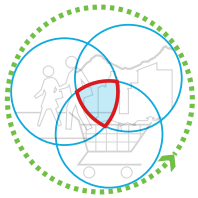
- **Tourists and visitors:** Station demand near hotels, points of attraction, recreational amenities, visitors services, and transit hubs
- **Residential customers:** Station demand near dense concentrations of housing, condo/apartment towers, transit hubs and stations
- **Workers and students:** Station demand on institutional campuses, large employment centers, downtown, and at transit hubs and stations
- **Local residents with limited transportation options:** Station demand along high frequency bus routes, retail and general employment centers, medical and social services opportunities, low-income housing and dense apartment concentrations

In Honolulu, significant and growing tourist and visitors populations have potential to generate high levels of year-round patronage for a bike share system. Trips originating in Kaka`ako are likely to be oriented to residential users, local workers making circulation trips, and commuters connecting to regional transit lines including future light metro stations. Figure 5-17 presents a draft list of evaluation criteria that can be used for the purpose of determining initial areas to be served by a bike share system, where stations will be located, and to set targets that help determine when to expand the system.

Figure 5-17 Evaluation Criteria for Analyzing Bike Share Market Potential

Criteria	Bike Share Goals	Measures
Population, Employment, and Retail Density	Productivity, Mobility, Amenity	Higher score if located in a high density residential areas or employment center. Density of human activity matters most, but density of tourist oriented activities is of high importance. More activity will be generated from mixed land uses that generate trips throughout the day (i.e., university).
Proximity to rapid transit or other frequent transit service	Productivity, Mobility	Proximity to (for station a location within 200 yards from the entrance/exit of) a rapid transit stop or other frequent transit service bus stop. In many urban markets, proximity to long-haul transit stops is given a higher value as these customers are often seeking "last-mile" connections. In Honolulu, overcrowding on core urban bus routes will make bike sharing a competitive alternative for short urban trips as well as provide last mile connections.
Likely use by casual riders	Productivity, Revenue, Mobility	Higher score if more than 60% of trips are projected to be taken by casual subscribers (non-members). Proximity to local trip generators, retail, restaurant districts, institutions and other uses that create varied and occasional uses.
Prevalence of tourist/visitor destinations or lodging	Productivity, Revenue, Mobility, Amenity	Higher score for areas within 200 yards of a major tourist destination, recreational destination, or hotel.
Ability to serve low-income and/or transit dependent customers	Transportation system equity, Mobility	Higher score if 15% of neighborhood is below the federal poverty line OR 15% of residents fall below the median household income level. Rates of car ownership is also a measure of transit dependence.
Neighborhoods/areas underserved by transit	Transportation system equity, Mobility	Higher score for areas with poor transit level of service (greater than 30 minute frequency)
Neighborhoods/areas lacking basic services and amenities	Transportation system equity, Mobility	Higher score for areas with limited retail/commercial services within walking distance (minimum 1/4 mile)

Once key market areas are determined, more detailed analysis is needed to determine optimal station siting locations. Ultimately, station siting is a delicate balance between finding locations with available space (or developing them), matching sites with demand propensity (see above), balancing design



with local regulations, siting stations near quality bike facilities, and a host of other considerations. Figure 5-18 provides some important propensity-based station siting criteria and Figure 5-19 provides an interim understanding of which parts of the KCDD will support bike share stations. Additional iterations of analysis must be conducted using station siting criteria to understand the spatial needs bike share stations. Potential criteria could include sidewalk capacity, on-street parking bay availability, redevelopment opportunities, park/public space integration, and pedestrian junctures/ intersection density.

If HCDA and/or its partners contract with a turnkey bike share operator, there is an opportunity to leverage further station citing analysis as part of the contract for services.

Figure 5-18 Criteria for Siting Bike Share Stations

Criteria	Bike share Goal	Measure
Bikeway/bike facility availability	Propensity	Higher scores for areas within 1/4 mile of a dedicated bicycle facility. Hierarchy of score based on class of facility (off-street path, cycle track, lane, share facility, etc.)
Low speed streets	Propensity	Higher scores for areas located along streets with posted speeds of 30 mph or less
Low volume streets	Propensity	Higher scores for areas located along streets with posted speeds of 30 mph or less
Job Housing Mix	Propensity	Higher scores for block faces that achieve URBEMIS' land use mix credit*
Topography	Propensity	Lower scores for areas with grades of 2 to 4% or higher
Sidewalk capacity	Spatial needs	Higher scores if sidewalk widths are greater than 15 feet (allowing for 6-8 feet station depths, 4 feet of clear zone, and 4+ feet of pedestrian through zone). These standards need to be balanced with adjacent land use forms and other user needs (e.g., a 4 foot pedestrian through zone is insufficient in high volume pedestrian areas)
On-street parking bay availability	Spatial needs	Higher scores if block faces have on-street parking with low peak demand (e.g. less than 40% occupancy) or with a convertible use (e.g., underutilized loading zone
Redevelopment opportunities	Spatial needs	Higher scores for block faces that are likely to redevelop allowing opportunity 'to integrate stations/amenities into setbacks without reducing sidewalk capacity
Park/public space integration	Spatial needs	Higher score if park space or public space (e.g. plaza at government building) could be used to site a station
Pedestrian junctures	Spatial needs	Higher scores for areas located near pedestrian connection points including intersection corners (with marked crossings preferably) and mid-block crossings

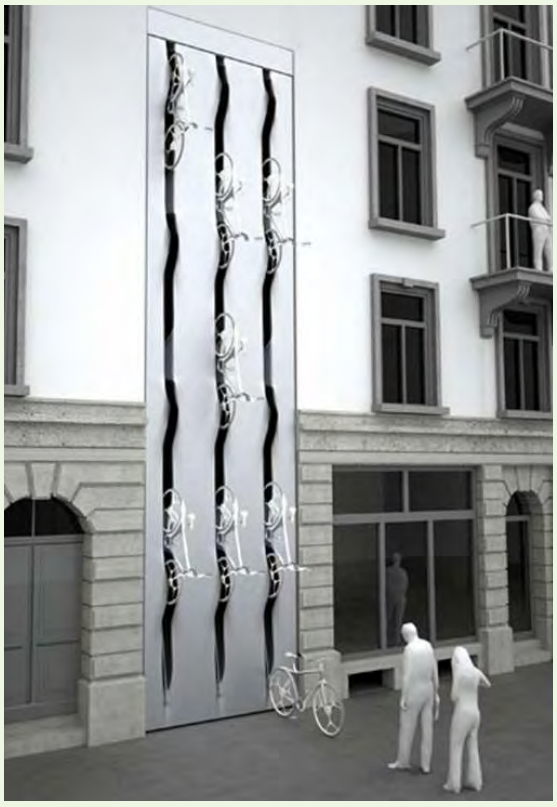
* URBEMIS is a tool for measuring air quality and transportation impacts of new developments (block level or district). It is being used to estimate trip generation impacts of development alternatives being evaluated in the KCDD TOD Plan.

Use Bike Share as an Economic Development Tool for KCDD

In addition to providing new mobility and access options, bike share can help achieve the KCDD's economic development objectives. A bike share system with stations in Waikiki, Ala Moana Center, Aloha Tower, and Downtown/Civic Center would put Kaka`ako at the nexus of many leisurely tourist trips. Combined with improved bicycle facilities and connections to regional greenway trails, bikeshare will present a powerful economic development tool, providing tourists and their spending power access to Kaka`ako and its emerging businesses.

FUTURE OF BIKE SHARING

In Copenhagen, a leading world cycling city, architects from RAFFA Architecture have developed a new bike sharing concept for the city of Copenhagen. The system features real-time GPS tracking, an online reservation system, and attractive bikes that can be stored anywhere. The new design takes on the challenge of limiting valuable urban space consumed by bike share and creating a highly attractive product designed to attract style conscious riders. This high-tech, space saving system is not being built, but is an example of the increased attention being given to cycling and public realm design.



All images from RAFFA Architecture

Bike share will likely be considered a value added amenity for prospective residents and employers looking to site their homes and businesses. For developers looking to attract customers interested in compact, transit-oriented, walkable communities, bike share is an added amenity.

Tying into the Bicycle Business District opportunity described in this chapter, bike share users could be given discounts to Kaka`ako businesses increasing the likelihood of one-time and long-term patronage.

Figure 5-19 Bike Share Propensity and Potential Generators

Bike share propensity was calculated based on 2010 population density, 2010 employment density, street classifications, existing and proposed bike network, 2012 transit boarding counts, and proximity to major trip destinations.

Data Sources: State of Hawaii Office of Planning State GIS Program: Honolulu Land Information System

Roughly 95% of all beach-climate bike share use consists of tourist access via credit card

WARM WEATHER BEACH SYSTEMS *. . . TOURIST-BASED, IN A LIMITED NETWORK*

- Miami Beach DecoBike
- Broward County B-Cycle
- Anaheim (pending)
- New Orleans (pending)
- Melbourne
- Long Beach DecoBike (NY)
- Manhattan Beach EcoTrip (CA)

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- Broward County B-Cyle
- Anaheim (pending)
- New Orleans (pending)
- Melbourne
- Long Beach DecoBike (NY)
- Manhattan Beach EcoTrip (CA)

WARM WEATHER BIKE SHARE SYSTEMS

Bike share is a particularly effective mobility tool for tourist-oriented, warm weather cities. In beach climate cities that have implemented bike share, over 90% of recorded use comes from visitors. Visitors tend to spend more time on bike share and be less sensitive to price and warm climate allow consistent year-round use, so financial stability for warm-weather systems is less of a concern.

Miami's system is one of the few privately operated bike share systems. Interestingly, DecoBike, the company that operates Miami's system has expanded to Surfside and Bay Harbor Florida and is soon to open in San Diego – all warm weather climates. This bodes well for a Honolulu system to be able to recover operating cost through rental revenues. Because the Miami system is able to cover operating costs with user revenue, it has provided the opportunity to use sponsorships and advertising to expand the system. Having opened with station spacing of 500 meters, the system is working to reduce spacing to a mere 200 meters, providing a much higher level of convenience and accessibility that most other US bike share systems.

The City of Miami has come to see bike share as a critical congestion alleviation strategy and has supported the system by investing in new bike lanes and on-street facilities where use is highest.

Bike share station locations in South Beach.
Image from DecoBike

Image from Nelson\Nygaard

WHERE HAS BIKE SHARING BEEN DONE?

NICE RIDE, MINNEAPOLIS, MINNESOTA

Minneapolis' bike share system, Nice Ride, has been a major success with over 100,000 trips in its first 6 months of operation—19% of which replaced auto trips. The system launched in June 10, 2010 with 65 stations and 700 bikes. Due to the popularity of the program, Nice Ride is currently expanding its station and bicycle unit network to 51 more stations and 500 more bicycles.


NiceRide MN docking station
Image from NiceRide MN

CAPITAL BIKESHARE, WASHINGTON, DC

Capital Bikeshare (CB) is a prime example how bike sharing can simultaneously complement transit and improve transit efficiency and overcrowding. Bikeshare members substantially reduced their use of Metrorail and bus since joining CB. Nearly half (47%) ride Metrorail less often and 39% ride a bus less often. Since the average trip was two miles, bike share catered to trips previously being made by transit. On the other hand, CB enabled multimodal trip-making as seven percent of members increased use of Metrorail and six percent increased bus use.

DecoBike docking station
Image from DecoBikes

DECOBIKE, MIAMI, FL

The Miami bike share system provided by DecoBike (DecoBike will soon operate bike share in San Diego) is a privately operated system, which started operations in Miami Beach. DecoBike features a network of 100 solar-powered bike rental & sharing stations with a fleet of 1,000 custom DecoBike accessible from dozens of locations. With 1,290,606 rides logged in 2012 alone, the Miami system is the busiest fleet per-bike of any US bikeshare program. Its success is due in part to warm year-round weather and high rate of tourism, two attributes shared with Honolulu.

Image from DecoBikes

Partner with Honolulu Bike Share Group

In order for bike share to successfully operate in Kaka`ako, any future system will operate and provide connectivity to adjacent districts in urban Honolulu. HCDA will partner with the Honolulu Bike Share Group to determine a preferred governance and funding structure, system feasibility, identify system sponsors, and integrate rules that accommodate bike share in Kaka`ako. A critical first step is to work with partners to identify an organizational, operating and funding structure that best matches local goals operating conditions, and funding opportunities.

While bike share as an amenity will help attract residential customers to the district, its greater value is to bring visitors, workers, and residents from elsewhere to emerging cultural amenities, restaurants, and activities in the KCDD. Creating a bike share network that connects many Honolulu neighborhoods and destinations benefits HCDA and the KCDD community.

Encourage Developers to Consider Bike Share in New Development

Bike share demand in Kaka`ako will vary dramatically based on land use types and land use intensity will fluctuate over time as the district redevelops. Setting up a development program that triggers investment in new stations when new buildings or developments come online is a necessary approach. HCDA will provide further incentives and requirements to ensure sufficient space is provided for bike share stations and to provide the opportunity for developer to integrate bike share stations into the design of their buildings and public spaces. This could come in the form of reduced permit fees and density bonus without additional parking requirements.'

Encouraging new development to incorporate bike share and even fund capital purchases of equipment will help reduce the cost of system development and ensure that bike share is not consuming valuable space in the public rights-of-way.

Action MA13.4 Improve access to bicycle parking and require new development to include bicycle storage

Every bicycle trip begins and ends with parking. It is important to provide easy to use, secure, and convenient parking that is visible and close to popular destinations. Secure parking with commuter amenities (such as shower facilities) are also needed near transit stations and employment centers. Although bicycle parking is already required in the Mauka area rules, the three KCDD light metro stations and all new parking facilities will include long-term secure bicycle parking, and where possible, air pumps and repair stands will be provided with bicycle parking at these major facilities.

Standard staple or U-racks on a commercial street are aligned to provide clear path for pedestrians.
Image from Nelson\Nygaard

The number and location of bike parking spaces should be enough to meet observed needs, or to accommodate a shift of 15-25% from current auto parking rates, whichever is greater. As necessary, HCDA will retrofit auto parking facilities and commercial areas to meet bicycle parking needs. HCDA will develop a program that helps to fund installation of basic bike parking and to honor cyclist and merchant requests for rack installations whenever possible.

Private property developers and new KCDD projects will be required to build bicycle parking. Bicycle parking and facility requirements will be revised and enhanced.

Create a Process to Allow On-Street Bike Corrals

Bicycle corrals remove one to two on-street auto parking bays in exchange for 6-12 bicycle racks that can park between 12 and 24 bicycles.

Anecdotal evidence suggests that ample bicycle parking is good for business. A 2010 Portland study concluded that businesses close to bicycle corrals perceive that their customers are increasingly arriving by bike.[2] This study reported that 84% of businesses with a bicycle corral in front of their business reported that the bicycle corral enhanced the street. Surveyed business owners reported that an estimated 25% of their customers were arriving by bike.[3] Moreover, a long waiting list for bicycle corrals in Portland suggests that these corrals are in high demand and desired by businesses. The City of Vancouver, B.C. has installed a pilot bike corral with plans to expand the program.

A standard bike corral located to provide cyclist easy access to a local restaurant
Image from Nelson\Nygaard

Since 2004, the City of Portland has offered an on-street bicycle parking corral program where local businesses apply for the City to install a bicycle corral in front of their business. To date, this program has installed almost 100 bicycle corrals across the city to accommodate the growing demand for bicycle parking.

HCDA will work with the City and County of Honolulu DTS to establish a business-supported program for permitting bicycle corrals. The program will be business-initiated and will require buy-in from the major businesses fronting a block face. An application process will be established and a fee could be established to help offset costs. (The City of Portland application can be viewed at: http://www.portlandoregon.gov/transportation/34813?a=270766).

Action MA13.5 Work with the City and County to fund and construct the Kaka`ako element of the citywide bicycle network (O`ahu Bicycle Plan)

HCDA's ability to make Kaka`ako a bike friendly area is interdependent with the rest of the city. A great cycling environment allows users to go most places, at most times of day without concern for safety or comfort. A commuter may chose not to bike to work if she knows that her midday trip to the doctor is not on a cycling route that is safe and comfortable.

As HCDA works to develop complete, bicycle friendly streets within its District, it can also advocate for and partner with DTS and other local groups to make urban Honolulu a great place to cycle.

Strategy MA14 Create a safe, comfortable cycling environment in Kaka`ako through facility design and public education

Action MA14.1 Create a destination-oriented bikeway signage and wayfinding system to direct riders to bikeways and major destinations such as hospitals, schools, shopping districts, bike parking, and bike share/rental and repair locations

2 Drew Meisel, "Bike Corrals: Local Business Impacts, Benefits, and Attitudes," (Portland: Portland State University School of Urban Studies and Planning, 2010).
3 Ibid

A successful cycling system is one that is easy and straightforward to navigate. Wayfinding is a critical strategy to help orient cyclists unfamiliar with an area to the safest bicycle access routes and amenities, such as bicycle parking, showers, locker facilities, and other amenities. District wayfinding is addressed in the street connectivity section of this chapter.

HCDA could require developers to include bicycle wayfinding when development parcels are large enough to require internal circulation streets or pedestrian ways. Wayfinding will direct cyclist to bicycle parking, nearby on-street bicycle facilities, and regional multi-use trails.

Action MA14.2 Fund, construct and ensure operation of bicycle-transit centers at light metro stations (e.g., Bikestation model), which provide amenities such as secure bike parking, bike repair, and transit information

In addition to installing a variety of bicycle parking types for different time requirements, several major U.S. cities have located full service bike stations at or near transit hubs. The non-profit organization, Bikestation®, operates seven locations. Full service bike stations include bike parking, maintenance and repairs, education centers (at select locations), retail shops, showers, lockers, and changing rooms. According to recent before-after evaluations, bike stations have proven to be effective at shifting motorists to cycling. An average of 33%, and up to 65%, of Bikestation® members who previously drove are now using the Bikestation® facility for the same trip.[4] Instead of simply creating a bike storage room, bike cage, or short-term bike rack, these facilities are successful because they also provide value-added services, such as tire repair and tune-ups, geared toward new riders.

Interior and exterior of a Bikestation® in Washington DC
Image from Bikestation®

Likewise, transit agencies are now realizing the bike station concept's value added to the transit experience. Bay Area Rapid Transit in the San Francisco Bay Area owns and operates four bike stations, including the second largest of its kind in the nation.

Bicyclists accessing Kaka`ako station areas will be offered world class end-of-trip amenities. Offering high caliber end-of-trip amenities will not only increase bicycling rates, but also draw people and business to Kaka`ako. HCDA will work with HART during the design process for the Downtown, Civic Center, and Kaka`ako light metro stations to incorporate an enclosed, full service bicycle center.

4 Email correspondence with Andrea White-Kjoss, Executive Director of Bikestation®.

AUTO

Automobile Network

The Role of the Automobile

At its best, the automobile provides speed, comfort, privacy and an extraordinary degree of personal mobility. When overused, however, automobiles quickly eliminate all of these advantages, trapping their drivers in congestion along polluted, featureless arterials and highways. To fulfill their promise, automobiles are dependent upon the success of other modes. Paradoxically, it is only by making walking, bicycling and transit more attractive than driving that we can make driving efficient and pleasurable. Even in the most congested corridors, we need only shift 10 percent of motorists to other modes in order for congested streets to flow freely.

The Automobile Network

The automobile network provides guidance for how trips will be distributed across the street system, and how streets will be managed so that they function well according to their purpose. Regional serving commercial boulevards will be operated so that they serve regional trips more time competitively than district avenues and district streets. District streets, on the other hand, will be designed for local traffic and for speeds low enough that bicyclists and pedestrians can mix safely with cars.

The KCDD TOD Overlay Plan recommends some modifications to the street designations established in the Mauka and Makai Area Plans. These are described in Chapter 6 along with guidance on how different streets will be designed and managed to accommodate automobiles. Recognizing that one function of streets is to carry automobile traffic, Figure 5-8 shows the priority given to autos on various district streets, including future street connections. These are not meant as official street designations, which are addressed in Chapter 6, but rather an illustration of the role each street plays in local and regional auto mobility and for providing access to parking and loading for trucks.

Strategy MA15 Manage local and regional traffic to allow regional mobility and local access while limiting impacts to livability in KCDD

Honolulu is consistently rated as one of the worst cities in the nation for traffic congestion and driver delay. Traffic analysis conducted for the Mauka Area Plan indicated that build out of the preferred land use scenario would lead to more traffic congestion on district streets. Traffic is unavoidable and congestion in the KCDD is likely to worsen. This plan recognizes that urban congestion is inevitable and the successful realization of land use, urban form and placemaking, economic, and cultural goals will lead to greater travel demand. Continuing to use traditional vehicle level of service measures as the benchmark for transportation success will require sacrificing other critical goals.

Many regional through trips are made on Kapiolani
Image from Nelson\Nygaard

Figure 5-20 Street Priorities for Vehicular Travel

Priorities

- Primary
- Secondary

Functions

- **Regional** — Serves regional automobile trips and provides access to and from Lunalilo Freeway (H1). All modes of transportation may be accommodated on these corridors. Primarily designed to discourage regional auto traffic from using Secondary or low speed parking access streets.
- **District** — Provides local access for all modes of transportation and supports District retail, commercial, and residential access.
- **Service / Parking** — Streets with speeds calm enough to ride without separated bicycle facilities

- Light Metro Alignment
- Light Metro Stations

0 0.1 0.2 Miles

Data Sources: State of Hawaii Office of Planning State GIS Program; Honolulu Land Information System

Building on the philosophy that transportation is only a means to support the broader social, economic, and environmental goals of the Kaka`ako community, HCDA must adopt an approach that recognizes congestion will occur and is a integral component of a vibrant and bustling urban district, that transition to multimodal mobility and access is the only means to support KCDD land use goals, and that through-traffic will be managed to minimize impacts on the KCDD community.

Action MA15.1 Strive to maximize the efficiency of the existing automobile infrastructure and manage major boulevards and commercial avenues so that they provide shorter travel times than parallel residential avenues or mixed use streets

Chapter 6 (Complete Streets) details design strategies to ensure that streets within the KCDD that carry major regional through traffic – both autos and freight – are designed to balance access to the district with the need for efficient through movement. Local district streets that parallel major

regional through streets will be designed to provide local access and prioritize pedestrian quality, ensuring that through travel is more convenient on regional streets.

Action MA15.2 Develop a network of local access streets to promote delivery, parking, and loading off primary mobility streets

Kaka`ako's boulevards, avenues, and district streets will be required to carry more people as the district grows. Managing uses that require curb space and driveway accesses that cross bicycle facilities and sidewalks is a key strategy to ensure key mobility streets can be maximized for the purpose of moving people to and through key locations in the KCDD. HCDA will work with developers to encourage new local access streets, alleys, or shared streets that allow critical delivery and loading functions to occur internal to development blocks or on streets designated for local access and delivery (see Chapter 6 street designations).

Local delivery and parking access streets like Koula Street will be designed to accommodate large vehicles while respecting the walkable design of KCDD, Image from Nelson\Nygaard

Strategy MA16 Provide a safe environment for all road users

Ensuring our streets are safe will start with a consideration of our most vulnerable users. If an elderly person or child can't walk safely on a street, is that the type of facility we want to support and continue to build? If a 60 year old doesn't feel as comfortable riding a bicycle as a 25 year old, have we provide a fair and equitable opportunity for community mobility?

Research is increasingly showing that city's with streets design for pedestrians and bicyclists, as well as motorists are safer overall. A 2011 study by Wesley Marshall and Norm Garrick (*Evidence on Why Bike-Friendly Cities Are Safer for All Road Users*) evaluated bicycle and pedestrian safety in 24 cities that varied significantly in their level of bicycle infrastructure investment. They found that those with higher levels investment had less pedestrian and bicycle fatalities per capita. This is attributable to a number of interrelated factors, including increased driver alertness to non-motorized travelers, better visibility of pedestrians and bicyclists traveling in large numbers, slower automobile speeds, lane width reductions from added bicycle facilities, higher intersection/traffic control density, and the effect of bicycle and pedestrian infrastructure as traffic calming.

AGING POPULATIONS & PEDESTRIAN SAFETY

According to the FHWA, the rate of pedestrian deaths is almost 1.7 as higher for people 70 and older combined than for those younger than 70 combined.

In short, complete streets within well connected networks that are carefully designed for pedestrians and bicycles as well as vehicles increase safety and enhance community livability. Chapter 6 provides design guidance how to design safer streets for all roadway users

Action MA16.1 Use traffic controls and design features to encourage motorists to drive appropriately for the type of streets they are using

More detail on street designs that promote user safety are provided in Chapter 6 – Complete Streets.

Action MA16.2 Manage automobile speeds on major boulevards and district avenues to ensure comfort and safety for other roadway users

More detail on street designs that promote user safety are provided in Chapter 6 – Complete Streets.

Strategy MA 17 Encourage a more sustainable transportation system

Since autos and buses will continue to move the majority of trips in and out of Kaka`ako for years to come, improving the efficiency and reducing emissions from those vehicles is important. Hawai`i and the Kaka`ako community are well positioned to be national leaders in low-emissions transportation technology. This move is of heightened importance in Hawai`i given its high level of reliance on imported fossil fuels for all mobile and stationary energy needs. To help make the shift from petroleum-based fuel, the state partnered in 2008 with the U.S. Department of Energy to create the Hawai`i Clean Energy Initiative (HCEI). A goal under this initiative is to reduce oil consumption by 70 percent by 2030 (30% from energy efficiency, and 40% from renewable energy). HCEI estimates that attainment of these goals will keep a substantial amount of the nearly $6 billion spent annually on imported oil here in the islands, creating jobs and benefiting the economy.[1]

Locally, HCDA can work with its partners to help realize these goals.

Action MA17.1 Promote public and private efforts to transition to clean vehicle fuels and technologies—especially emissions-free electric power

HCDA can provide necessary political support (infrastructure, policy, planning, etc.) for private electric vehicle adoption, adoption of next generation biofuels, and development of the supportive infrastructure.

Since Hawai`i's electric generation is largely from fossil fuels, optimizing the environmental value of increased electric vehicle use will require renewable energy powered charging stations. While most public Electric Vehicle (EV) charging stations operate from the power grid, there are solar powered stations on the market. SolarCity is marketing its solar energy systems along with electric car charging installations.

Solar powered charging station in Rio De Janiero
Image from Andricos

HCDA can also support the development and local adoption of biofuels, including aggressive near-term adoption of the best first-generation biofuels (sugar ethanol and equivalents), and development of second-generation bio fuels such as cellulosic ethanol (which may have life-cycle GHG emissions that are 70% lower than petroleum).

Action MA17.2 Develop "plug-in" electric vehicle charging stations throughout Kaka`ako

Hawai`i is a national leader in adoption of EV technology. Several groups have targeted Hawai`i for early ventures in EV charging due to excellent conditions for EV operations. The Hawai`i Department

1 http://energy.Hawai`i.gov/wp-content/uploads/2011/09/updated-EV-Guidebook_FINAL_Sep-25_2012.pdf

The KCDD is home to the Hawai`i Center for Advanced Transportation Technologies (HCATT). HCATT has organized public/private partnerships between the federal government and private industry to develop advanced low emission and zero emission vehicles centered on electric drive technologies. Over the years, HCATT has been awarded more than $40 million in federal funds, which was matched by another $23 million from private partners. It is a national leader in the development of electric and hydrogen fuel powered vehicles.

The City of Honolulu installed public EV charging stations include one in at the Neil Blaisdell Center.
Image from City of Honolulu

Electric Vehicle
Charging Station Regulations

Hawai`i has among the most aggressive laws requiring EV charging stations in publicly available parking facilities. All parking facilities that are available for use by the general public and include at least one hundred parking spaces must designate at least one parking space specifically for PEVs by July 1, 2012, provided that no parking spaces required by the Americans with Disabilities Act Accessibility Guidelines are reduced or displaced. Spaces must be clearly marked and equipped with electric vehicle supply equipment (EVSE). Owners of multiple parking lots may designate and install EVSE in fewer parking spaces than required in one parking lot, as long as the total number of aggregate spaces for all parking lots is met. (Reference Senate Bill 2747, 2012, and Hawai`i Revised Statutes 291-71 and 291-72)

of Business, Economic Development and Tourism operates the Hawai`i EV Ready Grant program to help support electric vehicles infrastructure development. This program helped fund a public available charging station at the Neil Blaisdell Center in the KCDD among other locations around the City.

To spur the adoption of EV in the Honolulu metro area, Honolulu Clean Cities developed a Guidebook for Commercial Electric Vehicle Charging Station Installation that provides a comprehensive guide to planning, permitting, installing, and operating EV charging stations.

STATION ACCESS

Integrating Rapid Transit in the Kaka`ako District

The Honolulu Authority for Rapid Transit project is a piece of civic infrastructure that will cut an elevated swath across the center of Kaka`ako. HART plans to contract for station design of two stations within the Kaka`ako District (Civic Center and Kaka`ako) along with the six other stations that comprise the Diamond Head segment of the light metro alignment including Downtown and Ala Moana. This section provides an outline of design strategies, opportunities and overall vision for the two Kaka`ako District Stations (Civic Center Station and Kaka`ako Station) as well as provides opportunities for the Aloha Tower parcel under HCDA jurisdiction (neighboring to the Downtown Station). It also outlines design guidance for preferred future station and alignment design, and a series of access strategies. HCDA will collaborate with HART to ensure that these design principles and strategies are considered during the transit system's implementation process to help make HART a local asset (rather than a encumbrance) in the transitioning Kaka`ako District.

Elements of Station Access

Station access includes the total travel experience from a transit passenger's origin (e.g., home) to his or her final destination (e.g., work, school, entertainment). Access includes the physical act of travelling to the transit station as well as the psychological ease of navigating the route to get there, regardless of the mode taken. Given the relative simplicity of driving a personal car directly from origin to destination, the success of a new transit investment depends on understanding the total transit experience to maximize ridership by making transit competitive and compelling to as many potential riders as possible. To this end, this section provides a set of overarching station access principles and specific strategies and actions to ensure Civic Center and Kaka`ako stations are focal points of the KCDD community.

Station Area Principles: Place, People, and Performance

The three major principles that guide the TOD Overlay Plan approach to integrate the light metro stations into the neighborhood are *People*, *Performance*, and *Placemaking*. Design objectives for the public realm related to *People* optimize convenience and comfort for all transit users by simplifying travel to/from and within the station area and adding human-scaled design elements. *Performance* objectives foster seamless multimodal connections. Lastly, *Placemaking* principles are tied to creating opportunities for context-sensitive design solutions, complete with active public spaces, and transit-friendly land uses. Principles for the Kaka`ako, Civic Center and Downtown Station locations are presented in Figure 7-1. Figure 7-2 illustrates how selected principles might be considered at the Civic Center Station.

Access Hierarchy

All modes of station access cannot be given equal priority. At every station, there is limited space and scarce funding available for access improvements. Recognizing these constraints, the proposed station access hierarchy illustrated below establishes priorities for access improvements and policies. The station access strategies and actions described in this section are based upon this hierarchy.

Figure 5-21 Station Access Principles and Objectives

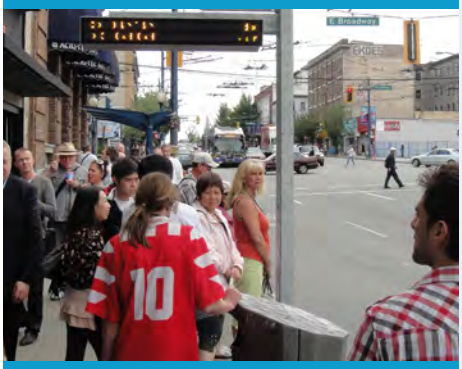
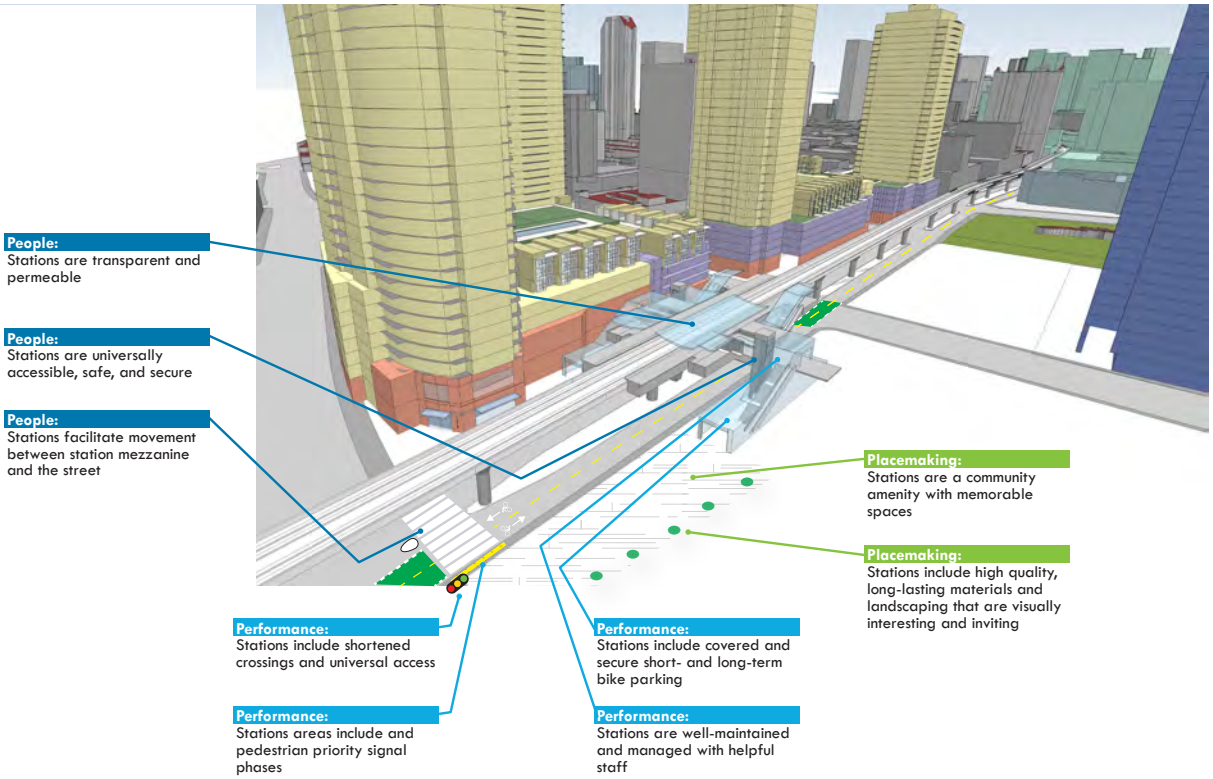
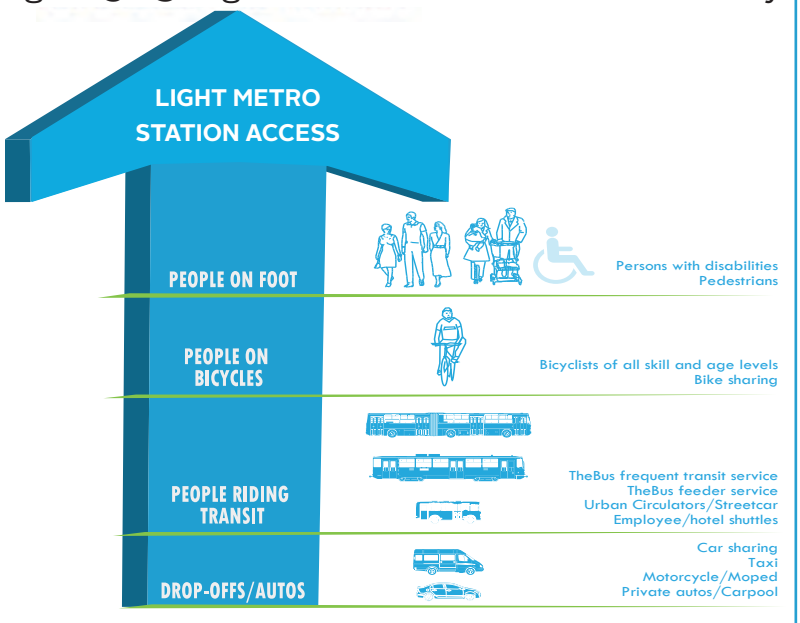
Principles	Objectives
PEOPLE 	• Station access will be simple and intuitive, with a legible layout for street-to-train, bus-to-train, and station-to area destinations. • Station siting maximizes pedestrian connectivity to the street and adjacent uses while considering pedestrian safety issues and operational/functional needs. • Public realm designs adjacent to the station provide generous space for pedestrian movement, weather protection, comfortable furnishings and Crime Prevention Through Environmental Design (CPTED) elements. Design includes street-level activation and high quality lighting to make under-guideway environments more comfortable. • The station addresses and balances the needs and hierarchy of all modes, including pedestrians and cyclists, transit, and vehicular travel.
PERFORMANCE 	• The station area eliminates safety conflicts between roadway users and reduces ground transportation collision rates. • Efficient bus transfer locations are developed and kiss-and-ride layout is planned and designed to minimize impacts with other modes. • The station includes secure bicycle parking and storage facilities and convenient bike-on-transit integration. Additionally, all streets in the station area will provide a safe and comfortable space for cyclists.
PLACEMAKING 	• Station sites are community assets designed to enhance local environment. • Station areas integrate with transit-friendly development projects, generous public realm, public gathering areas, sidewalks and activated streetscapes. • Elements to humanize the scale of new infrastructure are included where feasible such as distinctive architectural treatments, public art, and under alignment landscape.

Figure 5-22 Station Access Principles at Civic Center Station



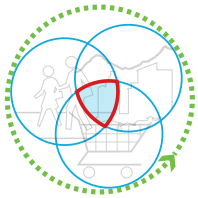
The proposed access hierarchy prioritizes pedestrians above all other modes. Walking to transit is the most cost-effective, environmentally friendly, and equitable form of station access. Furthermore, every transit rider is a pedestrian for at least part of their trip, even if it is only from the bus drop-off to the station platform. Bicycling is the second highest access priority. Similar to walking, its cost and environmental impact is minimal. It remains a highly equitable form of transportation even if it may not be an option for all users. The remaining access modes are prioritized based on their increasing cost, space demands, and environmental footprint. Bus transit access to light metro stations will be of critical importance; however, major bus transfer points are planned outside the district to the east and west at the Ala Moana and Downtown Stations.

Figure 5-23 Light Metro Station Access Hierarchy



Access Demand

Station access needs are determined based on station access demand by mode. Opening day ridership projections for the Kaka`ako and Civic Center sta-



tions are 3,320 and 3,930 respectively. In both cases, approximately 80% of these transit trips are expected to originate on foot and by bicycle, thereby increasing the importance of adequately designed pedestrian and bicycle facilities. Furthermore, given that both station areas are planned for significant redevelopment, multimodal access demand should be based on future build-out conditions.

An estimate of 2035 ridership is compared to opening day. Both stations are expected to see ridership growth of over 500% in the 20 year time period. These projections do not include any additional growth allowed under the TOD Overlay Plan scenario.

Figure 5-24 Opening Day and 2035 Ridership at KCDD Light Metro Stations

	Civic Center			Kaka`ako		
	2035	Opening	%Change	2035	Opening	%Change
AM and PM Peak Periods	5,878	880	568%	5,348	570	838%
Total Daily	7,168	3,930	82%	7,771	3,320	134%

Note: Peak Period is defined as 4 hour AM and 4 hour PM peak; 2035 projections based on OMPO Modeling for RTP (2035 projection), may differ from official HART ridership forecasting

Overall Access Strategies

Helping passengers get to the rapid transit stations is a shared responsibility: the City/County of Honolulu, HCDA, and HART must work together to ensure that the stations themselves are well-integrated with the surrounding areas, and that passengers using all modes of transportation have safe, comfortable, and convenient paths of travel to and from the station. While HART is responsible for the design of the stations themselves, this section outlines a set of strategies and actions for the areas around the station. Streets, paths, signage, connections to feeder transit, buildings in the station area: these are the elements that tie the station together with the surrounding community.

This section describes strategies that the HCDA can implement, or advocate for, as light metro stations and adjacent developments and streets are designed. In addition, the specific recommended station area actions listed below should be implemented by the appropriate agency depending on the location and nature of the improvement.

Strategy MA18 Ensure high-quality pedestrian access to transit stations.

Walking to and from transit stations should be safe, comfortable, and inviting. The key strategies for creating a great pedestrian environment are discussed in detail in Pedestrian section of this chapter. In addition, important considerations that apply specifically to transit access include:

- Improve street connectivity in the half mile area around the station to shorten walking distances to and from the transit station and increase the total population within walking distance of the station. More detail is provided in the Walking section of this chapter.
- Prioritize pedestrian crossings and minimize conflicts with other modes. Assess intersections and street crossings along preferred routes of pedestrian travel to and from the station and adjust designs to prioritize pedestrian movement. More detail is provided in the Walking section of this chapter.
- Provide adequate capacity for passenger flows within and outside the station, focusing on support of development potential. Ensure sidewalks and walkways are sufficient in size to accommodate a number of pedestrian activities including passenger flows, sitting, standing, leaning, and queuing.
- Promote transit-oriented development close to stations, using good design to ensure amenities

for pedestrians, lively street frontages and "eyes on the street." More detail is provided in the Walking section of this chapter.

Strategy MA19 Maximize feeder transit connectivity.

High-quality connections between transit routes can dramatically improve the usefulness of the transit system for passengers. The station area should be configured to ensure a seamless connection between feeder bus routes and the rail line. Key considerations include:

- Ensure that roadways in the station area meet geometric design requirements for transit vehicles.
- Ensure adequate transit and shuttle bay space to promote efficient intermodal transfers. Space requirements include both pick-up and drop-off bays and layover and recovery areas for routes that terminate at the station.
- Position bus stops as close as possible to transit station entrances, and ensure safe paths of travel to bus stops and the station.
- Provide a comfortable, safe waiting environment for intermodal transfers, including information about bus routes and schedules.

Pedestrians have direct access to either side of the street from the Metrotown Station on Vancouver's SkyTrain system.
Image from Nelson\Nygaard

Strategy MA10 Provide bicycle connectivity and storage.

Bicycle travel supports transit by extending the reach of the transit system; while few passengers will walk more than half of a mile to reach transit, most bicyclists are willing to travel up to three miles to reach high-frequency transit services. More detail on bicycling accommodated in Kaka`ako is provided in the preceding sections chapter. Listed below are key principles for promoting bicycle access to transit stations:

This high-quality bus stop provides access to bus service immediately adjacent to a SkyTrain station in Vancouver.
Image from Nelson\Nygaard

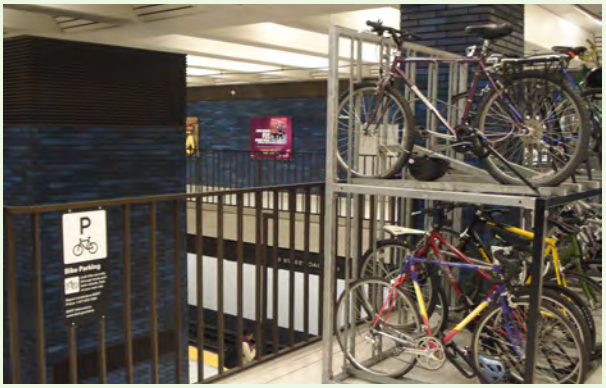
- Provide direct, safe and well-marked on-street bicycle facilities at light metro stations.
- Provide secure, conveniently located bicycle parking facilities to meet demand, including both short-term and long-term bicycle storage. Long-term bike parking should be provided in fully enclosed cages, which also provide visibility from the outside to reduce theft or tampering.
- Provide space for bicycle sharing. Bike sharing programs can be designed to meet these "last mile" connections by providing convenient and affordable access to bicycles for shorter trips.
- Design and build stations to allow bicycle access to trains. Some rail systems allow cyclists to bring their bicycles on board, and others do not. While HART will weigh many factors in determining whether bikes should be allowed on-board trains, stations should be designed to accommodate bicycles in case they are permitted on trains in the future.

Traditional staple racks on the mezzanine level of a BART station are well utilized as they are weather-protected and in sight of security personnel.
Image from Nelson\Nygaard

CASE STUDY: BAY AREA RAPID TRANSIT BICYCLE ACCESS PLAN

In 2012, BART conducted a comprehensive assessment of bicycle parking at its many stations through the San Francisco Bay Area. The assessment supports a strategy to increase bicycle access mode share from 4% to 8% of all access trips to BART. The agency estimates that bicycle access is a key strategy to increase ridership and provide better access to regional transit at the lowest cost and with the least environmental impacts. The effort determined that bike access is already trending upward – between 1998 and 2008, BART's bicycle access rate increased by 69%, while daily ridership increased by just 27% during the same period. Looking at more detailed analysis, neighborhoods more comparable to Kaka`ako saw increases in bike access of well over 100% in the same period.

The BART inventory found that while there was unused bicycle parking throughout the system, there were shortages of supply for covered, indoor, and secured parking, particularly parking located inside the systems fare gates and in conveniently located lockers. The BART story shows that getting the amount of bike parking right is only half the challenge, making sure it is safe, secure, and conveniently located to the platform is also critical.



Stacked bike parking inside a BART station.
Image from Nelson\Nygaard

A cyclist with his bicycle crosses the Frasier River on Vancouver's Canada Line.
Image from Nelson\Nygaard

Strategy MA21 Provide for and manage vehicle access to transit stations.

While the KCDD light metro stations will be designed primarily for pedestrian and bicycle access, it must be recognized that some passengers will arrive by automobile. While the stations will not provide dedicated park-and-ride facilities, transit passengers may use taxis, be dropped-off or picked-up at the station by other drivers, or drive themselves and park in private parking facilities or on-street. Key principles for accommodating and managing vehicle access include:

A taxi serving Bay Area Rapid Transit's elevated Daly City Station.
Image from Nelson\Nygaard

- Provide adequate space for drop-off/pick-up to proceed comfortably and in an orderly manner. More space may be required than is indicated in light metro Station Access Plans for the two stations.
- Locate transit passenger drop-off/pick-up and taxi areas so that vehicle movements do not conflict with bus traffic, other traffic, or pedestrian movement in the station area. Ensure passengers arriving by private vehicle are not given "front door access" at the expense of other modes.
- Monitor transit passenger parking on-street in the areas around the stations, taking steps to regulate spillover parking into residential areas when necessary.
- Consider steps to allow transit passengers to use underutilized parking in the station area. This may include conversion of some time-limited parking to longer-term paid parking (as discussed in Chapter 7), or conversion of some private off-street accessory parking to publicly-available shared parking.

Strategy MA22 Ensure clear wayfinding in the station area.

HCDA and HART can work together to ensure a legible station area that includes both clear and consistent signage and easy-to-navigate paths of travel. Wayfinding is discussed in detail in the preceding sections of this chapter. Key elements of the wayfinding strategy that apply specifically to station access include:

- Design the station area so that passengers can quickly and easily orient themselves during the journey between the fare gates and the bus stop, parking lot, drop-off zone or bicycle racks, or the sidewalk network of the local jurisdiction.
- Coordinate with HART and the City and County of Honolulu to develop station signage consistent with system-wide sign types, locations, colors, fonts, and symbols.
- Expand the traditional scope of transit wayfinding devices by including signage and maps directing passengers to bike facilities, major pedestrian routes and station area attractions such as Blaisdell Center, University of Hawai`i School of Medicine, and Ward 16 Theatres.
- Locate passenger information and maps outside the stream of dominant passenger flows to minimize bottlenecks and pedestrian congestion.

Strategy MA23 Provide for universal access to transit stations.

Transit stations and station areas should be designed to be accessible to people of all abilities. By designing according to principles of universal access, station areas can welcome people with reduced mobility, as well as visual and hearing impairments. They also become easier to access for people with

CASE STUDY: TRANSIT WAYFINDING STANDARDS

TransLink, Vancouver, BC's regional transit provider, adopted its Wayfinding Standards Manual in 2010 to establish a clear and consistent practice for its wayfinding devices and tools. The intent of the Manual is to meet three key objectives:

- Encourage multimodal journeys
- Provide consistent information
- Deliver usable, suitable and manageable information.

To meet these objectives, the standards adhere to the following principles:

- Provide seamless information
- Understand complex journeys
- Be predictable
- Name the places
- Utilize consistent codes
- Progressively disclose information
- Don't make directions complicated
- Provide just the right amount of information
- Ensure information has integrity
- Help riders learn the system
- Use an appropriate tone of voice

Symbol-Based Wayfinding signage *(MAX rail system, Portland Oregon).*
Image from Nelson\Nygaard

Signage directs passengers at Vancouver TransLink's Metrotown Station.
Image from Nelson\Nygaard

strollers or young children, luggage or large bags, and shopping trolleys or bicycles. More detail on accessibility for pedestrian facilities is provided in the Walking section of this chapter. Key elements of the universal access that apply specifically to station access include:

- Take special care to ensure that streets and intersections within 0.5 miles of each transit station are fully accessible for pedestrians with disabilities, including adequate curb ramps, clear paths of travel, and safe crossings. Incorporate audible signals into all station area signalized intersections to assist pedestrians who are blind or low vision. All new signals should also include pedestrian countdown timers to assist pedestrians in understanding how much safe time they have to cross the street.
- Reduce barriers and vertical obstructions. Minimize the number of level changes required to complete a trip, and when level changes do occur, provide both elevators and escalators.
- Provide fully accessible bus stops, as defined by the Americans with Disabilities Act, and provide adequate bays for paratransit vehicles.

Accessible Elevator (New York MTA Utica Subway Station).
Image from Nelson\Nygaard

- Provide information in a variety of media types to cater to the needs of the visual, hearing, developmental, and mobility-impaired.

Station-Specific Access Strategies and Actions

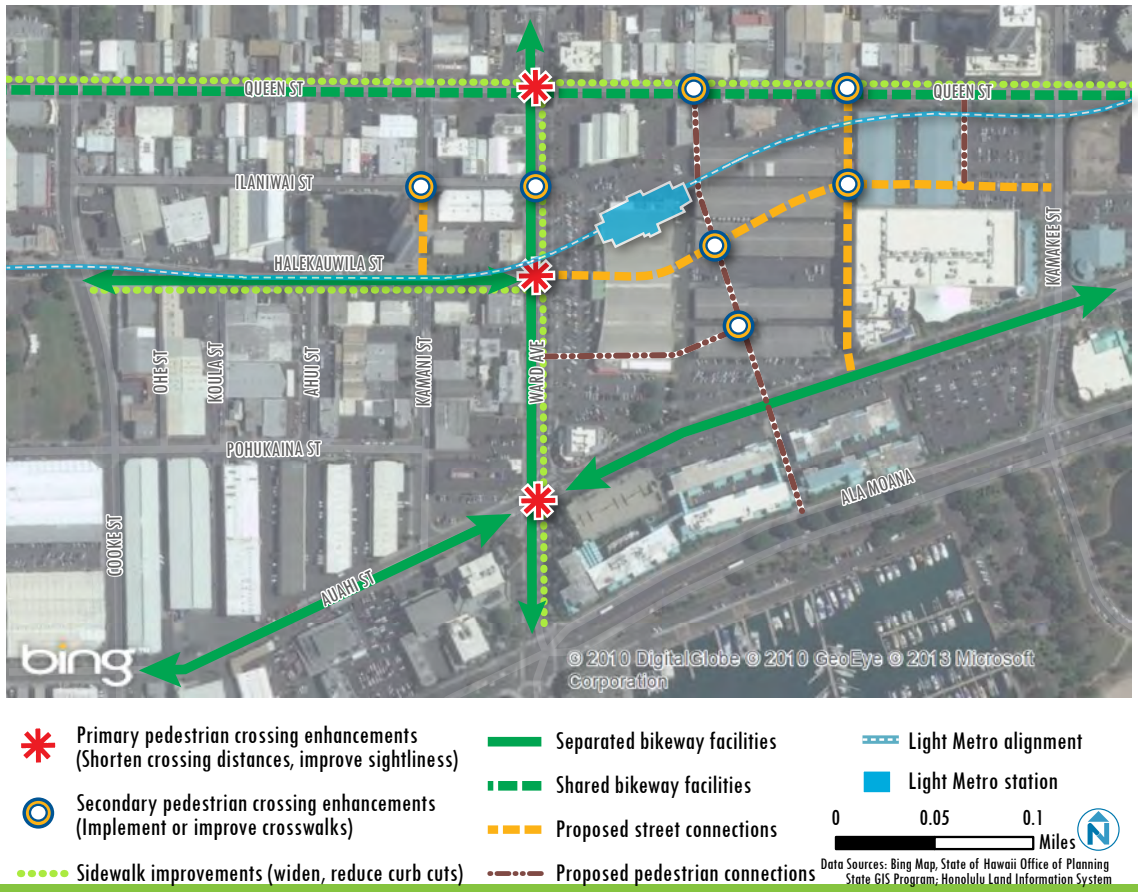
This section includes specific actions that HCDA and the City will undertake to implement the strategies outlined in the previous section for the three light metro stations: Kaka`ako Station, Civic Center Station, and Downtown Station at the Aloha Tower Special District.

Strategy MA24 Implement actions specific to the Kaka`ako Station.

Located just off of Ward Avenue, the Kaka`ako Station is the first station after the alignment leaves Halekauwila Street as it begins to veer southeast to meet with Kona Street. It will be embedded within a mixed-use district with an eclectic blend of retail, entertainment, industrial and high-density residential buildings. Key potential transit attractions include the Neal S. Blaisdell Center, University of Hawai`i School of Medicine, Ward Center, and the Kaka`ako Waterfront and Ala Moana Beach Parks. Similar to Civic Center, the attractions are not directly adjacent to the transit station and will require visitors and employees to walk, bike, or transfer to a bus or shuttle to reach their final destinations. Much of the area surrounding the station is planned for major redevelopment by the Ward Neighborhood Master Plan. Existing low-intensity land uses will be replaced by mixed-use residential development with FAR ranging from 9 to 12.

The strategies and actions below are designed to improve these connections and enhance the overall accessibility of the station. They consider the current condition and the transformation of the surrounding blocks of within the TOD Plan horizon.

Figure 5-25 Kaka`ako Station Access and Circulation



Action MA24.1 Increase building setbacks along Ward Avenue to ensure sufficient sidewalk widths as redevelopment occurs

Based on build-out projections and AM peak demands, sidewalks and walkways at, or near, the station will need to be 15 feet wide minimum, 20 feet preferred. In most locations along Ward Avenue, a minimum of 5 feet of additional setback is recommended to achieve the minimum 15 feet sidewalk widths. For a comparison, sidewalks on North America's most iconic, major transit and pedestrian corridors, such as Market Street in San Francisco, are 30 feet or more in width.

Generous sidewalks near a SkyTrain Station in Metro Vancouver.
Image from Nelson\Nygaard

Action MA24.2 Design waiting areas and station plazas to safely accommodate potential crush loads during peak periods of travel and before and large events.

The Kaka`ako Station is likely to be the transit station of choice for visitors to the Blaisdell Center's many annual events. If designed properly, the high capacity transit connection can dramatically reduce the need for parking at such events and mitigate traffic congestion. A full capacity stage event in the arena, for instance, can accommodate 8,800 attendees (up to 17,000 in the arena proposed in the TOD scenario). Assuming even a modest transit mode split of 10% would bring up to 900 passengers to the station, approaching double the peak AM demand. Given the capacity of the two-car train sets, passengers may have to wait through one or two trains before they are able to board. To help ease potential passenger frustration, waiting areas and street-level plazas will be designed to encourage short-term public congregation and dwelling.

Action MA24.3 Introduce pedestrian countdown signals at all signalized intersections along Ward Avenue.

Pedestrian countdown signal heads allow pedestrians to judge if they have sufficient time to cross a street. They are particularly useful to populations requiring additional crossing times including the disabled, elderly, and adults accompanying small children. In addition to reducing pedestrian crossings on red and vehicle-pedestrian collisions, they have been shown to increase driver caution when approaching these intersections.

Action MA24.4 Install a signalized crossing with countdown signal heads on the mauka side of the intersection of Ward Avenue and Halekauwila Street.

The proposed crosswalk will provide a more direct connection from the west to the station entrance plaza for pedestrians and transferring bus passengers.

Action MA24.5 Enhance the pedestrian crossing at the intersection of Ward Avenue and Ilaniwai Street.

The intersection of Ilaniwai Street and Ward Avenue is unsignalized and lacks a crosswalk on the Mauka side of the intersection. Given that a full signal is unlikely warranted, this crossing could be improved with zebra crosswalks on both sides the intersection and pedestrian actuated rectangular rapid flashing beacons (RRFB). In an evaluation conducted by the Federal Highway Administration (FHWA), RRFBs improved vehicle yield/stop rate from under 2% to 85%.

Action MA24.6 Provide new direct pedestrian connections from the Ward Neighborhood Master Plan's Central Plaza to the station.

Since the Ward Neighborhood Master Plan assumed a different location for the station, it has planned building locations that currently block pedestrian access from its Central Plaza to the future station site. As redevelopment occurs, Halekauwila Street will be extended through Ward Avenue to provide direct multimodal access between the station and the Plan's signature open space.

Mid-block pedestrian crossing with rapid flashing beacon in Boulder, CO.
Image from Nelson\Nygaard

Action MA24.7 Minimize pedestrian and vehicle conflicts at ingress and egress points to the bus and kiss-and-ride turnaround facility.

Pedestrians using the sidewalk on the station side of Ward Avenue will be required to cross the entrance and exit to the bus and kiss-and-ride turnaround. To minimize potential conflicts, a pedestrian crossing signal could be installed at this curb cut to allow for a protected pedestrian crossing phase.

Action MA24.8 Integrate a bike share station into the Kaka`ako station design, and provide space for expansion.

The station area will be designed to accommodate a 20 bike station with capacity to expand to 56 bikes by 2035. The approximate spatial requirements for the initial station and a 2035 build-out station are provided in the Figure 7-6 below.

Figure 5-26 Spatial Needs for Bike Share at Kaka`ako Light Metro Station *(Opening Year and 2035)*

Year	Docks	Width	Station Depth	Access Depth	Total Depth
Opening	20	52' – 54'	6' – 8'	4	10' – 12'
2035	56	112'– 114'	6' – 8'	4	10' – 12'

Figure 5-27 Sample Station Dimension for 11 Dock Bike Share Station

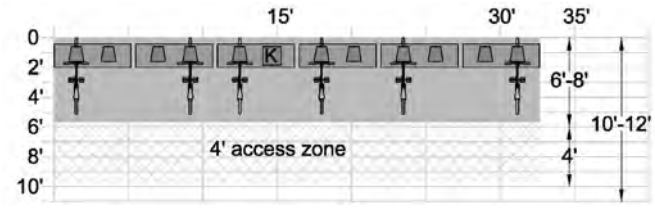


Image from Bike Sharing in the United States: State of the Practice and Guide to Implementation, FHWA (2012)

Figure 5-28 Sample Double-Sided Bike Share Station

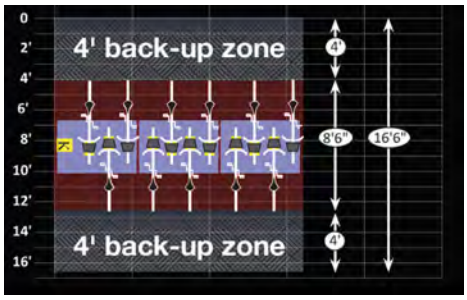
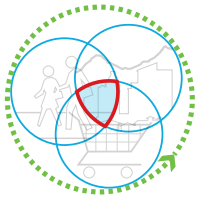


Image from Bike Sharing in the United States: State of the Practice and Guide to Implementation, FHWA (2012)

A design option is to employ two-sided stations, which would require less total width, but require a doubling of total station and access depth (approximately 20' to 24' required).



Action MA24.9 Provide high quality separated bike facilities connecting to the station on Ward Avenue and Halekauwila Street.

Ward Avenue and Halekauwila Street will provide direct bicycle access from each direction to the station. As the primary access routes, they present opportunities for separated bike facilities ranging from traditional and buffered bike lanes to cycle tracks. Given the levels of traffic on Ward Avenue, high quality treatments and vehicle separation will be required to attract a ridership base beyond the most avid and fearless cyclists. Although Halekauwila is a lower traffic street, bi-directional cycle track treatments will help attract higher bicycle ridership and provide a seamless connection between the Civic Center and Kaka`ako stations. The weather protection afforded by the elevated trackway will be supplemented with attractive lighting, signage and a reduction in curb cuts to help draw cyclists to the route.

A two-way cycle track on Hornby Street in downtown Vancouver, BC.
Image from Nelson\Nygaard

See the Bicycle section of this chapter for more detail.

Action MA24.10 Provide high-quality shared bike facilities on Queen and Auahi Streets.

As key parallel facilities to the station and the proposed Halekauwila Street bi-directional cycle track, Queen and Auahi Streets are ideally suited for shared bikeway treatments including sharrows, directional signage and improved crossings. In addition to providing comfortable bike connections to Ward Avenues separated facilities, the features (e.g. traffic calming) associated with the shared bikeways will also help transform the two streets into more pedestrian friendly environments.

Action MA24.11 Increase supply of short- and long-term station bicycle parking at Kaka`ako Station.

Initial plans developed by HART suggest a need for 20 bicycle parking spaces for opening day service, increasing to 30 total in 2030. Based on the access demand estimates, an additional 10 spaces are recommended for opening day service. In 2030, that demand is expected to grow to 120 spaces with the implementation and build-out of planned TOD densities. Additionally, station design will anticipate the need for future growth in station area bike parking. A long-term bicycle storage facility that accommodates 30 bicycles is recommended. This facility will be located as close as possible to or, if possible, inside the fare gate. See call out for description of methods use to calculate bicycle parking.

Since this station is expected to be the destination end of more than 80% of home-based trips to and from the station, bike-share will be a critical strategy to complete last mile connections in the KCDD and adjacent neighborhoods.

Strategy MA25 Implement actions specific to the Civic Center Station.

Located on Halekauwila Street between South and Keawe Streets, Civic Center is the primary station for the district's many local, state and federal employees and visitors. Civic anchors and institutions include the Honolulu City & County Buildings, State Capitol District, Queen's Medical Center, Social Security Administration, and US Customs & Immigration. The station's site at the periphery of the district, however, will require passengers to walk or bike for the last leg of their trips. The recommended strategies and actions below focus on key priorities for enhancing multimodal access to these major destinations.

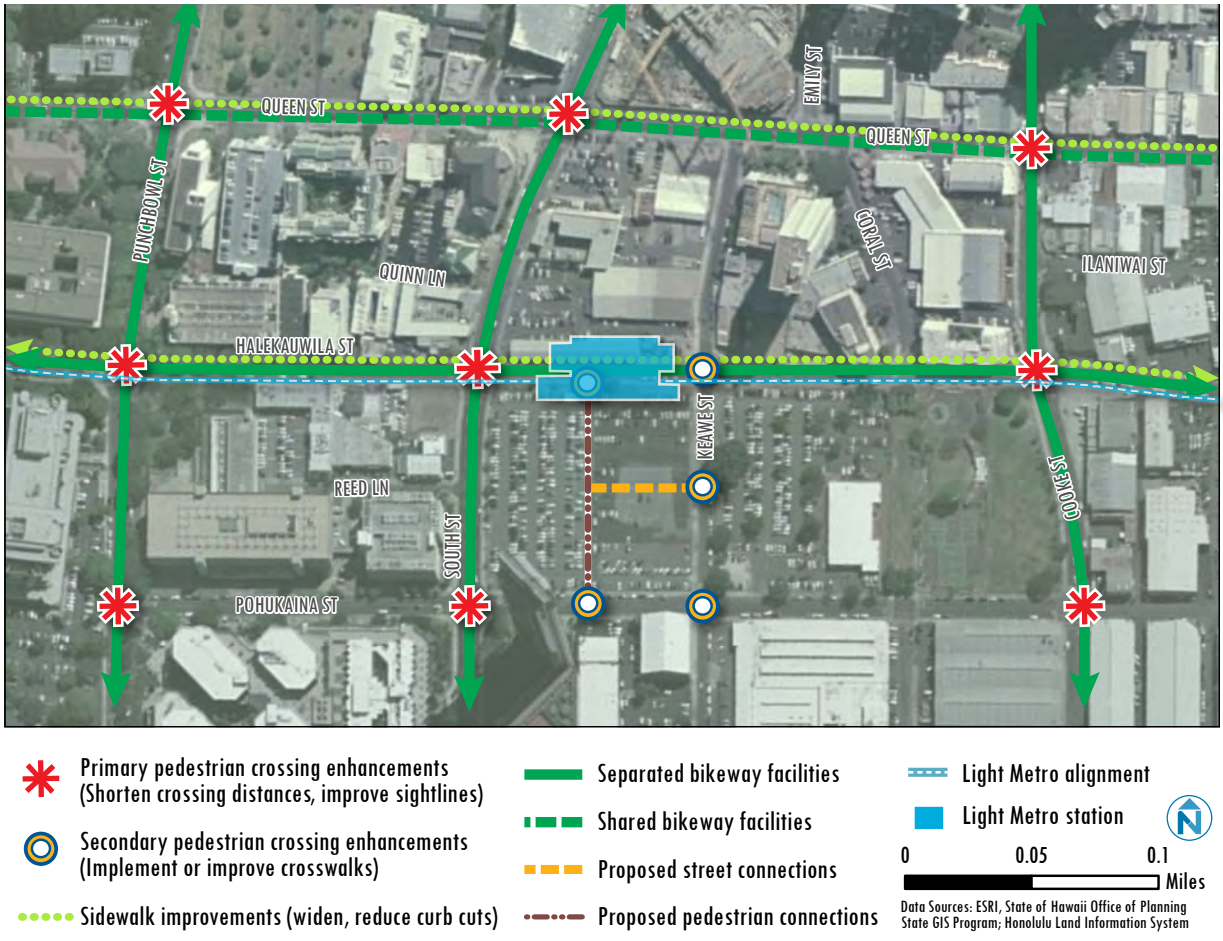
TRIMET APPROACH TO CALCULATING STATION BIKE PARKING

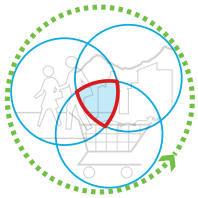
Portland is a national leader in bicycle accommodation and its public transit provider, TriMet, sees providing safe, secure access to transit for cyclists as a cornerstone of regional mobility. As part of its latest light rail project, the Portland to Milwaukee line, it developed a model for assessing bicycle access to stations based on each station's land use context, location, and availability of bicycle facilities. The model is used to determine how much bicycle parking to construct at each station. The model uses projected station ridership, transit frequency, urban context (center city, neighborhood, suburban, etc.) and bikeway network inventory data to determine optimal and minimum number of bicycle parking stalls. A similar approach was used to calculate bike parking requirements for the two stations in the KCDD.

A card-access bicycle parking facility at a suburban TriMet light rail station.
Image from Nelson\Nygaard

Long-term bike parking at a SkyTrain Station in Vancouver, BC.
Image from Nelson\Nygaard

Figure 5-29 Civic Center Station Access and Circulation





Action MA25.1 Establish Punchbowl Street as the primary pedestrian route between the station and local, state and federal campuses.

Punchbowl Street will be a major pedestrian conduit for transit riders traveling to the City & County of Honolulu buildings, the State Capitol District and federal facilities. It also provides a direct path to the busy bus transit stop at Punchbowl and King. To take advantage of its existing pedestrian amenities (zebra crossings, pedestrian signals, street trees), it will be promoted as the primary route through signage and wayfinding. Signage will provide clear direction to regular commuters as well as visitors and residents that access the government facilities on a less frequent basis.

Wide sidewalks accommodate high pedestrian volumes near a SkyTrain station in Metro Vancouver.
Image from Nelson\Nygaard

All three east-west oriented streets in the vicinity of the station – Queen, Halekauwila, and Pohukaina Streets – will all be treated as major pedestrian access ways to Punchbowl.

Action MA25.2 Enhance pedestrian experience along Halekauwila, Queen, and Pohukaina Streets.

While it will be critical to provide a quality pedestrian environment on Halekauwila in the vicinity of the station, pedestrians are not anticipated to travel long distances on this street. The introduction of an elevated guideway in this relatively narrow right-of-way will make the street relatively less appealing for walking. Features such as vibrant ground floor retail and street-front cafes, which contribute to a vital walking environment, are less likely to locate immediately adjacent to the guideway, making parallel streets such as Queen and Pohukaina more attractive for pedestrians. Important steps for improving the pedestrian environment on these streets will include:

- Integrate pedestrian scaled lighting into the elevated guideway structures or in the sidewalk furniture zone. Reduce the number of curb cuts along Halekauwila, Queen, and Pohukaina to ensure universal accessibility and limit the number of pedestrian-vehicle conflicts.
- Implement pedestrian crossings at the intersection of Halekauwila and Keawe.
- Construct mid-block crossings regularly along Halekauwila.
- Enhance pedestrian crossings on Queen and Pohukaina where they intersect Punchbowl, South, and Cooke. Improvements may include tightening corner radii, reducing crosswalk distances with curb extensions and pedestrian refuges, and addressing other sightline issues.

Action MA25.3 Improve pedestrian crossings in the Civic Center area by improving sightlines and shortening crossing distances.

Although pedestrian crossings in the Civic Center station area are generally marked, signalized or stop sign protected, many of them are angled, thereby impairing sightlines, and entailing longer crossing distances. This is especially true on the mauka side of the station along Queen and King Streets. Sightlines at these intersections could be improved by restriping crosswalks perpendicular to sidewalks. Curb extensions, or bulb-outs, will be implemented to reduce crossing distances.

Action MA25.4 Provide interim pedestrian walkways and preserve long-term connections through the surface parking block on the makai side of Halekauwila Street.

Interim pedestrian routes through the surface parking lot would provide direct access from the station to high-density development. As this lot is developed, a mauka-makai running center block pedestrian pathway will be considered (such a facility is included in the Kamehameha Schools Master Plan). Running parallel to the station, an extension of Reed Lane could be planned for a future connection to the Mother Waldron Playground.

Action MA25.5 Integrate a bike share station into the Civic Center Station design, and provide space for expansion.

Given the added distance from the station to many of the major destinations in the area, Civic Center is an ideal candidate for a bike sharing station. Likewise, the employment concentrations at those destinations provide the critical mass of potential users to warrant bike stations of their own.

The station area will be designed to accommodate a 20 bike station with capacity to expand to 56 bikes by 2035. The approximate spatial requirements for the initial station and a 2035 build-out station are provided in the table below:

Figure 5-30 Spatial Needs for Bike Share at Civic Center Light Metro Station *(Opening Year and 2035)*

Year	Docks	Width	Station Depth	Access Depth	Total Depth
Opening	20	52' – 54'	6' – 8'	4	10' – 12'
2035	56	112'– 114'	6' – 8'	4	10' – 12'

Action MA25.6 Increase the supply of short- and long-term station bicycle parking at Civic Center Station.

Initial estimates from the light metro station access plans are to provide 20 bicycle parking spaces for opening day service, increasing to 110 total in 2030. Based on the access demand estimates, an additional 10 spaces are recommended for opening day service. In 2030, that demand is expected to grow to 130 spaces with the implementation and build-out of planned TOD densities. Additionally, station design will anticipate the need for future growth in station area bike parking. A long-term bicycle storage facility that accommodates 30 bicycles is recommended. This facility will be located as close as possible to or, if possible, inside the fare gate.

Bike sharing programs help meet "last mile" connection needs at transit stations.
Image from Nelson\Nygaard

Since this station is expected to be the destination end of most than 80% of home-based trips to and from the station, bike-share will be a critical strategy to complete last mile connections in the KCDD and adjacent neighborhoods.

Action MA25.7 Promote South Street as a major bicycle route accessing the station and institutional uses.

The Civic Center station is located on the periphery of many large government employers. While in the future it will be the center of an active mixed-use area, in the short- to mid-term attention must be paid to the last mile connections for potential transit riders. For instance, the station is over

½-mile to the State Capitol and the Queen's Medical Center. Although still within reasonable walking distances, these destinations are ideally suited for short urban bicycle trips. To this end, South Street's existing right-of-way width and capacity affords opportunities for innovative separated bicycle facilities. Its one-way operations, however, make traditional bike lanes on opposite sides of the street problematic. Rather than having to provide facilities on parallel streets, cities have addressed this condition by implementing contraflow bike lanes on the same side of the street. A pilot project on 15th Street in Washington, DC yielded a 40% increase in bicycle traffic and a 7 mph reduction in vehicle speeds within one year.

Two-way cycle track on 15th Street in Washington, DC.
Image from Green Lane Project

An alternative to two-way cycle track on South Street is to couple it with Punchbowl Street as parallel one-way facilities going in their respective directions.

Action MA25.8 Provide separated bicycle facilities along Cooke Street.

Separated bike lanes on Cooke Street would provide direct access to the University of Hawai`i School of Medicine and the Kaka`ako Waterfront Park.

Strategy MA26 Implement actions specific to Downtown Station (related to redevelopment of Aloha Tower portion of the District)

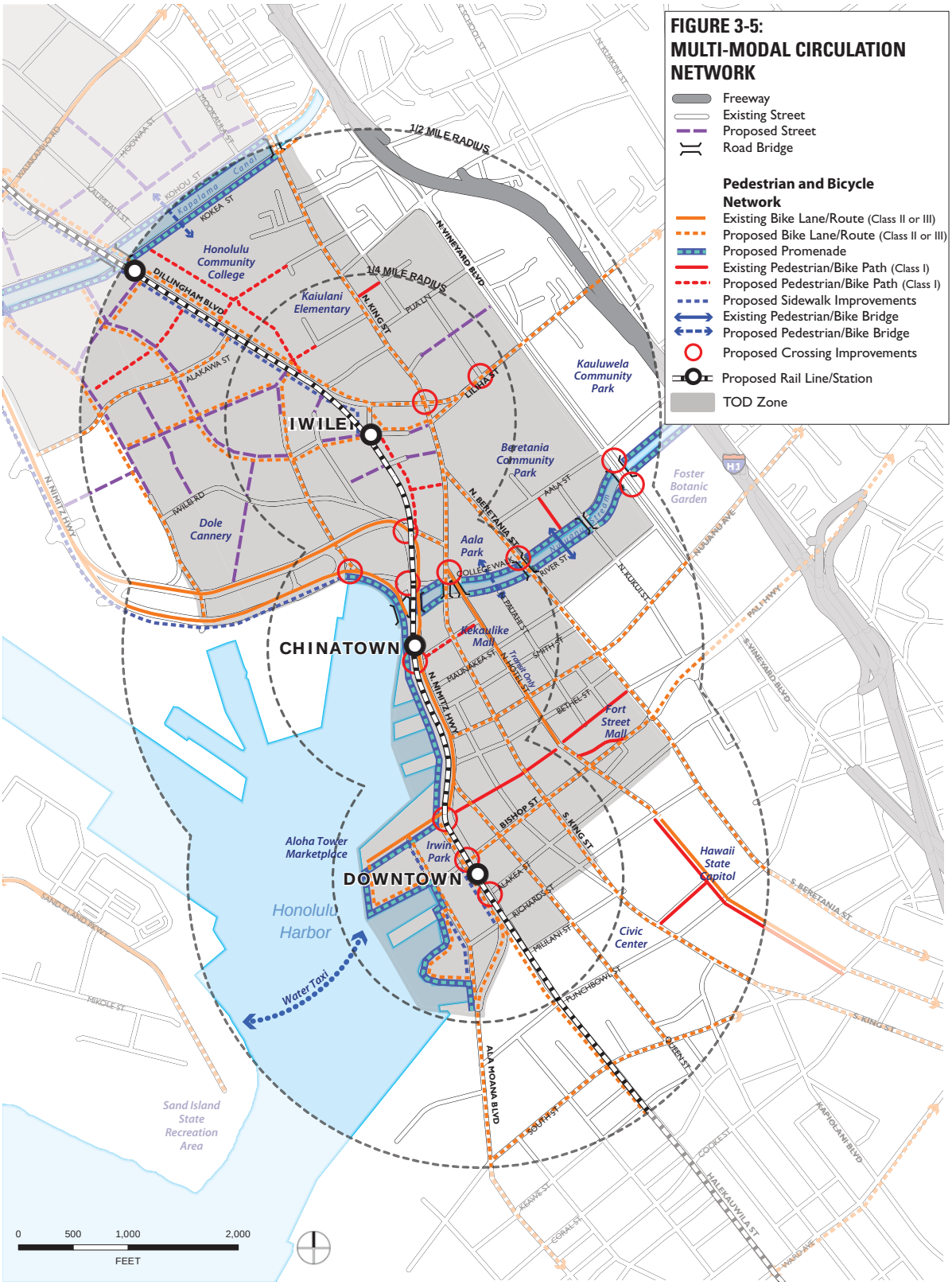
The Downtown light metro station sits at the makai edge of the Aloha Tower Marketplace. This area of the KCDD also includes the HECO Powerplant site which is slated for redevelopment. The City/County Kilihi-Downtown Framework Plan calls for the area surrounding this station (including Aloha Tower site) to be developed as intensive mixed use development. The Framework Plan calls for maximum FAR of greater than 7 for this site and surrounding properties .

The City and County has completed a Downtown Neighborhood Transit Oriented Development Plan that provides detail on land use, station integration, and design for the Downtown Station. This plan documents specific transportation existing conditions and proposed access and mobility projects.

Action MA26.1 Implement Connectivity Improvements from the Downtown Framework Plan

The Kilihi-Downtown Framework Plan calls for improved trail access and sidewalk improvements that would improve Ewa Diamond Head connectivity between the Aloha Tower Area and other parts of the KCDD. HCDA will work with the City/County DTS to prioritize and complete these improvements which are illustrated in Figure 7-11 excerpted from the Kalihi-Downtown TOD Framework Plan.

Figure 5-31 Connectivity Improvements for Downtown Light Metro Station Area



Action MA26.2 Create a seamless and inviting pedestrian connection between Downtown and the Aloha Tower area

Introduction of the downtown station represents an opportunity for transformational change at what currently is the greatest pedestrian barrier between Downtown and the Waterfront/Aloha Tower area- the Nimitz Highway. HCDA will work with HART and the City/County to enure the design of this station includes significant placemaking investments and prioritizes mauka – makai pedestrian movements.

The station will have pedestrian entrances on both sides of Nimitz Highway to ensure passengers can ascend to the platform without crossing the Highway. Pedestrian cross-block concept would create a high quality public space and pedestrian crossing opportunity at Nimitz. This could be designed as a pedestrian-scramble intersection allowing all users to cross at the same time anywhere on the block.

The Haleakuwila shared lanes concept presented in the Bicycle section of this chapter an opportunity for excellent Diamond Head side bike access to this area. Similar attention will be given to connections from the Ewa direction.

Pedestrian Circulation Across Nimitz:
- Irwin Park extension across Nimitz
- Entire block that will function as a crosswalk
- Provides an area of Nimitz that is at the pedestrian scale
- Allows motor vehicles to only need to stop once for pedestrian crossing

Pedestrian Crossblock

Pedestrian improvements between the Downtown Station and Aloha Tower Special District.
Image from HCDA

Station Integration Opportunities

This section identifies strategies and opportunities that require coordination and engagement between HCDA and HART. Integration opportunities are established for the three light metro stations: Kaka`ako Station, Civic Center Station, and Downtown Station.

Opportunities for Kaka'ako Station Integration

Located on the mauka edge of the Ward Center master planned district, there is great potential for collaborative TOD development at Kaka`ako Station. The current Ward Center Master Plan already envisions this area as a mixed-use, high-rise neighborhood. The TOD Overlay will provide opportunities to better address street level connectivity with public open space connections to Kaka`ako Station (see also Figure 5-24), district parking options as well as provisions for more intensive uses.

In addition, the immediate station site and alignment include several adjacent residual or excess parcels (shown below) associated with light metro construction. These areas may eventually be good candidates to incorporate future retail, public or civic uses.. A single or double story structure adjacent to the station would help to activate the area while allowing room for pedestrian movement and generous gathering places.

It is recommended that if an Iconic tower (a building over 550' in height) is to be located in Auahi Neighborhood at Kaka`ako Station, it will be set back from the station site to ensure that adequate space for pedestrian and vehicular circulation and future local transit service connections. HCDA, HART and the land owners are currently coordinating arrangements necessary for integrated redevelopment. Precedent best practices at similar station locations are discussed in the sidebar on the following page.

Figure 5-32 Kaka`ako Station at Ward Center

BEST PRACTICES IN RETAIL INTEGRATION

Broadway /Commercial Station SkyTrain The Hub - A low scaled retail building is incorporated adjacent to an Elevated rail transit exchange. This provides eyes on the street, and a retail presence to keep people safe, provide a sense of place and wayfinding. This single story structures adjacent to the station to activates the area, and allows for room for pedestrian movement and gathering places.

Image from VIA Architecture


Image from VIA Architecture

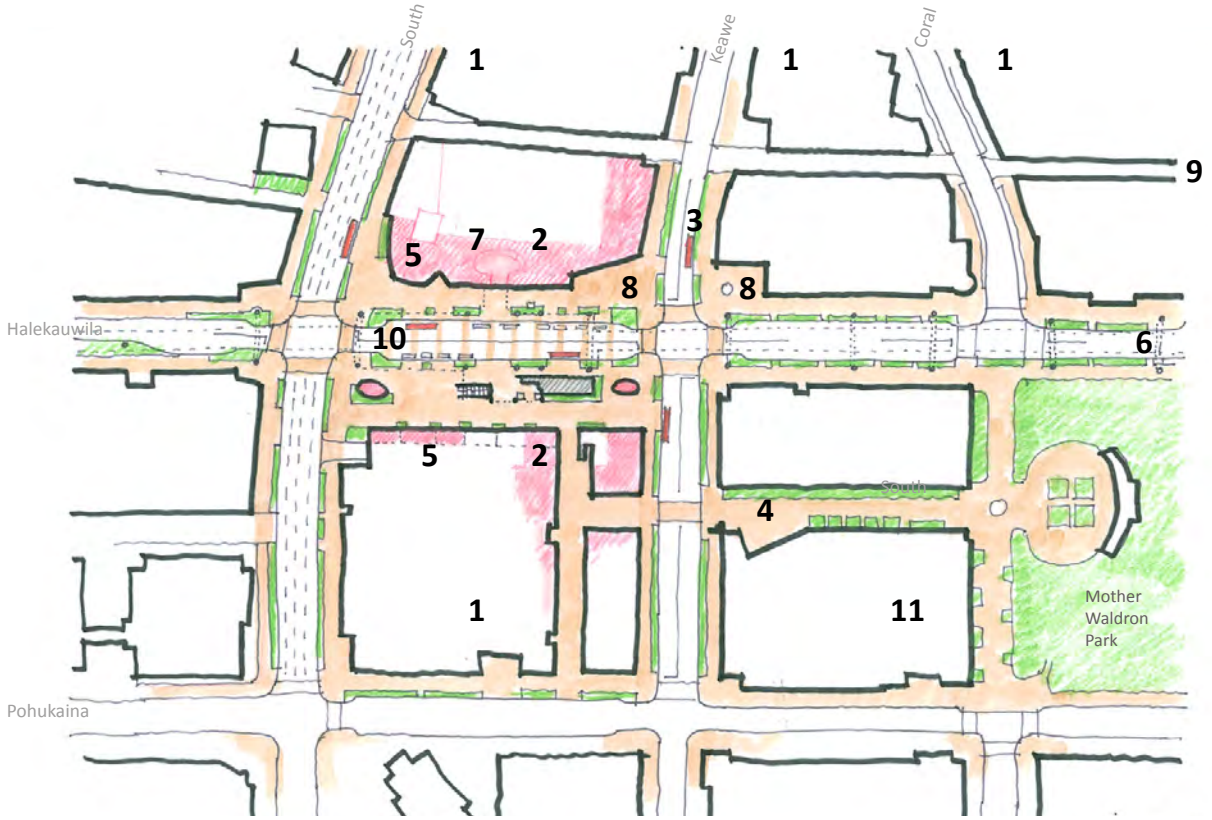
Westlake Center in Seattle, WA is a good example of elevated retail associated with a public plaza. Westlake center is also a transit hub with connections to light rail, and regional and local bus service below. Major developments are set back from the rail station from one half to one block.

Image from VIA Architecture

Opportunities for Civic Center Station Integration

There are a variety of opportunities for TOD redevelopment within close proximity to Civic Center station, including sites directly mauka and makai of the station. The HART Station Area Development Potential Report (2011) asserts that Civic Center Station has "perhaps the greatest (redevelopment) potential of any station along the project alignment excluding the West O`ahu stations." Underutilized parcels here surround the station, existing uses include surface parking lots, low-rise warehouses and garages. The 690 Pohukaina catalyst project is located at Keawe and Halekauwila, one block from Civic Center Station, while the parcel directly makai of Civic Center is a part of the Kamehameha Schools master plan and is currently proposed for a high-rise housing project. The following diagram provides an overview vision of TOD potential for the Civic Center station location.

Figure 5-33 Civic Center Station Vision and Opportunities



1 TOD Opportunity Sites mixed-use and residential uses

2 Activate station with uses, maximize glazing and open shopfronts

3 Place bus stops convenient to station, consider integrating shelters into development sites

4 Coordinate with TOD developments for street improvements, crosswalks, lighting and public art

5 Encourage single story retail to activate parking, for example - produce or market stalls

6 Establish bike lanes and local access connections

7 Option for vertical retailing and mezzanine connection to station

8 Step-back development for generous sidewalk areas and public realm enhancements

9 New alley and connections to reduce pedestrian conflicts

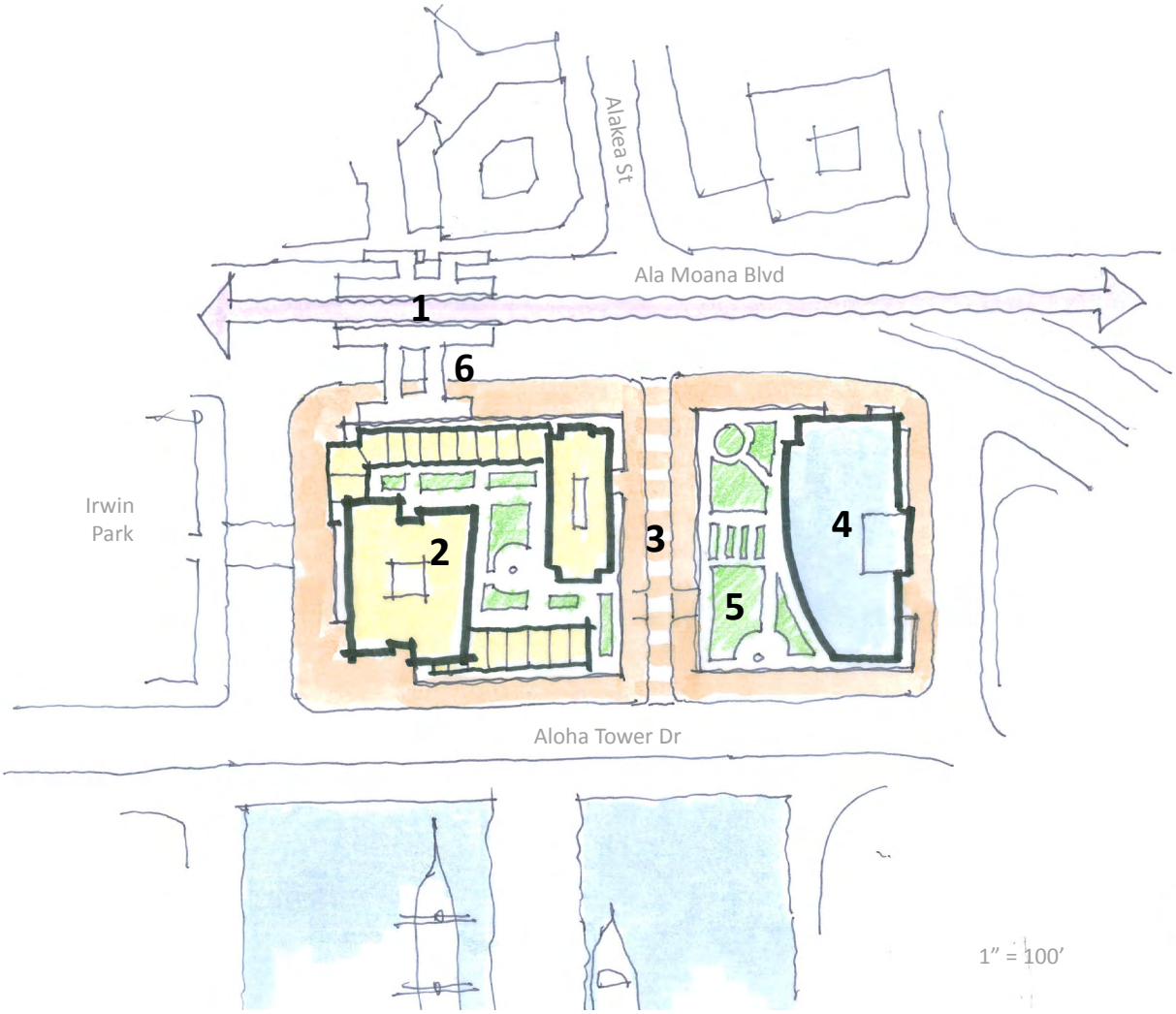
10 Pedestrian improvements, crosswalks and accessible ramps Station-related public realm improvements, kiosks or bike-related retail

11 Joint development 690 Pohukaina and affordable housing project

Opportunities for Aloha Tower Special District, HECO Site, and Downtown Station Integration

Downtown Station is within close proximity to the Aloha Tower marketplace, the downtown commercial core, Irwin Park and Honolulu Harbor. It is the primary station serving Honolulu's central business district. The HECO substation parcel adjacent to Downtown Station is particularly well positioned for TOD redevelopment for a range of uses, as it enjoys waterfront views and proximity to downtown. Under the TOD Overlay plan this site would be able to develop using an increase in capacity with more flexibility in off-street parking requirements. This vision is coordinated with the City and County of Honolulu Downtown TOD Plan (2012) that envisions this area as a mixed-use, high intensity district appropriate for high rise buildings. The Plan also recognizes an opportunity for revitalizing the Aloha Tower HECO substation complex into a citywide destination and community-gathering place.

Figure 5-34 Downtown Station at Aloha Tower Special District Vision and Opportunities



1 Light Metro Downtown Station at Aloha Tower Special District

2 Multifamily residential opportunity site

3 Shared street

4 Commercial / office opportunity site

5 Integrated public space

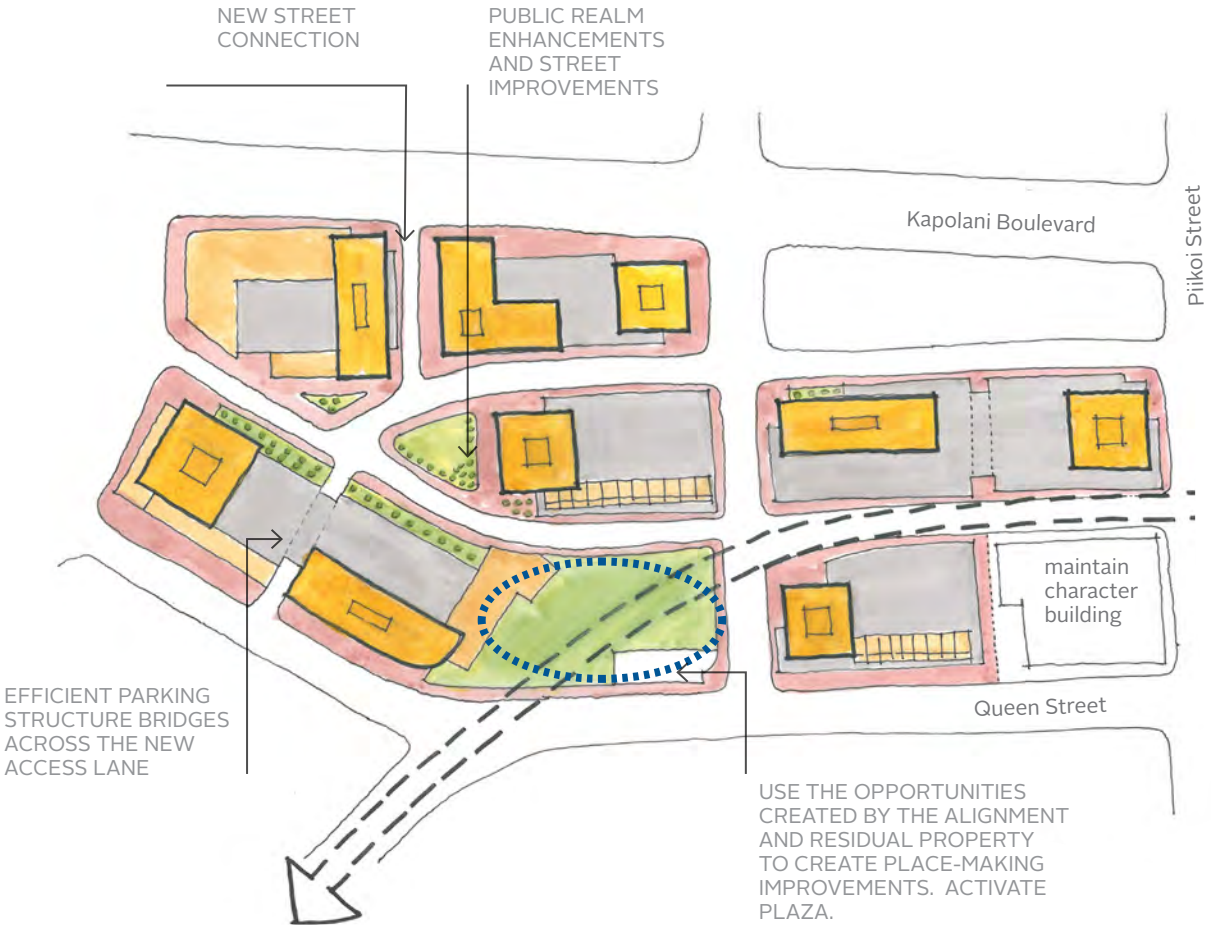
6 High-quality pedestrian plaza and integrated roadway crossing

Opportunities for the Elevated Alignment

Integrating the overhead alignment into a working neighborhood requires special attention to shadow creation, and spaces around columns. Existing uses on Halekauwila St. include light industrial services, shops and a variety of walk-in trade establishments. Unintended impacts of the elevated rail include underutilized land or vacant storefronts adjacent to the guideway. HART is currently collaborating with HCDA to ensure that the design of the elevated alignment will address this areas incremental urbanization. In particular HCDA and HART will coordinate to ensure that the impact on the pedestrian environment is reduced.

In Bangkok, under the transit alignment is a busy, urban place
Image from Google Earth

Figure 5-35 Alignment Design Opportunities



Activating the Alignment

HCDA will prepare for transition, by working with property owners to activate below the guideway where feasible, as well as partnering with HART and the private sector for the provision of active public spaces such as paths, exercise courses, community gardens, lighting and art, shops or storefronts. HCDA and HART will coordinate to

- Reduce impact and number of supportive dual columns that crowd the urban context.
- Locate ancillary buildings such as electrical transformers, maintenance facilities to provide both operational efficiency and better respond to urban context.
- Welcome users by activating ground levels with retail or other commuter uses, such as services or daycare and bike share stations.


Image from VIA Architecture

View 1
Design Based on a possible new road configuration and column consideration into a center median. For illustrative purposes only.

1 center column supports located on 18'-20' wide median

Image from VIA Architecture

View 2
Design based on HART Preliminary Engineering Drawings. For illustrative purposes only.

2 straddle bent column support located on sidewalks

Image from VIA Architecture

Urban Design and TOD Impacts of Elevated Rail

Parcels adjacent to, or within the sphere of influence of the alignment will be impacted in a variety of ways over the course of the project, ranging from land acquisition (and the creation of some residual land parcels adjacent to the Kaka`ako Station site), to construction nuisance, and noise impacts from the overheard train. At the same time these areas will also see significant private sector benefits typical to transit rich areas such as:

- Increased land values, and real estate performance (rents and lease rates)
- Increased retail sales
- Increased access to labor pools
- Increased affordability due to increased access and reduced parking costs by providing transit alternatives
- Renewed vitality as a destination

HCDA and its public sector partners will work to ensure that the benefit of the rail can be broadly shared in the form of improvements to local infrastructures and specific transit-oriented development projects that will locate more investment within proximity of the station. The HART Station Area Development Potential Report (August 2011) conducted an analysis identifying underutilized parcels and opportunities for redevelopment within each station's quarter-mile. This report documented that redevelopment potential is greatest at the three West O`ahu stations followed closely by the Kaka`ako District's Civic Center Station. In order to best meet this potential for redevelopment, the following presents a set of recommended strategies to be conducted during the phases of HART design and construction, with a focus on integrated decision-making.

Strategy MA27 Collaborate with HART in order to integrate station design with TOD sites and catalyze redevelopment.

To best meet this potential for redevelopment, HCDA must implement or collaborate to achieve the following actions during the phases of light metro design and construction, with a focus on integrated decision-making.

HCDA ACTIVITIES

Current phase (2013)

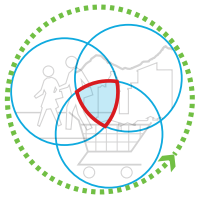
- **Action MA27.1** Work with agency partners to plan transit stations and associated infrastructure that are attractive public destinations, are integrated with the public realm and promote ridership.
- **Action MA27.2** Develop strategies for private-sector engagement with partnerships, demonstration and/or catalyst projects to spur desired uses (see Chapter 3, page 3-19).
- **Action MA27.3** Provide a vision, design and principles for the station design, and support redevelopment with high trip-generating land uses (see Chapter 3, page 3-6).

Construction phase (2016-2018)

- **Action MA27.4** Collaborate with jurisdictional and private sector partners to provide marketplace comparable, such as the 690 Pohukaina joint-development project. (Chapter 3, pages 3-21).
- **Action MA27.5** Meet with local stakeholders to reinforce the benefits and opportunities of TOD, include financiers, lenders, property owners and developers.
- **Action MA27.6** Partner to provide a vision for residual properties impacted by the rail, including clarifying liability. Consider a method, if necessary to land-bank residual properties resulting from construction areas for future high intensity development so they do not result in long-term underutilization.

HART Complete (2019)

- **Action MA27.7** Continue to work towards the evolution of Kaka`ako District, including large and small scale redevelopment, master plans and priority complete streets and access upgrades as defined in this chapter.



Strategy MA28 Establish partnerships with key stakeholders to ensure successful station integration and TOD design.

In urban environments, success will be achieved if transit becomes just one part of the overall public experience of Kaka`ako as a destination. The implementation of this vision will require a partnership among agencies over the course of the project to ensure that land use, transportation and access policies are coordinated for optimal outcomes. Most importantly, HCDA will encourage creativity with neighborhood transformation, by planning for, and encouraging both large-scale redevelopment and incremental adaptive-re use to advance TOD objectives. The following summarizes roles for the public sector (HCDA and City/County), private sector and HART in creating both transit-oriented development and influencing the creation of place at a station site.

Public Partner (HCDA and City/ County)	Private Partner	Transit Agency
Development Regulations /Permits	Development Proposals	Alignment / Station Design
Land Acquisition and Consolidation	Land Assembly	Land Acquisition for System
Environmental Reviews	Architecture and Programming	Planning Partner
Community Facilitator	Entitlements	Construction Facilitator
Land Owner Incentives	Construction	Urban Design Guidelines for Stations and Alignment
Priority Infrastructure Improvements and Public Facilities	Occupancy/ Maintenance/ Selling	

6 COMPLETE STREETS IN KAKA`AKO

Standard Street Elements


Planters and street trees


Bike parking


High visibility crosswalk markings


ADA-compliant curb ramps


Curb extensions (with parking)


Far-side transit stops
(on transit streets)


Street furniture


Pedestrian-scaled lighting


Clearly defined sidewalk zones
(using paving techniques, special materials, etc.)


Interpretive design and public art


Pedestrian countdown signals


Redevelopment setbacks


Transit-bicycle integration features
(on priority transit and
bicycle streets)

Optional Street Elements


Pedestrian priority signalization
(Barnes Dance)


Pedestrian refuge island

Raised median/Center turn lane


Bike Share Stations


Rapid flashing beacons


Bus bulb out


In-street bicycle corral


Transit stop-building integration


Dedicated bicycle facilities
(bike lanes)


On-street parking


Guideway column


Dedicated bicycle facilities
(cycle track)


Stormwater management


Bollards


Bicycle facilities (sharrows)


Mid-block crossing


Dedicated loading zones


Vertical deflection
(e.g., speed humps)


Transit lanes


Pro-time parking/
Peak hour bus lanes


Transit lanes

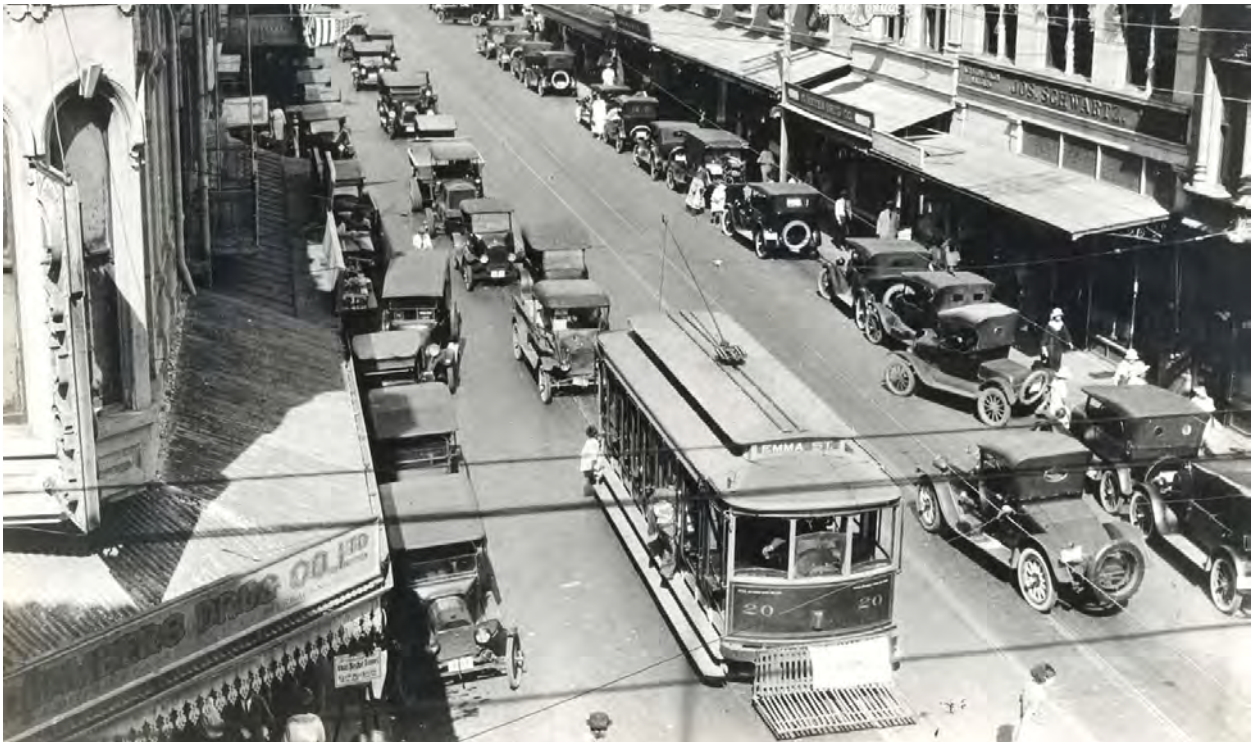
6 COMPLETE STREETS IN KAKA`AKO

CREATING MULTI-PURPOSE STREETS

As the famous urbanist, Jane Jacobs reminds us, "nobody enjoys sitting on a stoop or looking out a window at an empty street. Almost nobody does such a thing. Large numbers of people entertain themselves, off and on, by watching street activity." Streets are the lifeblood of an urban community. They don't simply provide a way to travel, but are our largest public space, providing the "living room" of any neighborhood–a place to socialize, recreate, and to move about.

The relationship between buildings and the street is the essential linkage between residents and their community. Done well, this linkage creates a vibrancy that will encourage engagement, health and quality of life in Kaka`ako. Streets designed primarily for the private automobile deliver monotonous, and unsecure public spaces that discourage public interaction. Most streets in Kaka`ako are currently auto-oriented – the types of places a pedestrian would hurry to pass through rather than linger and enjoy.

This chapter provides a framework and principles to develop a more balanced, vital, and community-serving street system in the KCDD. While HCDA does not control or manage the design and operation of streets within the district, this chapter serves as guidelines to ensure adequate person access to the KCDD.



King Street in 1930 accommodated pedestrians, streetcar, automobiles, and even bicycles. This corridor once operated as a slow, pedestrian-oriented street.
Image from State of Hawai`i

DESTINATION-BASED COMPLETE STREETS

Streets are the backdrop of daily life and commerce in Kaka`ako. Today, people use the District's streets to get to work, park, walk to the bus, or to make a delivery. Few people chose to walk the streets for non-utilitarian purposes. When the HCDA TOD Overlay Plan is realized, a key measure of success will be the number of people that come to Kaka'ako to enjoy its streets. Making KCDD streets livable will require providing opportunities for social interaction and commerce, developing spaces for leisure and recreation, as well as improved functionality for all users. Below are some examples of exemplary destination streets that expand the traditional definition of "street."

Kalakaua Avenue, Waikiki, HI

A prime of Honolulu street prioritized for pedestrians and retail access
Image from All Hawaii News

Lincoln Road, South Beach, Miami

World class shopping street.
Image from Miami City Diggs

Main Street, Santa Monica, CA

A warm weather retail street
Image from Gary Kavanagh

NW 13th Avenue, Portland, OR

Redevelopment district street retains light-industrial feel and slow-mixed operations
Image from Nelson\Nygaard

Yaletown Blocks, Vancouver, B.C.

Redevelopment district street retains light-industrial feel and slow-mixed operations
Image from Yaletown Blog

Third Street Promenade, Santa Monica, CA

A renowned pedestrian priority street anchored by frequent transit service and a future light rail transit station.
Image from Nelson\Nygaard

WHY COMPLETE STREETS FOR THE KCDD?

At the most practical level, Complete Streets in the KCDD are necessary to accommodate much greater number of residents, workers, and visitors to the District as surface parking lots and one-story commercial buildings are transformed to residential towers, retail, and busy civic uses. Viewed more broadly, the streets of Kaka`ako are the connective tissue that, if designed well, will make a mere collection of buildings into a vital urban community.

Complete streets in the KCDD will:

Ensure safety. Streets that manage auto speeds, and provide sidewalks, medians, well-designed crossings, amenities for mobility impaired users, separated bicycle facilities are proven to be safer for pedestrians, motorists, and bicyclists alike.

A calmed street in Vancouver, B.C.
Image from Dan Burden

Encourage active lifestyles. Complete Streets in the KCDD can help support a healthy citizenry and reduce health care related costs. Building streets that support pedestrian and bicycle travel both enables *and encourages* greater levels of physical activity and active transportation.

Extend transportation choice. Providing safe and convenient transportation choices to citizens is an important goal for all communities. Complete Streets is a democratic design and policy framework that ultimately extends resident and employee mobility options. Doing so means KCDD can to meet the needs of different types of users and provide alternatives to traffic congestion and costly trips to the gas pump. Providing a diverse range of time-competitive travel options is particularly important for the large inclusionary housing market planned for the KCDD.

A shared street in San Francisco, CA.
Image from Nelson\Nygaard

Stimulate and support the local economy. Complete Streets not only expand opportunities to access local retail and employment sites, but also nurture the local economy. Often referred to the "green dividend", enabling walking, bicycling, and transit use can redistribute roughly $9,000 of a person's annual disposable income from operating and maintaining a car to local retail, entertainment, and restaurant expenses.

A main street in Santa Barbara, CA.
Image from Nelson\Nygaard

Create places and destinations. Complete Streets reorganize underutilized roadway space toward economic and social uses. The TOD Overlay Plan envisions a Kaka`ako that is a major destination in Honolulu, not just as a point between downtown and destinations Diamond Head of the district (Ala Moana and Waikiki). Complete Streets provide the gateway to Kaka`ako, but are also the attraction.

Lower the cost of street maintenance and construction. Building new streets or reconstructing existing streets using Complete Streets principles is more economical than constructing auto-centric roads. Complete Streets move more people with less space, thereby limiting the need for future roadway expansion and ensuring more space is dedicated to civic uses. Increased walking and bicycling reduces wear-and-tear on roads, which can extend the lifetime of Kaka`ako's streets and reduce annual preventative maintenance costs.

Improve transportation efficiency & network capacity. Complete Streets improve roadway efficiency and capacity for all users by moving more people in the same amount of space. More informed metrics of success that measure person carrying capacity rather than traditional vehicle-oriented performance measures are often used to determine successful use of limited roadway space.

Automobiles require much greater capacity to move the same amount of people than buses, bicyclists, and pedestrians. Image from City of Muenster, Germany

Building Community, Not Auto-Capacity

The street network serving Kaka`ako includes both highly congested regional arterials such as Ala Moana Boulevard, Kapiolani Boulevard, and King Street. On the other hand, local district streets like Queen Street, Cooke Street, and Ward Avenue are underutilized, with more pavement width than is necessary to carry current traffic volumes. As currently designed, they don't support active retail uses, or an active and healthy street life.

Many streets designed in the last 50 years were designed around a single principle – the need to minimize auto traffic congestion. It is important to understand that congestion is not simply the result of a road that does not have enough capacity for cars, but is also a result of overreliance on one mode (auto travel) over other modes (walking, bicycling, and transit use). A more important measure of the success of a street grid is the person-moving capacity, considering all modes of travel. Moreover, as roadway capacity is added to address congestion, space is taken away from bicycling, walking and fast moving transit. Adding roadway capacity may reduce traffic congestion in the short term, but ultimately, new capacity attracts new auto demand, and the cycle begins again.

Focusing entirely on auto capacity is counter-productive to HCDA's efforts to develop a vibrant, pedestrian-oriented, urban district—even as Kaka`ako faces exceptional population and employment growth. A multimodal approach to street design and operation is the solution to simultaneously

address congestion, maximize use of existing right-of-way, help build a transit-oriented community, and facilitate district access.

To implement this multimodal approach, HCDA will support the Complete Streets framework being developed by the City and County of Honolulu and rethink how street performance is measured. Doing so will ensure the KCDD:

Vanderbilt Avenue in New York City is a true multimodal street that expands person capacity while strengthening the retail corridor.
Image from Paul Carlos

- Becomes a mixed-use district that allows residents to meet their needs locally, reducing the need to make cross-island or inter-neighborhood trips by car. This requires an integrated land use strategy (see Chapter 3).
- Makes the most efficient modes of transportation – walking, biking, transit, carpooling, and car-sharing – more attractive than driving alone. Making these modes more competitive allows the street network to move more people and unlock transit efficiencies.
- Influences mode choice by reducing or eliminating parking subsidies (see Chapter 5 for more information on parking management).
- Allows roads to be congested during peak demand hours even as the district increases density. Alleviating congestion with roadway widening negatively impacts all other modes, as well as impacting downstream signals or internal neighborhood streets. Adding capacity typically encourages "latent demand"[1] for roadway space, resulting in increased and prolonged congestion issues.

1 New vehicle trips enabled by the temporary lessening of delay.

RETHINKING CONGESTION

Congestion is an inevitable reality of urban redevelopment in the KCDD, and catering to more auto trips will only degrade the multimodal transportation system, reduce user safety, and—perhaps most salient to HCDA—limit the district's quality of redevelopment.

What may be seen as counter-intuitive, congestion is a necessary component of a strong, dynamic economy where people move between their home and job site, residents and visitors access retail to spend their discretionary income, and freight facilitates commerce. Traffic congestion is merely a sign of economic success. In fact, the only successful cases where congestion was eliminated through increasing roadway capacity are Rust Belt cities facing economic decline and population loss.

Image from Flicker Casey Serin

Strategy CS1 Preserve current levels of auto mobility on major regional thoroughfares

The KCDD can accommodate substantial amounts of residential and commercial growth over the next 25 years and still provide streets that comfortably move people between district destinations. To achieve the optimal balance between growth and people movement, two key actions must be achieved.

Action CS1.1 Increase district access using spatially efficient modes such as walk, bike, and transit

With the addition of new street and pedestrian connections proposed in Chapter 5, Kaka`ako's street network contains the necessary person capacity to keep the KCDD moving and bustling with life. In order to achieve this, clear street design principles and multimodal street types will be established to guide design decisions and strategically reprioritize KCDD streets for the movement of people on foot, on bicycles, and on transit.

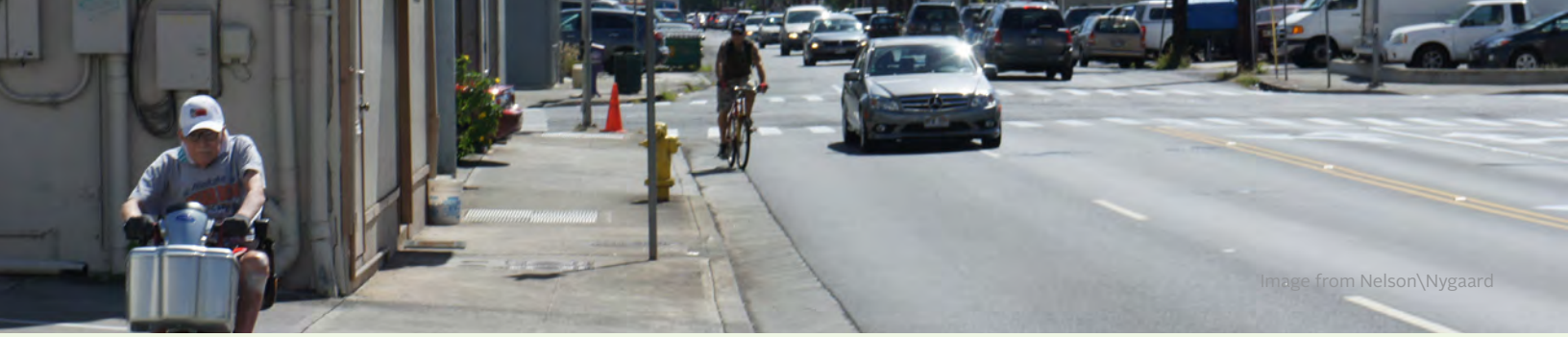
Most destinations in the KCDD are within a walkable distance from each other. Kaka`ako will be designed to be a true pedestrian district.
Image from Nelson\Nygaard

Action CS1.2 Focus on the right kind of development, in the right locations, with the right system, parking, and demand management tools in place

Redevelopment of TOD sites, master planned sites, and other areas of KCDD must simultaneously employ strategies that reduce auto trip demand, while establishing district streets that are walkable and complete. The end result will be to maintain or slightly increase auto access compared with current levels while accommodating most new trips on foot, by bicycle, on transit, or other sustainable travel options.

Strategy CS2 Limit right-of-way expansion to new street connections, redevelopment setbacks, and additional dedications for special pedestrian realm uses

For the most part, existing KCDD streets are built out. Limited land exists to widen roads to accommodate single-occupant vehicle demand, transit only lanes, or dedicated bicycle facilities. Thus, roadway improvements will generally occur within the existing right of-way and will never narrow the existing pedestrian realm, *even to accommodate turn lanes*. Depending on the corridor, new modal facilities may have to come at the expense of a travel lane or parking based on a particular street's land use context and function.



COMPLETE STREETS: A PRIMER

WHAT ARE COMPLETE STREETS?

Complete Streets is a shorthand term for streets that have been planned, designed and operated with consideration to needs of all travelers including people of all ages and abilities whether they are walking, riding a bicycle, taking public transportation, or driving. Complete Streets offer an overarching strategy for communities to meet their economic, social, and environmental goals. Every street, the land uses it supports, and topographic context differ; actual implementation of Complete Streets principles will change in the local context. The only constant tenet of Complete Streets is the provision of safe facilities for all users.

Complete Streets will never be formulaic. There is no one size fits all design.

The term Complete Streets in the context of the KCDD TOD Overlay Plan means both a process and a product. The process is the steps and decisions that lead to a specific street or intersection design; the product being the on-the-ground result of this process and the range of street designs that can be used on similar street types in Kaka`ako.

Most importantly, Complete Streets are a partnership between the agencies that plan, design and maintain them – including the HCDA, the City and County of Honolulu DTS, and HDOT – and the communities and businesses that they serve.

Complete Streets are not:

- Focused solely on auto mobility
- Focused solely on one street—a Complete Network is as important as a Complete Street!
- A specific design prescription
- A mandate for an immediate retrofit
- A silver bullet solution for all transportation issues

When should Complete Street designs and principles be applied?

- New street construction
- Street or sidewalk reconstruction
- Street or sidewalk rehabilitation
- Street resurfacing
- Maintenance
- Operations
- When new development is required to build street and pedestrian facilities
- Public-private ventures

Most Complete Streets projects in KCDD will be retrofits of existing roadways, like this bikeway retrofit of Third Street in Long Beach, CA.
Image from LA Streetsblog

Exceptions to this rule include use of redevelopment tools such as setbacks or dedications for specific uses like bike share stations and new narrow street or pedestrian only connections.

INTEGRATING LAND USE AND STREET DESIGN

The many benefits of locating new development near high capacity transit are described in Chapter 3 of the TOD Overlay Plan. Based on transit-oriented development literature, by locating development near future light metro stations and other frequent transit service hubs, the KCDD's peak period vehicle trips can be cut by roughly 20-40%, compared to the traffic it would generate elsewhere.

Portland's Pearl District integrates a mix of dense commercial and residential land uses with narrow streets, wide sidewalks, and frequent transit service (streetcar and bus).
Image from Nelson\Nygaard

The TOD Overlay Plan concentrates future growth in the KCDD neighborhoods that are within comfortable walking and bicycle distance of light metro stations, destinations, and services. In addition, the plan establishes strategies to improve pedestrian and bicycle connectivity and safety, thus making walking and bicycling attractive, safe, and efficient modes of travel. The combined effect of rail proximity, integrated land use development, a high quality active transportation network, a wealth of local businesses proving needed personal services, and mobility alternative to the private auto (i.e., bicycle sharing, car sharing, etc.) will reduce per capita vehicle trip making.

Strategy CS3 Integrate Land Use and Building Form with Street Design and Programming

Designing Complete Streets requires attention to context of the street and the land uses it serves. Street design must integrate the needs of the surrounding environment, built or natural. Main streets often feature on-street parking to support street retail uses and accommodate business access for driving customers. Dense, urban streets feature expansive sidewalks with street furniture to accommodate high pedestrian volumes, workers seeking lunchtime or post-work repose on a bench, and even space for food carts or other uses that make a district street lively and active.

Each KCDD street will be designed and operated to support the land uses it immediately serves. Land uses are defined in Chapter 3 of this plan. Take Commercial Avenues as an example. Commercial Avenues, such as Ward Avenue, Pensacola Street, and Piikoi Street, need to attract and accommodate a customer base by providing reliable vehicle access, but ensuring that priority is given to the pedestrian. This become particularly important as new retail orients to the street, rather than being setback behind surface parking. Commercial avenues provide access by a variety of modes and benefit from on-street parking to provide access for short-stay customers and to buffer busy sidewalks from traffic. Busy commercial areas in Kaka`ako will prioritize transit and pedestrians.

STREET DESIGN PRINCIPLES

A two-part process was used to establish a conceptual Complete Street typology:

- Establish a balance between four basic design principles or factors – livability, access and mobility, demand, and safety, described below
- Determine modal priorities to allocate limited right-of-way

The four principal design factors used to develop the Complete Streets typology include **Livability**, **Access and Mobility**, **Demand**, and **Safety**. These factors ensure the Complete Streets typology organizes a calculated design response to the specific, local context of each street. Future work by the HCDA will develop detailed design guidance and local application of the Complete Street types defined in this plan.

Livability. Livability is a central theme of the KCDD Overlay Plan and it is interconnected with the three other design principles. Livability requires that the broadest possible array of users are being served: motorists, pedestrians, bicyclists and the auxiliary needs of land uses that may extend into the street right-of-way. Livable street design uses lane configurations and dimensions that balance different street uses and ensures aesthetics, plantings, and furnishings which transform a streetscape into a usable public space.

Demand. The demands that redevelopment will have on KCDD streets must be addressed in the design of district streets. Neighborhoods within the district that will experience the largest increases in residential and commercial growth need to be supported by streets that can move the most people, rather than the most cars. Assuming that the right-of-way of streets will remain constant, the combination of redesigned multimodal streets and new street connections will need to carry the load of additional travel demand within and through the KCDD.

Access and Mobility. The City's current functional classification typology is based on defining different streets with respect to their general function in the transportation system—consisting of minor arterials, collector streets, and local streets. This remains important for the street types defined in this chapter, with cross sections designed to meet access and mobility needs.

Safety. Safety is the most important factor when designing streets. Some streets in particular feature adjacent uses or have certain user needs that require special safety accommodations. Accommodating mobility as described above does not require designing for high speed traffic; keeping pedestrians and bicyclists safe often requires slowing traffic down. Transit facilities (including bus stops and future light metro stations), schools, hospitals, religious sites, and other community-oriented land uses that generate pedestrian traffic often require special treatments or even a cross section design that emphasizes narrower lanes and design elements that further reduce vehicle speeds. This is most critical at intersections and mid-block crossings, where conflicts between pedestrians, bicyclists and motorists are at their highest concentration.

Designing for Multiple Modes

Designing a complete, truly multimodal street requires proper allocation of street space and investment for different modes in the KCDD. Figure 6-1 reaffirms the "Pedestrian First" hierarchy described in Chapter 5.

This hierarchy represents a major change in thinking in Honolulu. While such change is often met with frustration at first, motorists who drive sensibly, slowly, safely, and respectfully are rewarded in a Complete Streets approach. A Pedestrian First hierarchy adheres to the performance standard of optimizing streets to move people, rather than vehicles. The following section provides basic street design principles for each mode in the Pedestrian First hierarchy.

Figure 6-1 KCDD Modal Hierarchy

Pedestrians First

People make cities great. Success of the TOD Overlay Plan will mean a major increase in pedestrian traffic in the KCDD. Most trips begin and end on foot; in dense mixed-use urban neighborhoods many trips are made solely on foot. The TOD Overlay Plan envisions a KCDD filled with residential and commercial life. Developing a world-class pedestrian environment is a key to the implementing this vision.

A pedestrian-first design is a safety-first design, designed with the intent of keeping pedestrians of all ages and abilities feeling safe and comfortable on the street. Pedestrians, particularly those that are old, adolescent, or experiencing a mobility impairment are vulnerable to injury and death by vehicles. Be it a sidewalk, crosswalk, pedestrian signal, or transit passenger facility, all pedestrian facilities must comply and exceed design requirements established by the Americans with Disabilities Act (ADA) as HCDA strives to retrofit Kaka`ako's streets as universally accessible.

BALANCING THE DESIGN FACTORS

The four design factors on the left guide the development of representative cross section options for each street type (displayed in street type sheets later in this chapter). One of the four design factors will serve as the predominant consideration for each cross section.

This is not to suggest that this is the only factor that will be considered in street design, but it does emphasize this one factor as the reason a given type of street is distinct from others (and therefore why a variety of cross sections is necessary to respond to the complex land use environments in the KCDD).

	Primary Factor	Ancillary Factor
Livability		X
Access & Mobility	X	
Demand		X
Safety	X	

Note: Safety is a primary design factor for all streets.
Source: Nelson\Nygaard

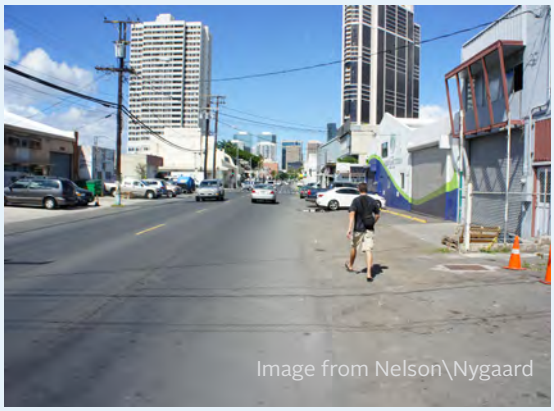


Image from Nelson\Nygaard

The Pedestrian First focus of the KCDD is particularly supportive of our island culture. There is a strong focus on multi-generational family living on O`ahu. The ability of the KCDD to support multi-generational families to live comfortably in an urban environment is paramount and must be reflected in the design of Kaka`ako's streets and public spaces.

Image from Nelson\Nygaard

Transit-Oriented

Buses and, eventually, light metro will extend the range of activity for Kaka`ako's residents and vastly improve the speed and quality of access to and from the KCDD. Premier access to transit is and will increasingly be a selling point for people relocating to the KCDD. Bus operations and access to transit must be considered in the design of the travelway—for bus/rail access, as well as for those that walk, bike or get dropped off at the station. Transit's influence on street design include lane width, intersection design (corner radius), transit-priority lanes (and queue jump lanes), signal timing (often adjusted to give transit an advantage, transit-signal priority), pedestrian access (street crossings at bus stops), sidewalk design (making room for bus shelters and large passenger queues), and bus stop placement and design (farside/nearside at intersections, bus pullouts, or bulb outs). Access and volumes at light metro stations must interface well with street design, especially where there are large volumes of pedestrians. These considerations are detailed in Chapter 5.

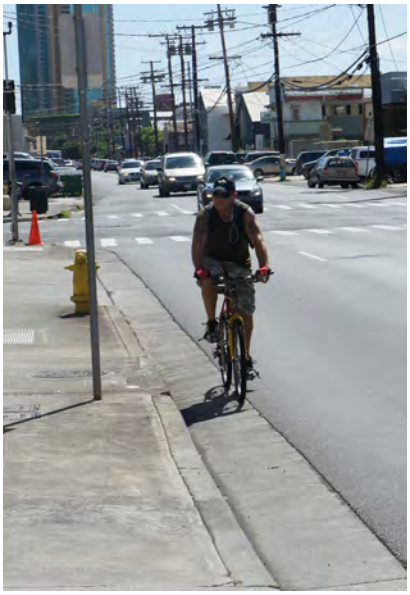


Image from Nelson\Nygaard

Bicycle Streets for Different Bicyclists

Bicycling is a critical element of fostering safe and livable streets in Kaka`ako. Bicyclists, along with pedestrians, are vulnerable users who benefit from reduced traffic speed and dedicated facilities. Because bicyclists vary in skill level, age, and comfort levels (as they relate to speed and operating behavior), KCDD must provide a broad variety of facility options to allow the range of current and future bicyclists to comfortably reach their destinations in the district and beyond. This includes shared lanes, bike lanes, buffered bike lanes, cycle tracks, off-street multi-use paths, and the assortment of intersection treatments that enhance safety at major and minor junctures.

In addition to the traditional notion of bicycles as a transportation and recreational tool, bicycling is a social activity, and people often ride side-by-side or in groups. Likewise, bicycles are increasingly being used in urban environments to make local deliveries, possibly addressing a missing link in Kaka`ako's freight network. The design must take into account the diversity of activities and potentially types of bicycles being used in Kaka`ako (e.g. a standard road bike is distinguished by vastly different spatial needs than a larger cargo bike).

In the end, bicycle facility selection must consider street conditions including available right of way, parking availability and turnover, bicycle volumes, auto volumes and speeds, and freight and transit volumes and routes, among others. Refer to the North American City Transportation Official's (NACTO) Urban Bikeway Design Guide for specific criteria.

Image from Nelson\Nygaard

Sensible and Balanced Private Auto Accommodation

Private autos are an integral part of both the regional and central Honolulu circulation system. Even though private autos are considered the lowest priority in KCDD's modal hierarchy, they still must be accommodated, albeit within the constraints of lower speeds and safer, more observant driving. More flexibility is given to large delivery trucks, as the efficient delivery of goods is paramount to supporting a healthy economy and meeting needs of KCDD's current and future businesses.

FREIGHT AND DELIVERIES

Freight and goods delivery is vital component part of any urban city's street network. Freight is not in the modal hierarchy because goods movement may be carried out by a variety of modes, including:

- Trucks (auto)
- Bike trailer or cargo bike (bicycle)
- Delivery person (pedestrian via auto)

Currently, most freight movement is delivered by medium- and large-sized trucks. Thus, mode priorities established for specific streets in Chapter 5, especially those within light industrial areas and along streets that carry regional through traffic, consider larger truck vehicles, which suggest slightly higher priority for automobiles.

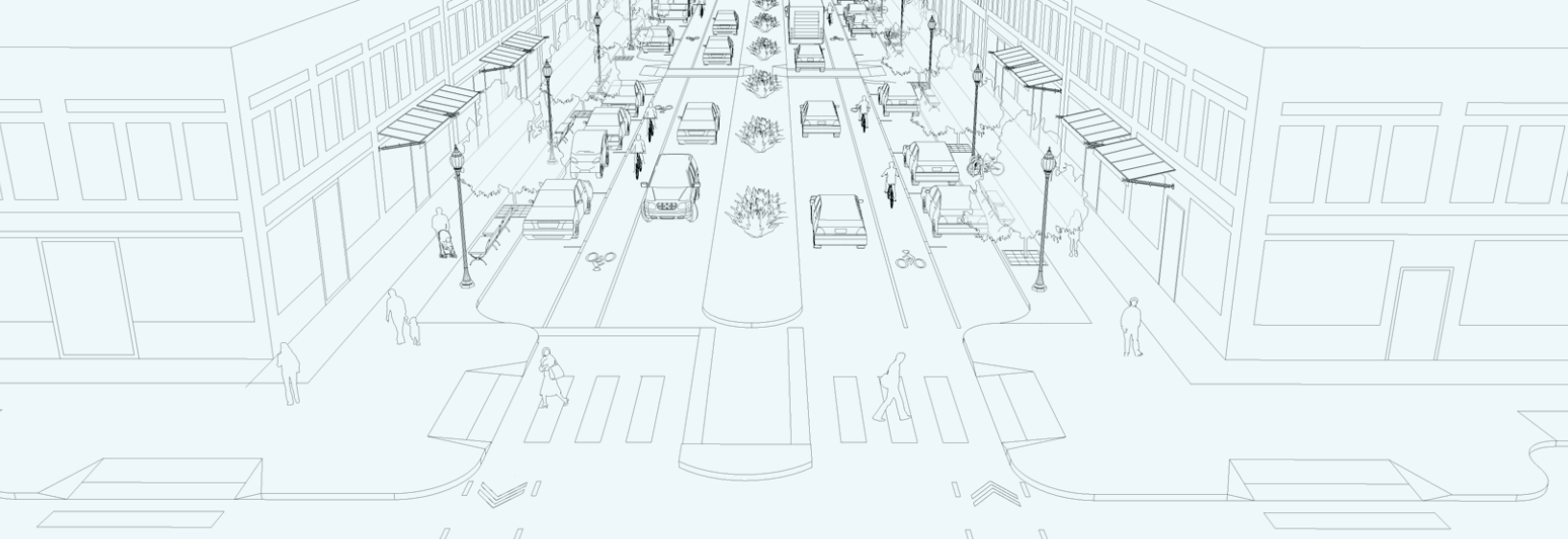
As a working district with many light industrial uses, light-freight and delivery functions will continue to be of critical importance and considered in design and street priority.

Image from Peter Hvizdak

GENERAL MULTIMODAL DESIGN PARAMETERS

The table below presents basic design considerations that are applied contextually when developing Complete Streets. Additional detail beyond these considerations will be established in KCDD Complete Street Design Guidelines to be developed through a future process.

Element	Design Consideration/Parameter
General purpose travel lanes	Ten to twelve foot travel lanes can safely and effectively accommodate vehicle travel. A travel lane on truck or bus route should be 11-12 feet wide in the travel lane typically used by buses and large trucks (almost always the outside or curb-tight travel lane).
On-street bicycle dedicated facilities and buffering	The widths of dedicated bicycle facilities depend entirely on street conditions such as travel speeds and volumes as well as the anticipated level of demand for each particular facility. Generally, bike lanes should be no less than 6 feet wide. Striped buffers are strongly recommended to be paired with bike lanes, particularly on high speed/volume streets (necessitating a 2-3 foot buffer between the bike facility and the adjacent travel lane) or with on-street parking (necessitating a 1-2 foot buffer from the center of the parking lane stripe). Cycle tracks should range between 6-7 feet in width (not including a 3-foot minimum raised median or bollard-protected striped buffer). If the cycle track is to operate bi-directionally the width could range between 10 and 14 feet with a minimum 3-foot raised or striped buffer.
Parking	Generally, parallel parking stall widths are recommended to range between 7.5 and 8 feet. Seven-foot parking stalls are acceptable in low density residential environments. The combination of travel and parking lane next to one another should be no less than 18 feet in width (11-foot travel and 7-foot parking or 10-foot travel and 8-foot parking).
Shared lanes	Shared auto/bike lanes should be targeted for widths of 12 feet, but may be as low as 10 feet wide. Placement of shared lane markings should be located appropriately to allow for safe passing movements by motorists and to locate cyclists outside of the door zone along streets with on-street parallel parking.
Transit stop accommodations	Street design should optimize operational efficiency, rider convenience, multimodal safety. Street types that accommodate on-street parking should integrate bus bulb outs—large curb extensions that house bus stops in order to extend passenger comfort, expand pedestrian capacity, and allow for inline boarding. In general, bus pull-out lanes are not recommended here as they are expensive (additional right-of-way costs), infringe on the pedestrian realm, and are inefficient for bus operations. Buses experience greater difficulty and delay re-entering traffic when required to use pull-outs. Establishing stops at the far side of intersections is also recommended so that street and intersection design can be consistent throughout Kaka`ako. Far-side stops: • Reduce intersection delay for right turn movements • Minimizes operational delay for buses by allowing a bus accelerating after making a stop to continue moving and not have to wait through a signal cycle. • Eliminate the chance of multiple threat collisions with passengers departing the bus and crossing the street.
Bicycle-bus facility integration	Where bicycles and transit vehicles interact at transit stops, dedicated bicycle facilities should wrap around transit shelters or transit shelters should extend into the parking lane. This configuration should only occur at far-side transit stop locations, never at near-side stops. Mixing zones (behind the transit shelter) should be designed with continental crosswalk markings and/or special paving features. Signs should warn pedestrians and bicyclist of these mixing zones. In addition, transit shelters should be transparent to enhance visibility between pedestrians and bicyclists passing around the shelter.
Curb extensions at intersections and mid-block locations	Any street with on-street parking should include curb extensions at intersections. A curb extension should be 1-2 feet less the width of the parking lane. Where a curb extension opportunity exists on a street with a cycle track, pedestrian refuge islands will serve as the "extension". Where the curb extension occurs at a mid-block location (to facilitate mid-block crossings), the facility should extend one foot past the parking lane to preserve sightlines for pedestrians and motorists.



COMPLETE STREET TYPES

Streets in Kaka`ako serve many purposes. Kaka`ako streets move pedestrians of all ages and abilities, transport and store bicycles, keep transit flowing and provide comfortable places for passengers to wait and board, transport freight and provide space for deliveries, and move and store autos. Streets are an integral component of the district's urban fabric. They make up large portions of the neighborhood serving as open space for socializing and recreation as well as civic and economic space. A Complete Street typology will help balance competing demands on Kaka`ako streets and will ensure that the design of streets builds on and supports the TOD Overlay Plan's goals for livability and neighborhood quality of life.

Strategy CS5 Establish a Complete Streets Typology and Design Guide

This strategy suggests a framework for KCDD street and intersection types and supports further development of specific Complete Steets guidelines for the various streets in our district. Street types will be developed based on the relationship of adjacent land uses to the street (see Chapter 5 for more information on street priorities). This typology offers detailed guidance for the needs of each mode, including walking, bicycling, transit and automobiles. Some streets, like Kapiolani Boulevard, must allow transit to maintain reliable, competitive operations and to allow vehicles to progress at a rate that ensures through-trips are not diverted to internal district streets and commercial avenues. While all street types must accommodate pedestrians comfortably, some streets will require a great level of concentrated investment to ensure pedestrian safety and comfort along and across the street can be achieved.

The street types described below establish the basis for setting design parameters by land use context (summarized in Figure 6-3) and provide guidelines for managing difficult multimodal trade-off decisions. Future street design guidelines will identify the specific

STREET TYPES IN THE KCDD

The street types listed below frame the design of KCDD streets and will be used to determine which design elements are appropriate for the district various land use contexts.

- **COMMERCIAL BOULEVARDS AND AVENUES**
  - Regional Boulevard
  - Transit Boulevard
  - Commercial Avenue
- **DISTRICT STREETS**
  - Residential Street
  - Commercial/Light Industrial Street
- **LOCAL STREET**
- **DISTINGUISHED STREETS**
  - Rapid Transit Street
  - Promenade

design treatments that will be applied to these street types. Figure 6-2 designates a conceptual street type on each KCDD street.

Further development of the KCDD Complete Street typology and specific design guidance will consider roadway design standards and the existing system of functional classifications upheld by the City and County of Honolulu Department of Transportation Services (DTS). The development of Complete Street design guidance will be completed in close coordination with the DTS, Hawai`i DOT, emergency service providers, and other district and regional stakeholders to ensure balanced, context-sensitive design is achieved.

Figure 6-2 KCDD Complete Street Typology

Street Typology

Commercial Boulevard and Avenue
- Regional Boulevard
- Transit Boulevard
- Commercial Avenue

District Streets
- Commercial / Industrial Street
- Residential Street

Distinguished Streets
- Promenade
- Rapid Transit Street

Local Streets
- Local Streets

- Light Metro Alignment
- Light Metro Stations
- Pathway
- Project Boundary

0 0.1 0.2 Miles

Data Sources: State of Hawaii Office of Planning State GIS Program; Honolulu Land Information System

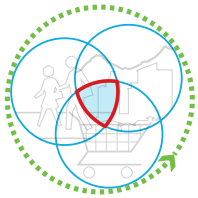


Figure 6-3 KCDD Street Type – Land Use Relationship

STREET TYPE BY LAND USE	GENERAL LAND USE CONTEXT	
Commercial Boulevards & Avenues		
	Regional Boulevard	**Primary:** Civil support, Civic, Office, Goods & Services **Secondary:** Automotive, Residential
	Transit Boulevard	**Primary:** Civil support, Civic, Office, Goods & Services **Secondary:** Residential
	Commercial Avenue	**Primary:** Office, Goods & Services **Secondary:** Residential
District Streets		
	Residential Street	**Primary:** Residential **Secondary:** Educational, Civic, Goods & Services
	Commercial/Light Industrial Street	**Primary:** Office, Goods & Services, Industrial **Secondary:** Civic, Residential
Local Streets		
	Local Street	**Primary:** Residential, Automotive (parking only; no drive-thrus, auto sales, etc.) **Secondary:** Civic, Office, Goods & Services, Educational, Civil support
Distinguished Streets		
	Rapid Transit Street	**Primary:** Residential, Office, Goods & Services **Secondary:** Educational, Civil Support
	Promenade	**Primary:** Goods & Services **Secondary:** Residential, Office

Note: Land use mix will vary by neighborhood.

INTERSECTION DESIGN PRINCIPLES

To make streets accommodative, comfortable, and safe for all users, attention also needs to be given to the places where streets intersect. Since these are the places where users meet, interact, and cross, intersections are the points of greatest conflict and the places where users are most likely to feel threatened. Intersections exhibit several common elements regardless of their type or category. Figure 6-4 on the following page offers a basic summary of these elements.

This section offers basic principles of complete intersection and crossing design. It also suggests intersection and crossing types for which HCDA and DTS will develop more detail design guidance in the future.

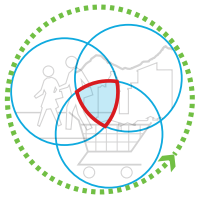
Strategy CS6 Establish Intersection Design Guidance

When designing and retrofitting intersections, the pedestrian will not be characterized as a single individual but rather a range of users—children, seniors, people pushing or pulling strollers and delivery carts, people using a wheelchair or scooter, or those traveling with a cane or a service animal. The street and pedestrian environment at intersections must function effectively for each of these "pedestrian" types while accommodating throughput for other modes.

One simple tenet
of intersection design will be adhered to in any case: Intersections will be designed and operated as simply and as compact as possible.

The following principles help to achieve complete, accessible, functional, and safe intersections.

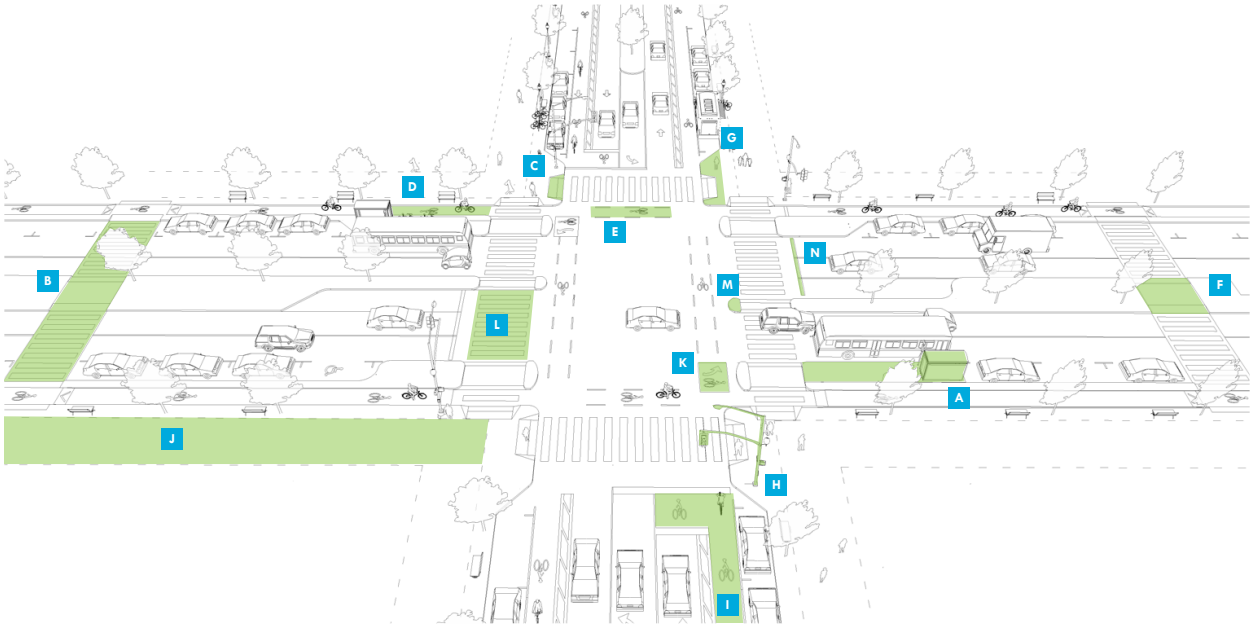
- All corners follow universal design principles and match state of the practice accessibility standards (PROWAG)
- Signals are responsive to needs of visually-impaired pedestrians
- Movement of each mode is predictable to all users
- Intersection geometry is compact as feasible
- The number of approach and receiving through lanes are equal and align with no skew
- Perpendicular intersections are better than skewed
- 3-4 approaches are better than 5 or more
- Vehicle speeds are managed, especially for turn movements
- Crossing distances are minimized by reducing pavement and including pedestrian refuges
- Crossings match pedestrian desire lines, whether at intersections or mid-block locations
- Crossings and pedestrian staging areas are located within sight triangles
- Transit stops are organized to limit transfer distances and facilitate safe crossings
- Far-side transit stops are better than near-side transit stops
- Bicycle movements are made as visible and predictable as possible
- Priority is given to cyclists over turning autos
- Signal phasing is predictable and prioritizes pedestrians, bicyclists, and transit (in that order)
- Person delay is minimized
- Signal timing safely accommodates harried and leisurely walkers



- Non-auto or bicycle space is reallocated to sidewalk or refuge islands by default
- Landscaping, street trees, and furniture are integrated, but never restrict sight lines between modes
- All intersections are illuminated per Crime Prevention through Environmental Design (CPTED) guidance

Figure 6-4 shows common intersection elements and Figure 6-5 illustrates common urban intersection types.

Figure 6-4 Common Intersection Elements



A Far-side stops/Bus bulbouts
Far-side stops minimize operational delay and allow buses to move out of the intersection, so that turn movements behind them can continue to occur. Bus bulbouts move passenger shelters or queuing areas away from the pedestrian zone and reduce pedestrian crossing distances.

B Mid-block crossing
Mid-block crossings provide direct walking routes and reduce the effective length of the block.

C Accessible curb ramps
Curb ramps safely and seamlessly connect mobility impaired individuals between the sidewalk and street. Curb ramps are tactile to ensure legibility for site-impaired users.

D Bike-transit integration
Bicycle and transit facilities are designed to reduce conflicts between bikes, transit vehicles, and pedestrians.

E Intersection bicycle crossing
Intersection markings indicate the safe, direct, and visible path of bicyclists traveling through an intersection or driveway conflict zone.

F Pedestrian refuge islands
Refuge islands reduce crossing distances, improve pedestrian visibility, and facilitate crossings across longer crosswalks.

G Curb extensions
Curb extensions continue the sidewalk into the parking lane at intersections or mid-block locations to improve visibility of pedestrians waiting to cross, reduce crossing distances, and provide additional space for placemaking features.

H Signalization
Traffic signals control vehicle and pedestrian movement at intersections or mid-block crossings.

I Colored bike boxes
Designated priority queuing areas for bicycles that help clear an intersection quickly and help reduce right-hook collisions.

K Two-stage turn queue boxes
Turn facility allowing cyclists to safely and comfortably exit cycle tracks or bike lanes that require bicyclists to negotiate difficult lane merges.

M Median nose
Median noses provide additional protection for crossing pedestrians and slow left turn movements.

J Sidewalks
Spacious, clearly defined, and continuous sidewalks are requisites for Complete Streets and transit-oriented neighborhoods.

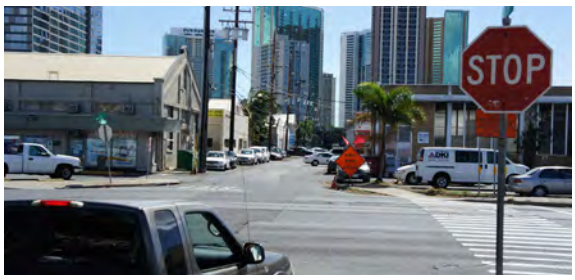
L Crosswalks
Highly visible and defined crosswalk facilities ensure safe and comfortable crossings.

N Advanced stop bars
Stop bars increase automobile stopping distances from crosswalks, thereby improving crossing comfort.

Source: Nelson\Nygaard

Figure 6-5 Common Intersection and Crossing Types

Signal	All-way stop
3 or 4-way traffic signal controlled intersections	3 or 4-way intersections where all legs of the intersection are controlled by stop signs
Features	**Features**
Complete signals address all modes and are ADA compliant. Left-turns should include permitted phases (not permissive) and pedestrian, bicycle, and transit signal priority phases should be integrated, where necessary.	Stop signs are typically installed to manage auto traffic, which may have an impact on bicycle travel. Stop signs should be limited on secondary bikeways. Advanced stop bars should provide a comfortable space between pedestrians and waiting vehicles.
	

Two-way stop	Uncontrolled
One-way or two-way intersections where the major street is uncontrolled, but the minor street is controlled by a stop or yield sign	Intersections without traffic control devices (stop sign, signal)
Features	**Features**
Without dedicated stops controlling major streets, these locations may act as a barrier to some cyclists. Additional provisions may be necessary to facilitate bicycle/pedestrian crossings, such as half signals or median barriers with pedestrian refuges. Advanced stop bars should provide a comfortable space between pedestrians and waiting vehicles.	Uncontrolled intersections often at low volume, low speed locations. Efforts need to be made to ensure speeds are slow (through traffic calming) and bicycle and pedestrian crossings are clearly marked and visible.
	

Mid-block crossing	Enhanced bicycle and pedestrian crossing	Driveways
Formal street crossing between intersections.	A signal or stop-controlled overlay intersection with bicycle/pedestrian priority features	An accessway offering motor vehicle access to public or private property Accesses to private property are considered an intersection as auto traffic intersects the sidewalk and dedicated bikeways.
Features	**Features**	**Features**
People generally cross at the most convenient location. Mid-block crossings help to facilitate pedestrian desire lines. Mid-block crossings should include designated crossing facilities like crosswalk markings and pedestrian refuges. Traffic control devices may or may not be used depending on the number of travel lanes, volumes, speeds, and a variety of other factors.	Intersections that include design or operational features to enhance and/or prioritize bicycle and pedestrian crossing movements. Features may include rapid flashing beacons, priority signalization phases, bike boxes, two-stage turn boxes, median barriers with pedestrian refuges, among others. See Figure 6-8 for proposed enhanced bicycle and pedestrian crossing overlay locations.	These include signal controlled driveway accesses into major destinations like Ala Moana Center. Driveways should always be designed as subservient to the sidewalk. Keep the driveway as small as possible, including width and corner radii. Driveways should be designed for 10 mph and oriented 90 degrees to the Street. Intersection bicycle crossing treatments appropriate for street intersections may apply.

ELEMENTS OF THE COMPLETE STREET CROSS SECTIONS

Complete Street design considers two main "environments: the Throughway (between the curbs) and the Pedestrian Zone (from the curb to lot line/building front).

THE THROUGHWAY

The principal part of the street for vehicles is the throughway, consisting of all space between the curbs of the street. It is composed of up to six main elements: the general purpose travel lanes/priority lanes, the center turn lanes/medians, buffers, bicycle space, parking, and drainage. Not all throughway elements are used in each cross section. The graphic representation of an all-inclusive throughway pictured below helps to distinguish the role that each element plays and to point out primary concerns that a street designer should keep in mind.

- General purpose travel lanes/priority lanes are the primary area for vehicle traffic circulation and refer to the lanes for through movement. Their design should incorporate a consideration of the primary vehicles that will be using a street: if this is larger vehicles, the dimensions of these lanes need to reflect that vehicle type. If the primary user of the street is passenger automobiles, the dimensions of these lanes can be narrowed to allow other components of the throughway and the street in general to serve a greater range of functions.

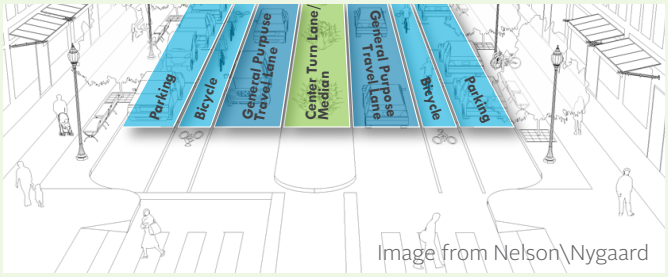


Image from Nelson\Nygaard

- Center turn lane/median is the auxiliary space separating general purpose lanes in each travel direction to allow the storage of turning vehicles. The general principle used in this guide is that either a median or a turn lane will constitute this space, if it is used, but not both.
- Buffers refer to the non-operable space that provides added separation between bicycles and adjacent travel lanes or parking. As shown below, not all dedicated bicycle facilities include buffers.
- Bicycle space refers to any dedicated space for bicycles including bike lanes, bike lane buffers. In shared lane environments, bicycles operate in general purpose travel lanes.
- Parking is provided as storage for cars that are not in operation and unloading/loading zones for delivery trucks and other private autos (e.g. taxis). Not all streets in KCDD provide for on-street parking, but is generally provided along streets serving commercial land uses or where private properties do not provide substantial space for off-street parking.

PEDESTRIAN ZONE

The fundamental organization of the space between the curb and the lot line, or pedestrian zone, is essential to a Complete Street. The pedestrian zone includes the following five elements or zones:

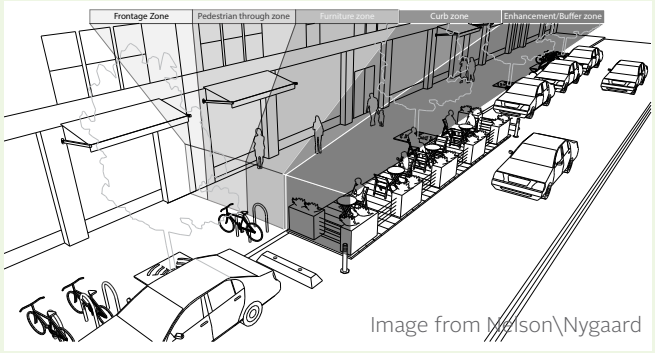
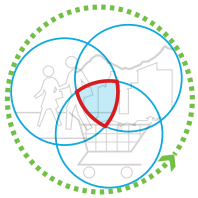


Image from Nelson\Nygaard

- Frontage zone: Area between the property line and pedestrian through zone that provides opportunities for temporary signs, planters, business-maintained plantings, and café seating.
- Pedestrian through zone: The primary passing and circulating area for pedestrians. This zone should be completely clear of permanent objectives (street furniture, utilities, street trees, etc.).
- Furniture zone: The first line of buffering between pedestrians and adjacent travel lanes. This is the appropriate areas to locate transit passenger facilities, street trees, utilities, planters/landscaping, sign poles, and additional street furniture (including bike share docking stations).
- Curb zone: A 6-inch wide curb.
- Enhancement/Buffer zone: Any instance where a parking lane may be flexibly used for expanded transit passenger facilities, in-street bicycle parking or bike share docking stations, landscaping/stormwater features, parklets, and curb extensions. Curb extensions effectively serves as additional furniture zone.



QUALITY OF SERVICE PERFORMANCE STANDARDS

KCDD's tools for measuring the success of its transportation system will follow from the larger goal and objectives of the TOD Overlay Plan. The TOD Overlay Plan, and the decision to pursue Complete Streets in Kaka`ako, recognizes that transportation is a means to ensure HCDA and the community realize quality of life, health, economic, and various other principles and objectives established in Chapter 2 of the Plan. It is imperative that Kaka`ako's Complete Streets strategy measures the various ways the network of district streets supports broader KCDD goals and objectives. Using traditional measures of auto delay is counter-intuitive for urban Complete Streets and does not address the goals of the TOD Overlay Plan to accommodate more people and jobs in a dense urban district where people can walk, bike, and use transit. Success of this plan will decrease per capita demand for auto travel and put priority on the quality of service in the pedestrian and bicycle realms. Traditional vehicle level of service models were developed for application in suburban areas where auto was the assumed mode of access for all land uses.

The KCDD TOD Overlay Plan emphasizes quality of service for all modes in addition to level of service (delay) for vehicles.

Strategy CS7 Establish performance measures/standards and decision tools that will incorporate Complete Streets

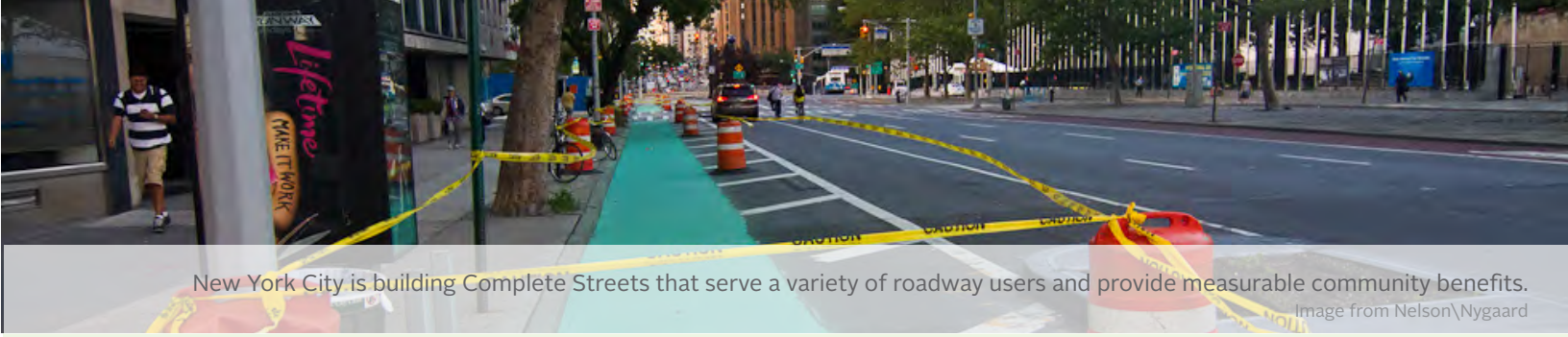
In conjunction with future work to develop a comprehensive set of Complete Streets design standards, the HCDA will work with local partners (particularly DTS and HDOT) to establish a process that combines existing tools for measuring transportation performance (largely oriented toward measuring vehicle delay, volume, and capacity) with multimodal analysis tools. This performance measurement framework will balance quantitative tools with qualitative tools that reflect transportation outcomes and ensure that transportation investments contribute to vibrant, healthy, and economically productive streets.

A number of alternative performance measurement tools exist as a supplement or replacement to vehicle level of service (VLOS). Responsibility for setting performance standards will be a joint process between HCDA and the City and County of Honolulu. Examples of potential decision tools include:

- Site/project level performance measures (Multimodal Level of Service, checklists, crash and injury data)
- Transportation system level measures (annual counts, including miles of bicycle lanes added or repainted, blocks of new or repaired sidewalks, number of new or reconstructed accessible curb cuts, number of new street trees per year)
- Measurement (post-performance measure such as % reduction in crashes or reduced vehicle speeds in residential neighborhoods)
- Community-wide, long-term measures (mode shift, satisfaction surveys, health outcomes)

Action CS7.1 Work with DTS to adopt transportation quality and level of service metrics that reflect the development of a walkable, multimodal transportation network

VLOS standards historically are focused solely on vehicle delay times and may therefore have a detrimental effect on the implementation of safe, vibrant, walkable, community-oriented streets. Often, improvements or additions of non-vehicle capacity projects (such as widening sidewalks by reducing curb-to-curb width) may trigger a potential decline in modeled VLOS. If improvements that encourage people to travel in ways other than driving are always rejected because they will slow down motorists, then it will not be possible to encourage people to get out of their cars and HCDA may not achieve its land use and economic goals for the KCDD. For example, the nation's most successful retail



New York City is building Complete Streets that serve a variety of roadway users and provide measurable community benefits.
Image from Nelson\Nygaard

NEW YORK CITY DOT:
MEASURING THE STREET: NEW METRICS FOR 21ST CENTURY STREETS

New York City's current DOT has gained a reputation for the most innovate and successful repositioning of its transportation infrastructure to vibrant, economically successful, and safe urban streets and public spaces. And if New York City DOT can successfully reprioritize space on Manhattan streets for pedestrians, bicycles, parklets, and street cafes, the rest of the nation's cities have to ask – "can't we do the same?"

Part of the New York success story is the adoption of a radically new way of viewing performance, based not just on how autos move and operated, but on how transportation investments affect users of all modes and the businesses and property owners that front city streets. Measuring the Street: New Metrics for 21st Century Streets categorizes strategies and metrics under goals to:

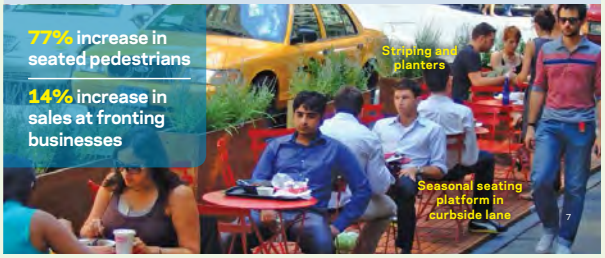
- Design for safety
- Design for all users of the street
- Design great public spaces

Metrics to measure success include public health benefits and economic return on investment for retail users in commercial corridors.

The full report can be found at: http://www.smartgrowthamerica.org/documents/cs/impl/ny-nyc-measuring.pdf

Transforming an underused parking area:
Pearl Street (Brooklyn)

Creating a seating area out of curb lane:
Pearl Street (Manhattan)



Dedicated lanes for both buses and bikes:
First and Second Avenues (Manhattan)

Images from NYC DOT

streets are often congested. This is both a sign of success – people want to be there – and a benefit to retailers since people in slow moving cars can better view shopping opportunities.

National practice in measuring transportation performance is evolving. The most recent Highway Capacity Manual (HCM) has made significant changes from previous editions, including a chapter dedicated to urban street facilities that couples level of service standards for automobiles, pedestrians, bicycles and transit users. Increasingly cities are looking to measure *quality* of the pedestrian and cycling experience and to measure street performance by capacity and delay for *people*, not vehicles.

Among the most important actions that many jurisdictions are now taking is to simply exempt development within dense, mixed-use districts from compliance to minimum vehicular level of service standards. In some cases, additional multimodal level of service standards are developed, in others an impact fee is assessed based on the size and/or trip generation from that development. These fees are then put toward completing the city or district's transportation plan. This strategy has the benefit of ensuring that a single, coordinated approach to managing transportation is taken and that capital projects are implemented in the most beneficial order of priority.

Heavy traffic on 5th Avenue in New York City does not deter shoppers from around the world
Image from Nelson\Nygaard

Bicycle counters like these in Copenhagen are increasingly being used in the US to measure bicycle demand on major travel corridors.
Image from James Scridland

MEASURING MULTIMODAL STREET PERFORMANCE

The San Francisco County Transportation Authority (SFCTA) proposed replacing the current LOS measure with a measure based on the net automobile trips generated (ATG) by a project, paired with a transportation impact mitigation fee (TIMF) program designed to mitigate the systemwide impacts of added vehicle trips. This methodology offers a citywide approach to measuring and mitigating traffic impacts, rather than looking at one project and one intersection at a time. Because there is traffic congestion throughout San Francisco's street network, any project that adds a single vehicle trip would be determined to have a significant traffic impact.

Projects that do not add vehicle trips, like a rail line, bike lane or sidewalk widening, would not be considered to have any traffic impact, even if the project reduced vehicle capacity in a specific location or corridor. The ATG methodology is currently under evaluation and it is unclear if and when it will be implemented. The proposed methodology and fee structure would need to be adopted by the Planning Commission through an ordinance that replaces auto LOS as a measure of environmental impacts with the ATG measure, coupled to the TIMF program.

Other places that have relaxed minimum standards for VLOS or adopted multimodal level of service standards include:

- Livermore, CA
- Redwood City, CA
- San Jose, CA
- San Francisco, CA
- Fort Collins, CO
- Montgomery County, MD
- Fairfax County, VD
- Cambridge, MA
- Massachusetts DOT
- Oregon DOT
- Florida DOT

The table on the following page describes other measures of transportation performance being used to measure performance of our streets and transportation networks.

MULTIMODAL TRANSPORTATION PERFORMANCE MEASURES

Feature	Definition	Indicators
Delay	Consider person delay rather than vehicular delay	▪ Aggregate delay of all transportation users in a corridor or corridor segment during a set time period
Capacity	Capacity for a street to move people or intersection to accommodate person throughput	▪ Capacity of a street cross section in terms of persons moved per hour (can exclude pedestrians) ▪ Intersection person throughput at a peak hour (can exclude pedestrians)
Network continuity and connectivity	Whether sidewalks and paths exist, and connect throughout an area	▪ Portion of streets with non-motorized facilities ▪ Length of path/non-motorized facility per capita ▪ Network connectivity and density (intersections per square mile)
Network quality	Whether sidewalks and paths are properly designed and maintained	▪ Sidewalk and path functional width ▪ Portion of sidewalks and paths that meet current design standards/in good repair
Road crossing and intersection design	Safety and speed of road crossings	▪ Road crossing widths ▪ Motor vehicle traffic volumes and intersection design speeds ▪ Average pedestrian crossing time ▪ Quantity and quality of crosswalks, signals and crossing guards
Pedestrian and bicycle protection from traffic	Separation of non-motorized traffic from motorized traffic, particularly high traffic volumes and speeds	▪ Distance between traffic lanes and sidewalks or paths ▪ Presence of physical separators, such as trees and bollards ▪ Speed control
Congestion and user conflicts	Whether sidewalks and paths are crowded or experience other conflicts	▪ Functional width of sidewalk and non-motorized paths ▪ Peak-period density (people per square foot) ▪ Clearance from hazards, such as street furniture and performers within the right-of-way ▪ Number of reported conflicts among users ▪ Facility management to minimize user conflicts
Sense of Security	Perceived threats of accidents, assault, theft or abuse	▪ Reported security incidents ▪ Quality of visibility and lighting ▪ Hours of street activity and/or retail establishments
Wayfinding	Guidance for navigating within the station and to nearby destinations	▪ Availability and quality of signs, maps and visitor information services
Weather protection	User protected from sun, wind, and rain	▪ Presence of shade trees and awnings ▪ Frequency and design of waiting and resting places
Cleanliness	Cleanliness of facilities and nearby areas	▪ Litter, particularly potentially dangerous objects ▪ Graffiti on facilities and nearby areas ▪ Effectiveness of sidewalk and path cleaning programs
Attractiveness	The attractiveness of the facility, nearby areas and destinations	▪ Quality of facility design ▪ Quality of nearby buildings and landscaping ▪ Air and noise pollution experienced by cyclists and pedestrians ▪ Community cohesion (quantity and quality of positive interactions among people in an area) ▪ Number of parks and recreational areas accessible by non-motorized facilities
Economic vitality	Ability to retain, support, and advance retail and commercial performance	▪ Retail sales per square foot ▪ Sales tax revenue generated ▪ Commercial vacancies ▪ Number of visitors
Public health	Health benefits achieve from increased physical activity (active transportation), safety improvements, and reduced emissions	▪ Collisions and injuries to motorists and other vehicle occupants, pedestrians, cyclists, and motorcyclists ▪ Number of ADA compliance projects constructed annually ▪ Worker absenteeism, efficiency, and productivity (obtained through employer surveys) ▪ Increased walking and bicycling levels ▪ Air quality monitoring

Adapted from multiple sources including: NYCDOT's Measuring the Street: New Metrics for 21st Century Streets (2012) and Victoria Transport Policy Institute's Multi-Modal Level-of-Service Indicators Tools For Evaluating the Quality of Transport Services and Facilities (December 2012)

STRATEGIES AND TOOLS TO IMPLEMENT COMPLETE STREETS AND INTERSECTIONS

Strategy CS8 Reallocate street space to better move people and activate KCDD pedestrian spaces

The success for the TOD Overlay Plan relies on an effective partnership between HCDA and DTS to identify and implement projects that reallocate street space for more multimodal and livable uses. Several street design tools will be considered to achieve Complete Street design objectives in Kaka`ako, including road diets/lane reconfiguration, shared street design, and repurposed parking lanes. The effectiveness of these tools will be evaluated in appropriate contexts in future transportation analysis in the KCDD.

ROAD DIETS

Case Study: Along St. Louis' South Grand Blvd., traffic volumes ranged between 19,500-29,000vpd prior to a road diet and streetscape project. Before and after analysis of traffic showed very little change in volume, but noticeable speed and noise reductions.
Image from Nelson\Nygaard

Focusing on existing infrastructure, road diets, or lane reconfiguration projects, suggests the idea that some roads carry more 'weight,' or vehicular capacity, than they need to be functional and livable. Road diets improve multimodal safety by converting underutilized vehicle space in a fixed right-of-way to space serving other users of the street, such as parking vehicles, bicyclists, and pedestrians. Road diets typically convert four-lane cross sections (i.e. four lanes with no median between the two directions of travel) to three lane sections (one travel lane in each direction with bike lanes and either a two-way left turn lane or a similar amount of space to provide left turn storage lanes as needed).

Not all Kaka`ako streets will be considered as road diet candidates. The 4-to-3 conversion is most effective on roads with average daily traffic of up 15,000-20,000 vehicles per day (vpd) and those that have a high potential to induce vehicular travel. This threshold is increased to 25,000 (vpd) for 5-lane cross sections. Based on existing volumes and the anticipated function and demand of KCDD streets, Ward Avenue and potentially Auahi Street (Diamond Head of Ward Avenue) will be considered for lane reallocation.

SHARED STREET DESIGN

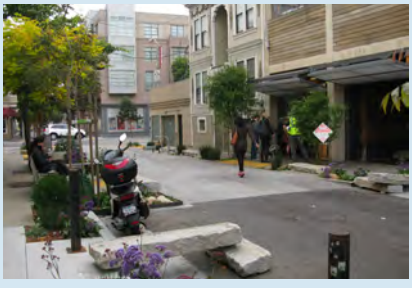


Image from Nelson\Nygaard

Shared streets, also referred to as woonerfs, slow zones, or home zones, are narrow, often curbless street connections that reduce or remove segregation between pedestrians, bicyclists, cars, and delivery trucks. Vehicular traffic is calmed to low speeds (10mph speeds or less) by placing trees, planters, parking areas, and other obstacles in the street's common space. Shared street designs will be pursued on streets serving delivery and parking access traffic and in areas of the district where heavy pedestrian volumes are expected and auto traffic is de-emphasized. The TOD Overlay Plan suggests this approach on many of the Local Streets, particularly on new streets serving mixed use developments.

ACTIVATED ENHANCEMENT/BUFFER ZONES

The parking lane provides opportunities to expand the pedestrian realm, especially streets that will not be rebuilt or extensively landscaped. At strategic locations, use of the parking lane for parklets, seating, landscaping, restaurant use, bike share docking stations or in-street bicycle parking corrals can be used to provide visual interest, resting areas for pedestrians, and additional transportation-related storage. HCDA will work with DTS to reprogram a limited number of parking stalls with more active uses.

Image from Flickr user Shelley Mags

SAN FRANCISCO'S PARKLET PROGRAM

Since 2010, the City of San Francisco's Pavement to Parks Program has pioneered the conversion of parking lane space to "parklets". A parklet repurposes part of the street into a space for people, making the street more beautiful and provide public space, even when permanently widening sidewalks is not an option. They can provide space for seating, landscaping, public art and other amenities. They are typically paid for and maintained by nearby residents, businesses, or community organizations.

Goals of the program include:

- Providing a fast and cost-effective way to beautify the streetscape and improve the public realm
- Encourage walking by enhancing the pedestrian environment
- Providing space to sit, relax, and plan
- Supporting local business

More information on the Parklet Program is available in the San Francisco Pavement to Parks Program Parklet Manual and the Business/Resident Application to Request a New Parklet

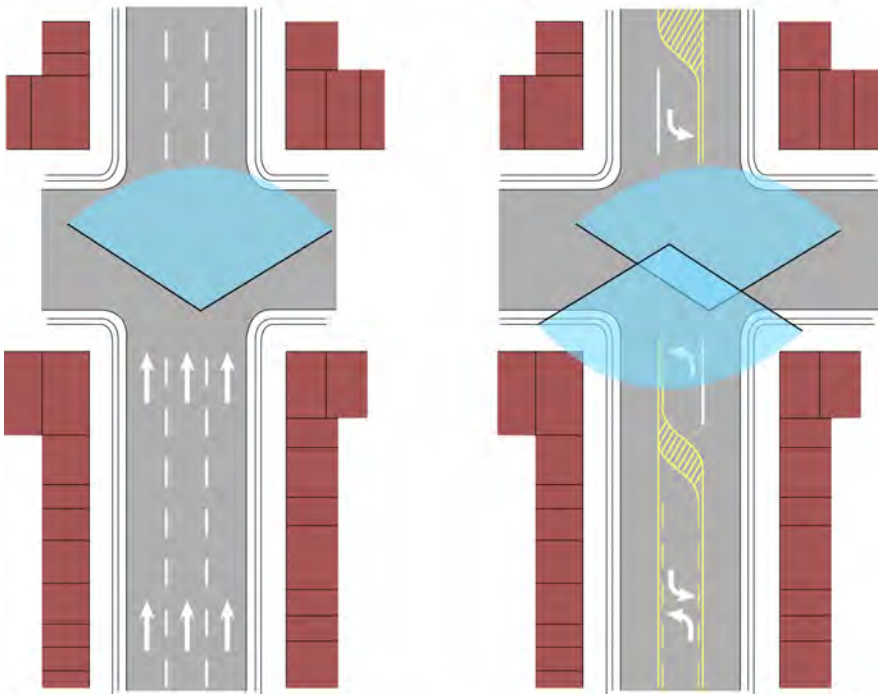
Two examples of parklets in San Francisco's Mission District. Parklets extend the pedestrian realm and help to enliven communities and their retail spaces.
Images from Nelson\Nygaard

Strategy CS9 Strategically convert key multimodal streets from one-way to two-way operation

Converting vehicular flow of one-way streets to two-way operations is another method of designing streets to be safer and offer improved access to destinations in Kaka`ako. Historically, two-way streets were converted to one-way operations to increase vehicle-moving capacity—particularly during peak travel periods. The primary modal beneficiary of this approach is auto movement at the expense of other modes and uses. For 20-22 hours of the day, the need to move large traffic volumes is not as urgent; yet one-way streets continue with one-way flow and only allow one direction of visibility, as illustrated in Figure 6-6. One-way streets are less conducive to successful business corridors, largely because they limit visibility to a single direction and at a given time of day offer less exposure to businesses. One-way streets tend to have faster vehicle traffic speeds, which means motorists spend less time observing the environment around them and more time "zipping by" the retail corridor. Conversion is desirable from a safety standpoint, as well, as two-way streets operate at appropriate speeds for urban environments where there are higher volumes of bicyclists and pedestrians—especially along segments of Kaka`ako streets that will experience substantial residential growth.

To achieve roadway facilities that offer a balance of mobility, access, and accommodations that establish more attractive, safe and livable conditions, HCDA will coordinate with DTS to evaluate the viability of converting certain one-way streets to two-way operations. For example, the Pensacola/ Piikoi couplet is identified as a possible corridor for future conversion pending an in depth evaluation.

Figure 6-6 Visibility Impacts of One-Way and Two-Way Roadway Operation



One-way streets allow only one principal direction of visibility for motorists on a street (left), meaning that businesses will not be seen from an opposite direction as they would on two-way streets (right).
Image from Nelson\Nygaard

Strategy CS10 Redesign and operate intersections to accommodate all modes and reduce conflicts

Action CS10.1 Design intersections to be compact and limited in complexity, where possible.

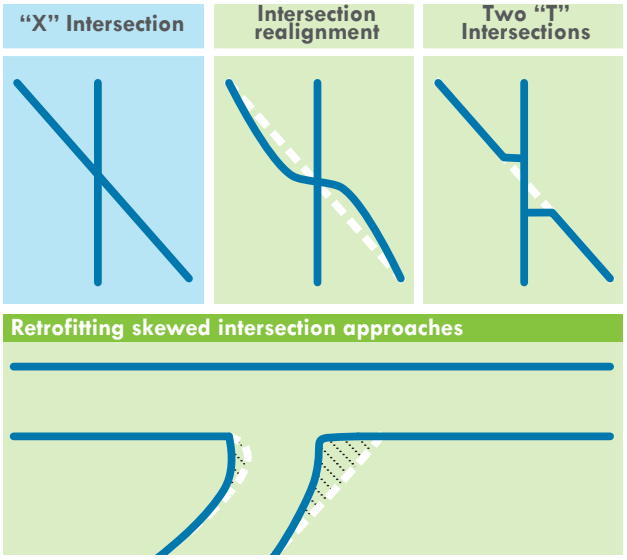
As shown in Figure 6-7, intersections in Kaka`ako range between in size and complexity. In a complete streets environment, compact intersections with tight geometries are preferable to complex intersections, to reduce conflicts between pedestrians, bicyclists and auto drivers. Ideally intersections will have three or four approaches (or legs), each generally forming a right angle with the street it connects into. Complex intersections might have raised medians and turn lanes, but the defining features of that make complex intersections less attractive from a safety and operations standpoint are multiple legs (over 4) and skewed angles.

Figure 6-7 Range of Intersection Size in Kaka`ako

Examples of the range of intersection geometries in the KCDD at Punchbowl/Kapiolani (left) and Coral/Auahi (right).
Image from Google

Intersections will be easily negotiated by pedestrians and bicycles, and traffic approach speeds will be managed, where possible. Complex intersections are not unalterable, and more complete intersection designs can be achieved throughout Kaka`ako. A mixture of pedestrian refuge islands, curb extensions, signal improvements, and signs can help to break up crossing distances and limit the number of possible concurrent conflicts. Skewed intersections like Auahi and Ward can be realigned or re-networked into simplified junctures or a series of T-intersections. Y-junctions can also be squared off into a T-intersection as well. These techniques are summarized in Figure 6-8.

Figure 6-8 Different Approaches to Simplifying Complex Intersections



Source: Nelson\Nygaard

Action CS10.2 Ensure crossings throughout the KCDD are as short, direct, and level as possible.

Whether at an intersection or a mid-block location, crossings will be as short and as direct as possible. Human nature will result in pedestrians taking the shortest and most direct route across an intersection, regardless of the traffic engineer's intent – it is therefore essential that the direct path be made the safest path in intersection design. Curb extensions, mid-block crossings, pedestrian refuge islands and any other facilities that break crossings into more manageable crossing distances will improve the pedestrian experience.

Pedestrian crossings in Kaka`ako will be made at grade wherever possible. Grade-separated crossings are almost always unsuccessful at moving people across the street in the most direct path, except under one of four conditions:

- Crossing over or under a freeway or divided highway
- Connecting directly to specific land uses
- Providing a trail crossing where the trail is roughly perpendicular to the road
- Connecting on at least one side to a location where people want to be at the elevation of the structure (e.g. where one end is an elevated rail station)

Unless they specifically satisfy one of these four conditions, bridges and underpasses simply do not work to get people from the sidewalk on one side of the street to the sidewalk on the other side of the street. Fences and barricades can improve behavior, but are often ignored or modified to maintain the most direct route to a destination.

Action CS10.3 Apply principles of universal design to ensure street environments and junctures are legibly and comfortably designed for pedestrians of all ages and abilities.

Universal design is a design that is comfortable for users of all ages and abilities, including persons with disabilities. Universal design principles applied to street design include street crossings that can be comfortably navigated by older and slower walkers, curb cuts that can accommodate baby strollers, rolling suitcases, and a variety of mobility devices, and wayfinding that is clear and intuitive to all users. All streets in Kaka`ako will be designed with principles of universal design. Additional detail on universal accessibility is discussed in Chapter 5.

7 PARKING & TRANSPORTATION DEMAND MANAGEMENT

7 PARKING & TRANSPORTATION DEMAND MANAGEMENT

Role of Parking

The pivotal role of parking in all aspects of the life and economy of an urban district is often overlooked. Because provision of parking is very costly, the amount of parking required is often a key determinant of the quality and quantity of new development. The price and availability of parking influences how people choose to travel and whether they will travel to destinations within the district. The amount of space dedicated to parking is a determining factor is the form development takes and to the experience of a pedestrian within the district. Adopting a sensible and well-tailored approach to managing parking may be the single most important thing that HCDA can do to foster a pedestrian-friendly, transit-oriented Kaka`ako community. This section details specific steps that will be taken to manage parking in the KCDD.

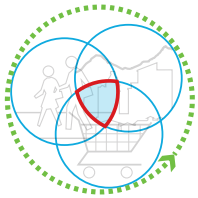
Existing Regulations

Off-Street Parking

The Mauka and Makai Plans include parking standards for each land use type, including the quantity of off-street parking and loading spaces that must be provided. A summary of these minimum parking requirements is provided in Figure 7-1.

Figure 7-1 Existing Off-Street Parking Regulations

Land Use	Mauka	Makai
Residential		
Detached dwellings, live-work, and duplexes	2/unit + 1/ 1,000 sq ft of floor area over 2,500 sq ft	Not Applicable
Multi-family dwelling (<600 sq ft)	0.9/ unit	0.9/ unit
Multi-family (600-800 sq ft)	1.25/ unit	1.13/unit
Multi-family dwelling (>800 sq ft)	1.25/ unit	1.35/unit
Group homes, care, convalescent and nursing home	0.9/ 4 patient beds, dwelling units, or lodging units	0.9/ 4 patient beds, dwelling units, or lodging units
Commercial		
Commercial, clinics, administrative and all other uses	1/ 450 sq ft of floor area	1/ 400 sq ft of floor area
Restaurants and bars, and dance-nightclubs	0.9/ 300 sq ft of eating or drinking area + 0.9/ 25 sq ft of dance area + 1/ 450 sq ft of kitchen or accessory area	1/ 300 sq ft of eating or drinking area + 0.9/ 25 sq ft of dance area + 1/ 400 sq ft of kitchen or accessory area
Industrial, media production, printing and publishing and warehousing	One per nine hundred square feet of floor area	Not Applicable
Education and Assembly		
Group assembly/Auditorium	0.9 per three hundred square feet of assembly area or 0.9 per ten fixed seats, whichever is greater	0.9 per three hundred square feet



Land Use	Mauka	Makai
Religious facilities and theaters	0.9 / 5 fixed seats OR 50 sq ft of general assembly area (whichever is greater)	0.9 / 5 fixed seats OR 50 sq ft of general assembly area (whichever is greater)
Day-care facilities	0.9/ 10 enrolled capacity	1/ 10 enrolled capacity
Educational (elementary and intermediate level)	0.9/ 20 students of design capacity + 1 / 450 sq ft of office floor area	Not Applicable
Educational (high school, vocational, technical university, etc.	0.9/ 10 students of design capacity + one per 450 sq ft of office floor area	1/ 10 students of design capacity + one per 400 sq ft of office floor area
Waterfront Industrial	Not Applicable	1/1,000 sq ft of floor are or 1/ 2 employees, whichever is greater.

Source: KCDD Mauka and Makai Area Plans

Minimum parking requirements like these have emerged as one of the biggest obstacles to many cities' efforts to encourage new residential and commercial development in downtown areas, especially in cities like Honolulu where nearly all parking must be provided in multilevel above ground facilities. With the cost of providing multilevel parking spaces exceeding $50,000 per space, it no longer makes sense to provide more parking than is needed, since the value put into unused parking could be used for a higher quality of development or for additional amenities. Furthermore, the availability of plentiful and unused parking will ultimately undermine efforts to create a walkable transit-oriented community. More specifically, minimum parking requirements have been shown to:

- Create an "oversupply" of parking in most communities in all but the highest periods of parking demand
- Devalue the true "costs" of parking to drivers, thereby creating an incentive to drive, which results in more local congestion and vehicle emissions
- Require tremendous amounts of land, thereby degrading the physical environment and impacting a community's urban form, design, and aesthetics
- Limit the ability to do urban "infill" projects or adaptively reuse historic structures
- Make development projects more expensive and reduce overall profitability

It is very difficult to create a walkable, bikeable environment when more land is dedicated to parking than to buildings. The oversupply of parking resulting from minimum parking requirements can be particularly damaging to uses such as restaurants, which help create a sense of streetlife.

High levels of temporary residency and out-of-state ownership in Honolulu further exacerbate the disparity between supply required by minimum parking standards and actual levels of use at any given time. While KCDD developers report that the market for high-end condos demand some level of guaranteed parking sold with the unit, lower- to moderate-income units may not, particularly if other choices for mobility are available.

On-Street Parking

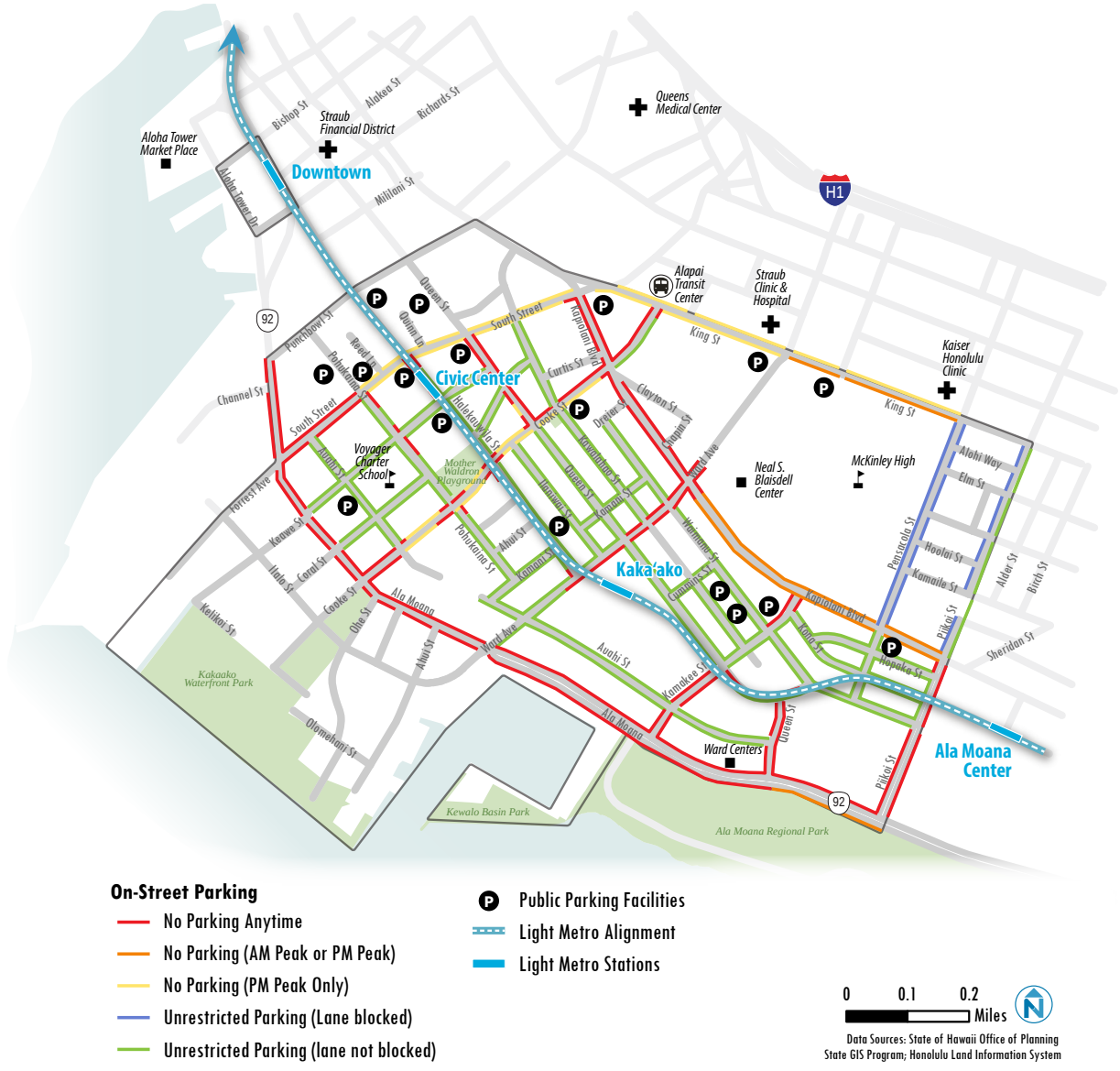
Figure 7-2 illustrates on-street parking in Kaka`ako. Curb parking is regulated as follows:

- On the major regional Boulevard, curb parking is not permitted at any time or at least not during peak travel hours.
- On portions of Cooke, South, and S. King Streets, Parking is not permitted during the PM peak period, while portions of Kapiolani and Ala Moana Boulevards restrict parking during both the AM and PM peak periods.

- On-street parking is free on many blocks in the district: relatively few streets east of Cooke have parking meters. To the west of Cooke, many streets are metered including Pohukaina, Halekauwila, Auahi, Kawaiahao, Cooke, and Queen Streets in the Civic Center neighborhood. Other streets in that same district remain unmetered.
- Where curb parking is permitted, there is a mix of completely unrestricted parking, and parking with 1- or 2-hour time limits.

On weekdays, unrestricted parking typically fills to capacity with long-term parkers early in the day, while time-restricted parking goes largely unused.

Figure 7-2 On-Street Parking Regulations



Source: Kaka`ako Mauka Specific Plan SEIS

Given high levels of employment and relatively few retail or residential uses in Central Kaka`ako, street or alley parking that is not time-limited fills quickly in the morning, while time-limited on street parking remains highly underutilized through much of the day.

Poorly managed on-street parking can have other negative consequences for the transportation system and the quality of the public realm: When demand for curb parking exceeds supply, drivers end up circling the block searching for an available parking space. This behavior wastes time for drivers and generates unnecessary traffic and emissions: *some studies have shown that as much as 30% of traffic in the busiest downtown areas is the result of circling for parking.* Drivers searching for parking also tend to be more distracted and less attentive to the road, which can increase the collision risk for pedestrians, cyclists, and other drivers.

Parking with no time limits is full in the early morning.
Image from Nelson\Nygaard

Time-restricted parking, particularly supply further from the Downtown/Civic Center area, is underutilized.
Image from Nelson\Nygaard

A Market-Based Approach to Parking

Parking is not an end in itself, but rather a means to achieve and support broader community goals and priorities. Rather than focusing on providing an arbitrarily chosen quantity of parking, successful transit-oriented communities actively manage parking to ensure on-street or easily accessible public parking availability for visitors, while right-sizing supply for new development; and allowing the market to determine parking's appropriate price and its value relative to other potential uses for land. Eliminating arbitrary parking minimums does not eliminate new parking supply; rather it allows development to build the precise amount of parking they need to keep their development viable.

Key principles for this approach are as follows:

- **One size does not fit all.** Parking regulations and management strategies will be tailored to the district, and careful measurement of real-world parking supply and demand.
- **Ensure that some parking is always available.** Parking facilities will be managed to achieve 85-90% occupancy, which represents the optimal balance between ease of finding a space and the efficient use of parking resources. This is particularly important for the most visible spaces on the street, and close to garage entrances. If occupancy rises above 90%, it will increase in price, a reduced time limit, or another measure to increase availability. A well managed parking system will almost always have one parking space available on each block face, so that no one is forced to "circle" to find parking near their destination.
- **Share information about parking availability.** Economic success depends not just on the availability of parking, but on the public's perception of availability. Wayfinding will be used to ensure that drivers know where to look for available parking.

- **Share Parking.** Whenever possible, parking will be managed as a shared resource, rather than reserved for customers of a particular business. A city's parking supply is also a public good that needs to be actively managed so that it can meet parking demand during different seasons, different days of the week, or even at different times throughout the day.
- **Manage the entire parking supply as part of a coherent system.** To the extent possible, different types of parking—on- and off-street, public and private—will be managed according to the same set of principles. Pricing, time limits, and payment mechanisms will be standardized as far as possible.
- **Use parking as a tool to manage roadway congestion.** In dense urban districts, traffic congestion can become a serious problem. Cities can mitigate this problem by matching the total parking supply to the capacity of the roadway system.
- **Maximize the contributions of parking to good urban design.** With good design, parking facilities can contribute to, rather than detract from, the quality of the public realm.

Parking Policies and Incentives

This section details a set of policies, rule changes, and implementation strategies designed to create a market-based approach to parking management in the Kaka`ako district. Implemented fully, they will remove unnecessary incentives for driving, reduce traffic congestion, and improve the sense of place in the district. The section that follows outlines a set of Transportation Demand Management (TDM) strategies that will reinforce the effectiveness of this approach to parking.

Manage On-Street Parking

- The primary management goal for on-street parking supply in KCDD is to optimize access for businesses that rely on short-term visitors. This can be done by making it as easy as possible to find a parking space near where customers want to go. By setting specific availability targets and adjusting prices, demand can be effectively managed so that when a motorist chooses to park, they can do so without circling in search of a space, generating unnecessary traffic and emissions.
- In an emerging rail station area, on-street supply must be carefully managed to ensure that all-day or commuter park-and-ride uses are not allowed and that local parking needs are not overwhelmed by demand for access to the rail system.
- A set of strategies for management on-street parking is presented below.

Strategy PT1 Price on-street parking to ensure availability

One of the best ways to balance parking supply and demand is to treat parking like any other scarce commodity, and require motorists to directly pay for use of a space. By setting a price for parking, a city can establish the "market value" for each parking space and adjust those prices depending on the level of demand. Just as hotel room rates increase or decrease based on availability, demand-based pricing for parking seeks to increase prices when and where demand is highest and reduce prices when and where demand is low.

An ideal occupancy rate for on-street, curb spaces is approximately 85% at even the busiest hour, a rate which leaves about one out of every seven spaces available. These rates provide enough vacancies that visitors can easily find a spot near their destination when they first arrive. For a given block or off-street facility, the "right price" is the price that will achieve this goal. This means that pricing will not be uniform: the most desirable spaces need higher prices, while less convenient lots are cheap or may even be free. Prices could also vary by season, day of week, or time of day. Demand-based pricing can result in the following benefits:

- Consistent availability and ease in finding a parking space
- Longer time limits, thereby eliminating the need to move a vehicle to avoid time restrictions
- Convenient payment methods (credit cards, pay-by-phone) that eliminate the need to "plug the meter" and make it easier to avoid parking tickets
- Reduced search time for parking, resulting in less local congestion and vehicle emissions
- Reduced illegal parking and improved safety and street operations
- A more equitable and efficient way to account for the real costs to a city for providing parking

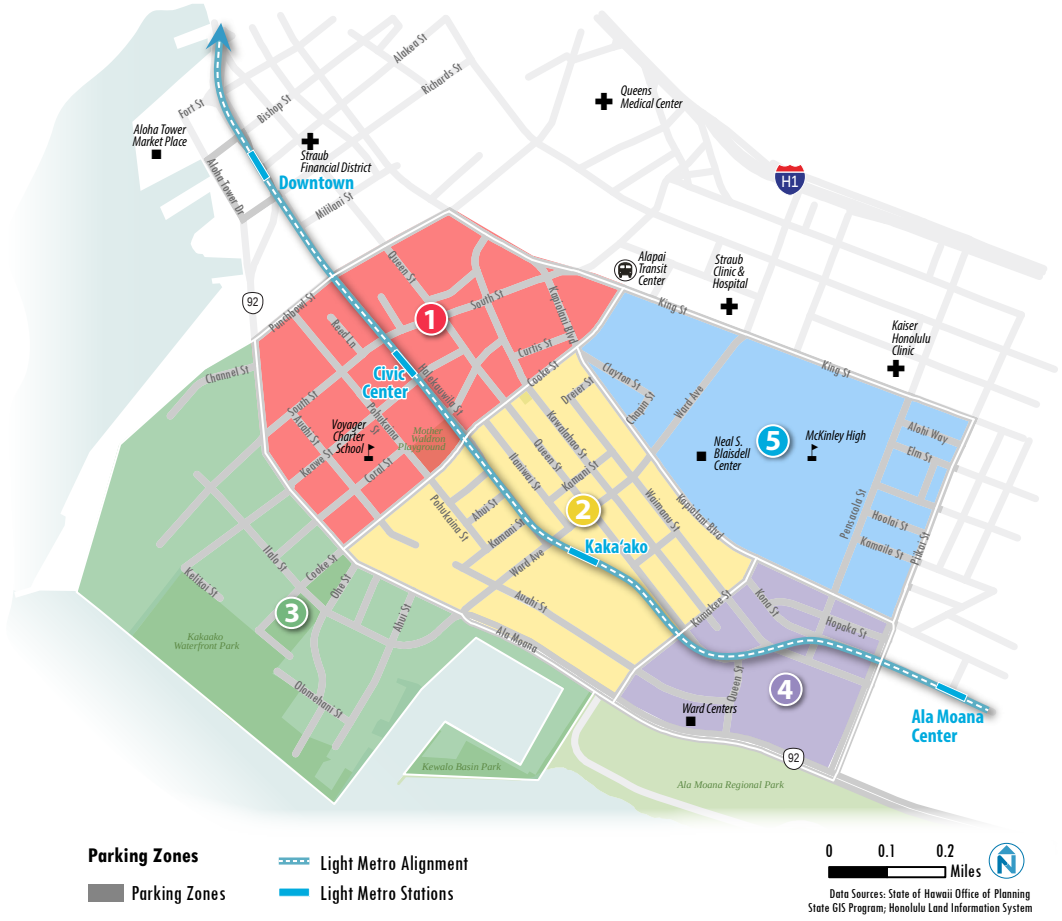
New advances in parking meter technology, such as wireless "smart" meters, make demand-based pricing a feasible option and can dramatically increase motorist convenience.

Action PT1.1 Designate Zones and Monitor Parking Occupancies

HCDA will conduct an initial study of on-street parking supply, occupancy, and turnover. To aid in the understanding of these conditions, the district will be divided into functional parking zones as illustrated in Figure 7-3. Threshold parking occupancies will be established for each zone.

Once a baseline understanding of these conditions is established, HCDA will continue to monitor parking patterns on an ongoing basis, particularly as new development occurs and new residents and business move into the district. This information will be used to inform placement of parking meters, prices, and other regulations.

Figure 7-3 Potential On-Street Marking Evaluation Districts



SOUTH LAKE UNION DEMAND BASED PRICING IN A TRANSITIONAL DISTRICT

In 2005, Seattle's South Lake Union District was dominated by light-industrial land uses. However, the District was on the verge of a major transformation. A single developer owned large areas of the district and had an aggressive master plan to transform South Lake Union into a dense, mixed-use urban neighborhood. At that time, parking demands in the district were very similar to Kaka`ako today. All non-regulated parking was full at 7 AM, used by local workers and those parking and walking to downtown. Time limited parking was highly underutilized. Nelson\Nygaard developed an on-street parking study that balanced current demand with the needs of a growing district.

Curb parking in Seattle's South Lake Union District
Image from Nelson\Nygaard

The plan recommended metering the entire district with no time restrictions on parking, except in areas where there were existing retail businesses. Prices were set based on demand, so all day worker parking was allowable and comparable to market rates in off street facilities. City staff was allowed to adjust prices quarterly to ensure 10-15% of parking was available at all times. Time restrictions have been added as the district redeveloped and ground floor retail uses were established. The flexibility of this approach has allowed the city to collect valuable parking revenue and manage parking incrementally as various areas of the district developed.

Action PT1.2 Authorize Staff to Implement Parking Meters and Adjust Prices

HCDA will work with the County and City of Honolulu to establish an ordinance that authorizes managing the on-street parking supply to ensure availability. The ordinance will:

- Specify a target on-street parking occupancy of 85% on each block face.
- Implement paid parking using parking meters or pay stations where necessary to achieve the target occupancy rates.
- Specify the frequency for adjusting price schedules. Based on data collected through ongoing monitoring, staff will adjust meter prices as needed to achieve the target occupancies.

There are a variety of meter types and technologies, including single-space and multi-space models. At a minimum, the meters will incorporate credit card and pay-by-phone technology.

Action PT1.3 Implement a pilot test of metered pricing

Most of the district's on-street parking is either unregulated and fully occupied throughout the day, or subject to time limits, and very lightly used. This pattern of use suggests that there is significant demand for longer-term parking. Conversion of some time-limited space to metered parking may help to serve this demand while raising revenue. HCDA, in conjunction with the City and County of Honolulu, will implement a pilot program, converting some time-limited on-street parking to metered parking without time limits. Low prices will be set initially to gauge the strength of demand. The test could begin by adding meters to all on-street parking that is not yet metered in the area west of Cooke Street (labeled as Area 1 in Figure 7-3). The rest of the district could be monitored and considered for future implementation. If the pilot program successfully attracts parkers and raises revenue without negative impacts, it will be widened to include other areas.

Action PT1.4 Consider establishing Parking Benefit Districts (PBD)

While effectively managed on-street parking improves retail sales and economic vitality of business districts, business owners are often initially concerned about the effect that priced parking will have

on their competitiveness with malls and other locations that offer free parking. One way for parking reforms to win the support of business owners is to establish "parking benefit districts," a system that returns some or all parking meter proceeds to the immediate area in the form of improvements to the business district itself. Improvements may include street sweeping, pedestrian improvements, lighting, landscaping, or other improvements as selected by businesses located in the district. Besides establishing up-front buy in, Parking Benefit Districts give business owners a long-term stake in the success of parking management and reduce opposition to future price increases.

Replace Off-Street Minimum Parking Requirements with a Market-Based Approach

Today, regulations specify the amount of dedicated off-street parking that must be provided by any land use in the Mauka or Makai districts. However, once on-street parking is effectively managed, off-street minimum parking requirements will no longer be needed to ensure availability. Instead, excessive off-street parking would only worsen traffic, and discourage developers, employers, residents and other property owners from implementing strategies that reduce traffic and parking demand. A new set of rules for off-street parking provision is presented below.

SMART METERS IN HONOLULU

In June 2012, the City and County of Honolulu started a pilot test of new smart parking meter technology. Designed to be convenient for motorists, the meters are solar powered, and allow payment by phone or credit card. The test also includes vehicle detection sensors, which will be used to collected information about parking occupancy. Phase 1 of the pilot test included Honolulu Civic Center Garage, S. King St. and Punchbowl St. near the state capitol building, and Honolulu Police Department. In phase 2, the test was expanded to Chinatown and the Financial Districts. This or similar meter technology could be deployed elsewhere in Kaka'ako.

Locations for Honolulu's SmartMeter Pilot
Image from City of Honolulu

Single space Smart Meters used in Honolulu's pilot test
Image from City of Honolulu

Strategy PT2 Remove minimum parking requirements

Under this strategy, minimum parking requirements would be removed for all development within Kaka`ako. Off-street parking could still be built, but developers would determine the quantity of parking based on their own analysis of what is economically feasible for their project and what they believe the true parking demand is to make their project viable.

This change would create a "free market" for parking that is more realistically determined by actual parking demand, as opposed to arbitrary parking standards. It would reduce development costs and provide additional flexibility to developers, especially on smaller lots or with historic structures. It would also help to ensure that existing parking supply is efficiently utilized before additional parking supply is built. Numerous cities around the world, including many in North America have eliminated minimum parking requirements in major districts, including Seattle, San Francisco, Portland, OR, and Vancouver, BC.

The following requirements would still apply to all parking built in the district:

- Any parking built would still be subject to the parking design standards outlined in the Mauka Area Rules.
- As described above, any amount of parking supplied above the existing minimum parking requirements will be subject to shared parking. In other words, HCDA will retain the current minimum parking requirements (as per the Mauka Area Rules) as maximum level of parking which can be built as private, single-use parking. Any parking above that level would be required to be managed as shared supply.
- As described above, the cost of all parking would be "unbundled" (paid for separately) from the cost of housing or commercial leases.

Strategy PT3 Include building area devoted to parking as part of the calculated Floor Area Ratio (FAR) for a proposed development project.

The land use guidelines outlined in Chapter 3 of this plan include permitted Floor Area Ratio for each development parcel. Space devoted to parking does not count toward the permitted FAR in the current Mauka/Makai rules. Under this strategy, parking would be counted towards FAR calculation. Developers would therefore have a choice between dedicating floor area to parking or to other active uses that enhance the development and generate revenue for the developer. Utilizing the market based approach, a developer would be free to determine the most profitable use of the available space. More detail on this recommendation is provided in the Urban Design section of this plan.

Shared Use Parking Regulations

Because many different land uses (a bank and a bar or restaurant, for example) have different periods of parking demand, they can easily share a common parking facility, thereby limiting the total number of spaces required to serve the demand for parking at any one time. Shared parking policies do not treat the parking supply as individual units specific to particular businesses or uses, but rather emphasize the efficient use of the parking supply by including as many spaces as possible in a common pool of shared, publicly available spaces.

Strategy PT4 Establish a "park once" district in Kaka`ako

The typical suburban pattern of isolated, single use buildings, each surrounded by parking lots, requires two vehicular movements and a parking space to be dedicated for each visit to a shop, office, or civic institution. By contrast, shared parking policies facilitate "park once" districts, in which motorists can park just once and complete multiple daily tasks on foot before returning to their vehicle. Overall, the benefits of fully implementing a "park once" strategy include:

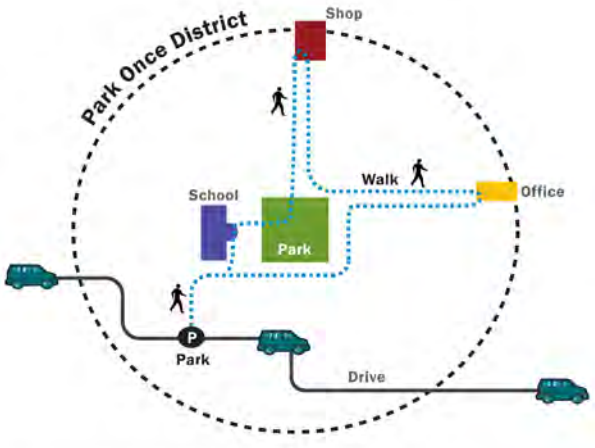


Image from Nelson\Nygaard
Based on illustration by Walter Kulash

- Reduced vehicle trips and required parking spaces because spaces can be efficiently shared between uses with differing peak hours, peak days, and peak seasons of parking demand.
- More welcoming environment for customers and visitors because they do not have to worry about getting towed for parking at one business while visiting another
- Allows for fewer, but more strategically placed lots and structures, resulting in better urban design and greater redevelopment opportunities
- By transforming drivers into pedestrians, who walk instead of drive to different destinations, shared parking can immediately activate public life on the streets and generate additional patrons of street-friendly retail businesses.

Outlined below are specific policy recommendations designed to facilitate shared parking and the creation of a "park once" district in Kaka`ako.

Action PT4.1 Work with property owners and businesses to ensure that existing private parking is made available to the public when not needed for its primary commercial use

There are a number of steps that HCDA can take in encouraging existing property owners to make their parking facilities available for public use during off hours. One of the primary obstacles to this practice for many property owners is concern about liability. To eliminate this concern, HCDA (or the City/County of Honolulu) can work with developers and land owners to eliminate liability for public use of private parking. The City of Sacramento has successfully adopted this practice. In some cases, the HCDA or the City may also wish to take over operating responsibility for privately owned parking during periods of public use.

Seattle's ePark system directs visitors to the most immediate parking and tells them how many stalls are available.
Image from Nelson\Nygaard

Action PT4.2 Maximize use of the existing parking supply by improving wayfinding and parking information

The HCDA will establish a wayfinding program specifically tailored to maximize utilization of the shared parking supply. Signs (including signs providing real time information, if necessary) can direct motorists to underutilized facilities, freeing up the most convenient "front-door" curbside spaces, and maximizing the efficiency of a parking system. Improved wayfinding in the form of new signs helps maximize the use of off-street parking facilities, representing another way to help eliminate traffic caused by cars circling for on-street parking. Wayfinding helps dispel perceived (but not actual) shortages in parking.

Unbundled Parking

Parking costs are frequently subsumed into the sale or rental price of offices and housing. Although the cost of parking is often hidden in this way, parking is never free. Each space in a parking structure can cost $40,000 or substantially more. "Unbundling" these parking costs from the cost of other goods and services is a critical step for reducing parking demand and vehicle trips, because providing anything for free or at highly subsidized rate encourages use and means that more parking spaces have to be provided to achieve the same rate of availability. Further, by "daylighting" the cost of parking, new tenants may reconsider their need for multiple dedicated parking spaces.

Strategy PT5 Unbundle parking costs from housing costs

For both rental and for-sale housing in multifamily buildings, the full cost of parking will be unbundled from the cost of the housing itself by creating a separate charge. (The exception to this policy will be any new residence with individual garages, such as townhouses, rather than common, shared parking areas). Regulations will require that when residential parking is unbundled, it will be leased, rather sold, to homebuyers. While some homebuyers would shy away from purchasing a unit without parking included because of the fear that it will not be easily resold, a residential building with an available supply of leasable parking spaces allows the homeowner to acquire or forgo parking as their needs change.

This policy provides a financial reward to households that decide to dispense with one or more of their cars, and helps attract that niche market of householders who wish to live in a transit-oriented neighborhood where it is possible to live well with just one car or without a car.

Unbundling parking costs also changes parking from a required purchase to an optional amenity, so that households no longer have to pay for parking spaces that they do not need or cannot afford. This strategy also has significant potential rewards for the district as a whole: with lower rates of auto ownership, many households will shift trips to other modes of transportation, reducing total vehicle trips and total emissions.

Strategy PT6 Unbundle parking costs from commercial leases

New commercial developments will be required to unbundle parking costs by leasing parking spaces separately from the commercial space, and will be required to allow employers to lease as few parking spaces as they wish. This policy also makes it easy for employers to implement a parking "cash-out" program. In a parking cash-out program, employees who choose not to drive to work are given a cash reimbursement instead of receiving subsidized parking from their employer. Employers can save money by leasing fewer parking spaces when fewer employees drive. The policy also makes it easier to institute shared parking arrangements, because building owners can more easily lease surplus parking spaces to other users.

Tandem and Stacked Parking

Because of the difficulty of constructing underground parking in the district, a significant share of any parking constructed in Kaka`ako may be provided either as podiums at the base of buildings, or in surface lots, both of which can have significant negative impacts on the public realm. Tandem and stacked parking offer the opportunity to reduce these impacts by reducing the amount of surface area required to provide a given amount of parking. Given significant challenges to constructing underground parking in the KCDD, these spatial challenges associated with accommodating parking are particularly acute. High rise development will require up to five stories of parking to support development, if conventional parking design is used. Shrinking the footprint of parking using space-efficient parking strategies can conserve land for active public spaces and more productive land uses.

While the purpose of these strategies is similar, they are implemented differently:

- **Tandem parking.** Calls for an attendant to park two or more cars nose to tail, preventing all but the outermost car from leaving the parking facility independently; however, this allows more cars to fit into the lot by reducing the number of

Figure 7-4 Robotic vs. Conventional Parking Structures

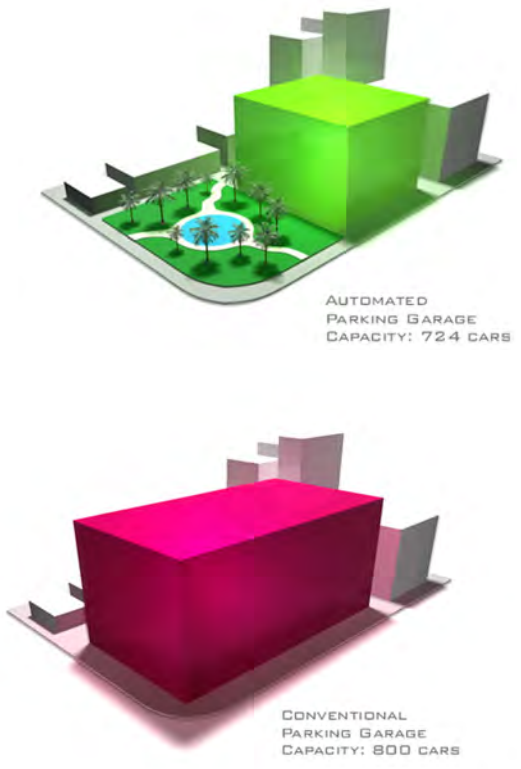


Image from Robotic Parking Systems

aisles required. In residential development, tandem parking is often unattended, with both parking stalls assigned to the same residence.

- **Stacked/robotic parking.** Stackers perform a similar function, but add vertical capacity; essentially, a hydraulic lifting apparatus raises the first car up, allowing a second car to be parked underneath. However the bottom car must be moved before the stacker can be lowered and the upper car released.

Generally applied in garages or parking lots, both techniques require an attendant to be on duty to move cars if a blocked-in car owner wishes to leave. These work well with valet systems and remote parking. It is important to recognize that these strategies do not reduce vehicle trips or traffic congestion because they do not reduce the total parking supply nor do they provide incentives to shift to other modes of transportation.

Strategy PT7 Tandem and stacked parking permitted by right

This strategy adjusts regulations in the Mauka and Makai Districts so that tandem and stacked parking are permitted by right. As discussed in Strategy PT3 and Regulation PT3.1, because space devoted to parking will be included as part of the permitted FAR for each development project, developers will have a strong incentive to minimize the amount of space dedicated to parking. Tandem and stacked parking offer a set of tools to help accomplish that objective.

Transportation Demand Management Programs

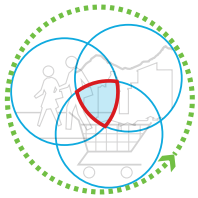
Transportation Demand Management (TDM) refers to a collection of strategies to manage the demand for scarce parking and roadway capacity. They give people incentives to choose alternatives to driving alone by making those alternatives more attractive and convenient. TDM strategies are particularly appropriate for Kaka`ako because they are among the most cost-effective ways to accommodate higher density development without increasing traffic and parking demand. By investing in a strengthened package of parking and transportation demand management strategies, the HCDA can reduce growth in parking demand and decrease new vehicle trips associated with new development.

District Transportation Demand Management (TDM) Requirements

As urban living is making a strong comeback around the U.S., cities are looking to reduce traffic demand and to make streets friendly, livelier, and more social. To do so, many cities require mandatory transportation demand management actions from developers, employers, condominium associations, apartment buildings, and institutions, planned and instituted at the time of development. The TDM strategy for Kaka`ako will include the creation of a Transportation Management Association to promote, implement, and monitor TDM efforts; required TDM plans from all new development; and supporting infrastructure and programmatic investments by HCDA.

Strategy PT8 Establish a Transportation Management Association (TMA)

To encourage transportation Demand Management in Kaka`ako, HCDA will work to establish a Transportation Management Association (TMA). A TMA is a public/private partnership formed so that employers, developers, building owners, and government entities can work collectively to establish policies, programs, and services to address local transportation issues and foster economic development. TMAs are established within a limited geographic area to address the transportation management needs of their members. Their activities can be funded by member dues, transportation revenues from within the district (such as parking fees), or other sources. TMA's provide a variety of services that encourage more efficient use of transportation and parking resources. Such services can include:



- Access Management
- Advocacy
- Education and Outreach
- Flextime Support
- Guaranteed Ride Home Services
- Coordinated Incentive and Reward Programs
- Individualized Commute Trip Planning Services
- Marketing and Promotion
- Parking Management
- Pedestrian and Bicycle Planning
- Rideshare Matching and Vanpool Coordination
- Shared Parking Coordination
- Telework Support
- Transit Fare Products and/or incentives
- Transit Improvements
- Transportation Access Guides

In addition to developing and coordinating transportation management strategies, a TMA can bring a variety of stakeholders together to jointly address transportation challenges – and to give stakeholders a unified voice in advocating for enhanced transportation investments and coordination in their area.

Action PT8.1 Fund, market, and house a new TMA for the District

HCDA will provide initial start-up funding, marketing, and office space for a new TMA for the Kaka`ako district. As the TMA develops, ongoing funding may be obtained through membership dues, or rules will be established to fund the TMA through development fees and/or parking revenues. A more detailed feasibility study and district outreach campaign would be needed to determine support and proper timing to develop and launch a TMA.

Strategy PT9 Require TDM for new residential developments

HCDA will require that each new multifamily residential development in the district join the TMA and develop a TDM Plan. A TDM Plan is a written document that outlines strategies, targets, and evaluation measures that will be taken to reduce single-occupancy vehicle (SOV) travel to and from the site. The plan will be created during the development process prior to project approval, and any programmatic elements will be carried out by the property manager (for rental properties) or homeowner's association (for condominium properties). These groups will either implement the elements of the plan themselves, or cede implementation activities to TMA staff. Residential developments will have the option of contracting with the TMA to create the TDM plan At a minimum, TDM Plans shall include the following:

- Project description; if this is provided in the land use application, the TDM Plan will reference the land use application
- The TDM strategies proposed for implementation (per Figure 7-5 below)
- Mode share performance targets
- A schedule for achieving mode share performance targets
- Copies of documentation to ensure deed notification of mandatory participation in the final TDM program to all subsequent purchasers and owners of the project.

TDM Plans shall identify strategies to achieve adopted mode split targets. The effectiveness of each TDM strategy varies based on land use, type of development (new or existing development), and geographic location. There is no single TDM measure that can effectively reduce a project's traffic impacts. As such, the HCDA can work with the applicant to develop a reasonable, relevant, and effective TDM Plan.

The TDM Program Strategies Menu in Figure 7-5 below provides a framework of options from which the TMA can help applicants identify appropriate actions to mitigate the traffic impacts of their project and sustain non-auto travel to the site for the lifetime of the building. TDM program strategies

are organized by the type of program (i.e. incentive, programmatic, supportive facilities). In some circumstances, TDM strategies can be better implemented at the development phase (by a developer or property owner), while others will be implemented operationally for the lifetime of the project (by the property manager or homeowner's association). Depending on the type of project (location, new vs. existing construction, use), the TDM strategies selected will vary. This menu provides suggested strategies or guidance; it does not represent a comprehensive list of TDM strategies.

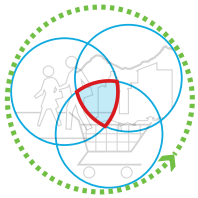


Figure 7-5 TDM Strategies Menu

	TDM Element	Program	Residential	Employer	Effectiveness	Strategy type
Incentive	Transit	Provide a subsidized or free transit pass	X	X	High	Operational
	Bike/pedestrian	Offer bicycle commuter benefit		X	Medium	Operational
	Carpool/ vanpool	Provide vanpool/carpool subsidy		X	High	Operational
	Parking	Charge market price for parking		X	High	Operational
	Parking	Offer parking cash-out program		X	High	Operational
Programmatic	Transit	Sell transit passes on-site	X	X	Medium	Operational
	Carpool/ vanpool/shuttle	Sponsor and community vanpool program through coordination, ridematching, and monetary sponsorship	X	X	Low-Medium	Operational
	Carpool/ vanpool/shuttle	Provide shuttle service between site and light metro station	X	X	Low-Medium	Operational
	Carpool/ vanpool/shuttle	Provide carpool and vanpool matching services		X	Low-Medium	Operational
	Carpool/ vanpool/shuttle	Offer a guaranteed ride home program		X	Medium	Operational
	Peak hour trip reduction	Support telework or flexible work schedules		X	Medium	Operational
	Information access	Establish an on-site information kiosk with routes, schedules, and fares	X	X	Medium	Operational
	General	Develop “new employee” commute packet on transportation options		X	Medium	Operational
	General	Provide bike/car-share vehicles for worker errands		X	Medium	Operational
Supportive Facilities	Parking	Provide priority parking for carpools or vanpools		X	Medium	Development/ Operational
	Transit	Provide pedestrian-transit amenities such as shelters, sidewalks, footpaths, or signage on-site or close to the site	X	X	Medium	Development
	Parking	Limit on-site parking below existing minimum parking requirements	X	X	High	Development
	Bike/pedestrian	Provide on-site pedestrian circulation system connected to adjacent sidewalks or transit stops	X	X	Medium	Development
	Bike/pedestrian	Provide more bicycle parking than required in code	X	X	Medium	Development/ Operational
	Bike/pedestrian	Install end of trip facilities (lockers, showers, covered bicycle parking)		X	Medium	Development/ Operational
	General	Designate car-share spaces and bike share stations	X	X	Medium	Development/ Operational

Strategy PT10 Require TDM from large employers in new commercial development

HCDA will also require, as a condition of new development, that large employers (those with 50 or more employees) that are owners or tenants of new commercial developments in the district join the TMA and develop a TDM plan. Employers will have the option of contracting with the TMA to create the TDM plan. While commercial development will represent minority of new development permitted under the plan, these regulations can still have a significant effect, particularly on peak period vehicle traffic. Like residential TDM plans, the employer plans will include:

- Project description;
- The TDM strategies proposed for implementation (per Figure 7-5 above)
- Mode share performance targets
- A schedule for achieving mode share performance targets
- Copies of documentation to ensure deed notification of mandatory participation in the final TDM program to all subsequent purchasers and owners of the project.

Employers may select from the employer-specific TDM strategies listed in Figure 7-5 above. The TMA can help applicants identify appropriate actions to mitigate the traffic impacts of businesses and sustain non-auto travel for the lifetime of the building. TDM program strategies are organized by the type of program (i.e. incentive, programmatic, supportive facilities). In some circumstances, TDM strategies can be better implemented at the development phase (by a developer or property owner), while others will be implemented operationally for the lifetime of the project (by the property manager or homeowner's association).

TDM Infrastructure and Public Investments

In addition to establishing the TMA and requiring TDM measures from new development, HCDA will pursue operational and infrastructure investments in TDM. These include measures to promote car-sharing and bike sharing, and establishing a multimodal wayfinding program. Bike share and multimodal wayfinding strategies and actions are described in greater detail in Chapter 5 and 6.

Strategy PT11 Promote car-sharing in Kaka`ako

Car-sharing is a "hassle-free" way to rent cars by the hour. Rather than being concentrated at a central location like a rental car company, car-sharing cars are dispersed throughout an urban area at convenient centralized locations, such as residential or commercial developments, civic buildings, or central parking facilities. Car-share operators use telephone and Internet-based reservation systems that are totally self-service. Members are charged hourly and sometimes mileage-based fees for their use and receive a single bill at the end of the month for all their usage. Special membership plans for businesses and organizations enable easy access for all employees, which can augment or replace fleet cars or use of personal vehicles for work trips. Car-sharing operators generally have a diverse fleet so that members have access to anything from a compact sedan to a pick-up truck. Car-sharing companies operate throughout the United States and around the world. Currently, two car-sharing companies operate in Hawai`i, each in a small number of select locations: WeCar (a subsidiary of Enterprise), and Greencar (an independent car-sharing company specializing in low-emissions vehicles. Neither company currently operates in Kaka`ako.

In 2012, the University of Hawai`i at Manoa started a small car-share operation on campus. Here a car-share vehicle receives a traditional blessing on opening day.
Image from University of Hawai`i at Manoa

Car-sharing can have environmental, economic, and social benefits for both the individual user and for the transportation system and community as a whole. For individuals it can provide cost savings, greater mobility, and convenience. For the community, car-sharing can reduce car ownership and vehicle travel, thereby reducing parking demand, supporting more compact development, and reducing emissions. Car-sharing fleets also tend to be low-emission and fuel-efficient which augments the environmental benefits of reduced driving. Car-sharing offers particular promise for the tourism sector: for visitors who arrive on the island without their own vehicle, car-sharing offers the visitor the opportunity to have access to a car when needed without having to rent one for their entire stay. A hotel or resort could conceivably reduce its guest parking needs substantially by providing moderate size fleet of shared cars. Similarly, government entities could reduce their auto fleet and create a broader public benefit by transitioning some or all of their fleet to a publicly available car-share service.

In order to help establish a car-sharing service in Kaka`ako, HCDA will pursue the following actions:

Car2Go's fleet is comprised exclusively of branded Mercedes Smart cars, making them easy to identify. San Diego is the first U.S. city to launch an all electric Car2Go fleet.
Image from Car2Go

POINT-TO-POINT CAR-SHARING

Car2Go is one of the fastest growing car-share companies in the United States. Opening in several new major cities each year, the services unique one-way rental feature is proving very popular. Unlike services where a car is checked out and returned to the same location, Car2Go vehicles can be checked out using a magnetic access card, driven anywhere in the service area, and left in any publicly available on-street parking stall. Customers are charged only for the time in use, making short trips very affordable.

Action PT11.1 Recruit and provide incentives for car-sharing companies to operate in the district

Recruit an existing car-sharing service provider to expand into the Kaka`ako market. HCDA may consider partially or fully subsidize operation costs for a specified term to help these services begin operating. In the past, localities have encouraged car-sharing by providing minimum revenue guarantees for operators. This provides certainty for the operator, and costs the locality little or nothing if a market develops. HCDA may also wish to consider direct subsidies from sources such as revenues from parking fees or public facilities dedication fees.

Action PT11.2 Reserve some on-street parking spaces for car-sharing vehicles

HCDA will collaborate with the City to reserve a number of on-street parking spaces in strategic locations for car-sharing vehicles.

APPENDIX A: STRATEGIES & ACTIONS

APPENDIX A: STRATEGIES & ACTIONS

Page

Chapter Three: Land Use

Strategy LU1 **Diverse residential building types, ground-oriented family housing in proximity to transit stations** **3-6**

Strategy LU2 **Reserved housing** **3-6**

Strategy LU3 **Transit-friendly land uses such as "third places," full-service grocery stores, cultural and community amenities.** **3-7**

Action LU3.1 Prioritize capital spending for the placement of key community amenities within proximity to the station locations, including libraries, senior centers, and community centers. 3-7

Action LU3.2 Work with local developers and businesses to site a full service grocery store in Kaka`ako. The City's Primary Urban Center Plan points out that grocery stores require more floor area and service facilities than typical retail uses, warranting special incentives. 3-7

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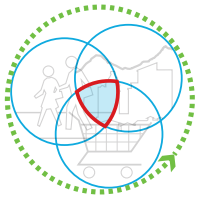

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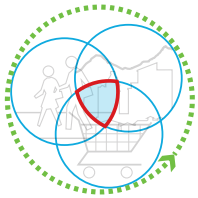
Strategy MA12 Increase transit ridership for all types of trips 5-46
Action MA12.1 Around rapid transit stations and major bus transfer points, prioritize land uses and patterns that generate high transit ridership 5-46



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Action MA 12.3 Encourage schools and major employers to provide prepaid access on the TheBus and light metro systems for all of their students and employees. 5-47

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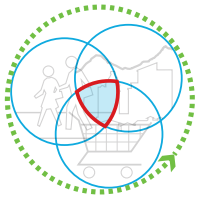

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APPENDIX B: RECOMMENDED RULE CHANGES

APPENDIX B: RECOMMENDED RULE CHANGES

Chapter Five: Mobility & Access

Connectivity

RULE CHANGES FOR KAKA`AKO

Create a Fine-Grained Street Network

- **Regulation MA1.1:** Related to internal connections for large developments, require pedestrian connections or service street between buildings where block lengths exceed 300 ft.
- **Regulation MA1.2:** Related to internal connections for large developments, require through-block pedestrian connections when a substantial portion of a block is developed with commercial projects or when the ground floor uses are largely commercial. In cases where adequate lot size exists to develop two commercial projects on a block, a through block pedestrian connection is required. Connections are required at mid-block and have a minimum clear dimension of 20 feet both horizontally and vertically.
- **Regulation MA1.3:** Require master plans and large developments to achieve an intersection density of 300 intersections per square mile or better, including shared streets, pedestrian ways of 20' or greater, and service alleys designed with adequate space for pedestrian movement.

Plan for Coordinated, Multimodal Transportation Networks

- **See Chapter 6**

Manage Delivery and Parking Access to Reduce Conflicts with Pedestrians and Optimize the Efficiency of the Street Network

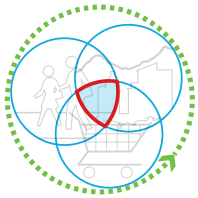
- **Regulation MA3.1(a):** Apply Section 15-217-63-B (Parking Access) requiring parking access from an alley or service/parking access street to all parts of the KCDD. Require parking access from alley or service/parking access street for all development sites where 300' minimum street spacing requirements apply.
- **Regulation MA3.1(b):** Expand Section 15-217-63-L (Loading Access) of the Mauka Area Rules requiring on loading zones on thoroughfares and promenade streets to include avenues, particularly those designated for bicycle or high frequency transit uses; Include an exception process if the development site is not sufficient in size to allow an internal alley.
- **Regulation MA3.2:** Restrict curb cuts for drive-through on Commercial Boulevards and Avenues where reasonable alternative access is available; For drive-through uses, prohibit curb cuts and driveways used to approach and exit drive-through facilities, stacking areas for waiting vehicles, and the facility itself, such as a drive-up window or gas pump island.

Make Walking and Cycling Access to Frequent Transit as Direct as Possible

- **See Chapter 7**

Implement a Coordinated Multimodal Wayfinding Program

- **Regulation MA5.1:** Ensure wayfinding placement provisions in Figures PZ1-7 and FT1-12.
- **Regulation MA5.2:** Establish an additional general figure after Figure 1.16 in the Mauka Rules that identifies prospective wayfinding sign locations by type of sign.



Pedestrian

RULE CHANGES FOR KAKA`AKO

The following additions or modifications to the rules for pedestrian quality will govern new development:

- **Regulation MA6.1:** On commercial or mixed-use corridors, buildings are required to have entry points every 60 feet so that pedestrians have numerous opportunities to interact with semi-public spaces.
- **Regulation MA6.2:** Amend §15-217-63-B to encourage street life and to make sure shared parking is viable, parking garages are required to have pedestrian entrances and exits to the street.
- **Regulation MA7.1:** Per §15-217-63-B-1 and 2, parking garage access points must be oriented toward side streets or alleys (Local Streets) to reduce conflict between cars and pedestrians on busy streets.
- **Regulation MA7.2:** In commercial and mixed-use corridors, buildings are required to have at least 70% transparency for ground level frontages to create visual interest for people walking along commercial or mixed-use corridors per §15-217-55-M-6.
- **Regulation MA7.3:** Per §15-217-55-M-6, buildings are required to locate primary entrances along front façades, and locate loading docks or service entries off of street-facing façades.
- **Regulation MA8.1:** Amend §15-217-63-C to define maximum driveway density. Curb cuts and parking garages portals should be restricted to one every tenth of a mile (rounding down). This means some block will not include driveways. Parking garage entrances must be located at the rear or side of buildings accessible by Local Streets (per Chapter 6).
- **Regulation MA8.2:** §15-217-63-C-2 should be revised so that residential curb cuts may be no more than 10 feet wide per lane (two lane maximum at 20 feet) and 12 feet wide per lane (two lane maximum at 24 feet) for commercial curb cuts. This is intended to minimize the impacts to the pedestrian realm and to create more consistent walking paths.
- **Regulation MA8.3:** Amend §15-217-63-I to state that surface parking lots must be screened along the street with landscaping or architectural elements to reduce their visual impact.
- **Regulation MA9.1:** Amend §15-217-39-D-1-7 to include placements standards for bike parking in Figures PZ.1 though PZ.7
- **Regulation MA9.2:** In §15-217-39-D-1-7, change Figures 1.14 (pedestrian zone treatment) and 1.15 (pedestrian zone fixtures) to include acceptable applications, dimensions of bike share stations in the furniture zone and in the frontage zone where property owners integrate bike share stations into the design of setbacks.
- **Regulation MA9.3:** Amend §15-217-63-I to state that multi-story parking in active retail or commercial areas must be wrapped in active uses such as retail to screen parking from the street and to increase street-level activity.

Transit

RULE CHANGES FOR KAKA`AKO

HCDA does not have a direct role in delivering transit services or designing street rights-of-way to accommodate transit operations and passenger loading. However, as the KCDD redevelops, HCDA and its local developer partners will work closely with TheBus (City/County) and HART to ensure transit access and operational considerations are addressed early and throughout the development review process.

- **Regulation MA12.1:** Require developers to construct transit passenger facilities on public right of way where designated/or where there is an existing stop that will require replacement as new public facilities are constructed.

Bike

RULE CHANGES FOR KAKA`AKO

HCDA does not have a direct role in delivering transit services or designing street rights-of-way to accommodate transit operations and passenger loading. However, as the KCDD redevelops, HCDA and its local developer partners will work closely with TheBus (City/County) and HART to ensure transit access and operational considerations are addressed early and throughout the development review process.

- **Regulation MA12.1:** Require developers to construct transit passenger facilities on public right of way where designated/or where there is an existing stop that will require replacement as new public facilities are constructed.

Auto

RULE CHANGE FOR KAKA`AKO

HCDA does not currently regulate the design of traffic facilities in the public right-of-way. Regulatory changes are focused on encouraging developers to provide infrastructure that would help private consumers transition to more sustainable vehicle types.

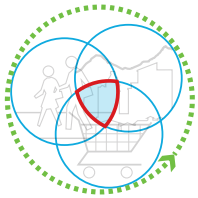
- **Regulation MA17.1:** Related to the inclusion of EV stations, HCDA will develop rules to support HRS 291 requirements to include at least one EV charging station in publicly accessible parking garages over 100 stalls.

Chapter Six: Complete Streets in Kaka`ako

RECOMMENDED RULE CHANGES FOR KAKA`AKO

The following rules changes are recommended for various roadway and pedestrian design elements of the Mauka/Makai Rules. Additional rule changes will be proposed upon completion of HCDA's forthcoming Complete Streets Design Standards.

- **Regulation CS5.1:** Incorporate the Complete Street types as part of §15-217-38 through 39: The Thoroughfare Plan rules currently focus heavily on the pedestrian realm, so the rules should reflect street types design options, modal trade-offs, and general design guidelines.
- **Regulation CS5.2:** §15-217-39-D-1-7 updated to include allowances and design guidance for the "shared street" designs as part of the Local Streets street type (completed following completion of future HCDA Complete Streets design guide).
- **Regulation CS5.3:** To ensure predictable traffic movement and limit conflicts with pedestrians, parking access lanes, alley or any other Local Street types should be permitted to operate as one-way connection. Additional language should be added to §15-217-63 to clarify this provision.
- **Regulation CS7.1:** In a new section of the Rules, HCDA and DTS should jointly adopt and implement transportation quality and level of service metrics and data collection processes to track the benefits and impacts of implementing the Complete Streets strategy (completed following development of HCDA Complete Streets design guide)..
- **Regulation CS8.1:** Amend §15-217-39-D-1-7 to include the enhancement/buffer zone as part of the sidewalk zone nomenclature and include design elements and programming such as parklets, bike share docking stations, and in-street bike parking corrals.
- **Regulation CS10.3:** Include a new section in the Rules that specifies universal design guidelines based on the recently completed Public Rights-of-way Accessibility Guidelines (PROWAG).



Chapter 8: Parking & Transportation Demand Management

RECOMMENDED RULE CHANGES FOR KAKA`AKO

The following regulatory changes would govern regulation of on-street parking in the Mauka and Makai areas of Kaka`ako.

- **Regulation PT1.1:** Establish on-street parking occupancy target of 85% per block face.
- **Regulation PT1.2:** Implement parking meters where necessary to meet occupancy target (Specifies blocks where parking meters are permitted).
- **Regulation PT1.3:** Enable meters to adjust prices based on demand (Specifies maximum amount that prices can be moved within a specified time period).

The following regulatory changes would remove minimum parking requirements throughout the Mauka and Makai areas of Kaka`ako.

- **Regulation PT2.1:** Minimum parking requirements in the Mauka rules (Section §15-217-63 (e)) are repealed.
- **Regulation PT2.2:** Minimum parking requirements in the Makai rules (Section §15-23-68) are repealed.

The following regulatory changes would remove minimum parking requirements throughout the Mauka and Makai areas of Kaka`ako.

- **Regulation PT3.1:** FAR allocations are inclusive of parking.

The following Code adjustments are recommended to promote shared use parking.

- **Regulation PT4.1:** Require that all newly constructed private parking provided in any Kaka`ako in commercial or residential developments in excess of *existing minimum parking requirements* be made available to the public.

  Discussion of regulation PT4.1: Under this regulation, developers would be permitted to build as much parking as the development requires. However, when parking is provided that exceeds the minimum requirements under today's regulations, the additional parking would have to be made available to the public. HCDA would work in partnership with developers to eliminate their liability for public parking on site. This arrangement would be particularly helpful, for example, in large residential developments with a significant number of non-resident owners. During periods of time when a small number of owners are on-site, the remaining number of parking spaces could be made publicly available. This reserve of parking could be used, for example, to provide park-and-ride access to the HART stations.

- **Regulation PT4.2:** Allow parking to be shared among different uses within a single mixed-use building by right.

The following Code adjustments are recommended to promote unbundled parking for housing.

- **Regulation PT5.1:** The cost of parking is required to be unbundled cost from the cost of rental housing.
- **Regulation PT5.2:** The cost of parking is required to be unbundled cost from the cost of ownership housing.

The following Code adjustments are recommended to promote unbundled parking for commercial leases.

- **Regulation PT 6.1:** In commercial leases, parking must be included as a separate line item, with the quantity of parking to be leased determined by the lessee.

The following Code adjustments are recommended to promote tandem and stacked parking.

- **Regulation PT7.1:** Regulation permitting tandem and stacked parking by right.

Chapter 8: Parking & Transportation Demand Management (Continued)

RECOMMENDED RULE CHANGES FOR KAKA`AKO

- **Regulation PT9.1:** New multifamily residential developments are required to create and implement a TDM plan that includes at least 5 elements from the checklist of TDM strategies, including at least one element from the 'Incentive' category.
- **Regulation PT9.2:** New multifamily residential developments are required to join the TMA.
- **Regulation PT 9.3:** Residential developments that are TMA members are required to monitor and report (every 5 years) on the status of any goals included in the TDM plan.
- **Regulation PT10.1:** Large employers (50+ employees) are required to create, update (every 5 years) and implement a TDM plan.
- **Regulation PT10.2:** Large employers (50+ employees) who are tenants of new commercial developments required to join a TMA that would implement its TDM plan.
- **Regulation PT 10.3:** Employers that are TMA members are required to monitor and report (every 5 years) on the status of any goals included in the TDM plan.
- **Regulation PT11.1:** Require that new residential developments with parking provide spaces for car-sharing vehicles.
- **Regulation PT11.2:** Require that visitor accommodations such as hotels and resorts provide developments with parking provide spaces for car-sharing vehicles [the ratio should be higher than for ordinary residential].
- **Regulation PT11.3:** Require that new commercial developments meeting certain requirements provide parking spaces for car-sharing vehicles.