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 HART rapid transit 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 should be placed on improving conditions for non-motorized mobility and access. The qual-

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

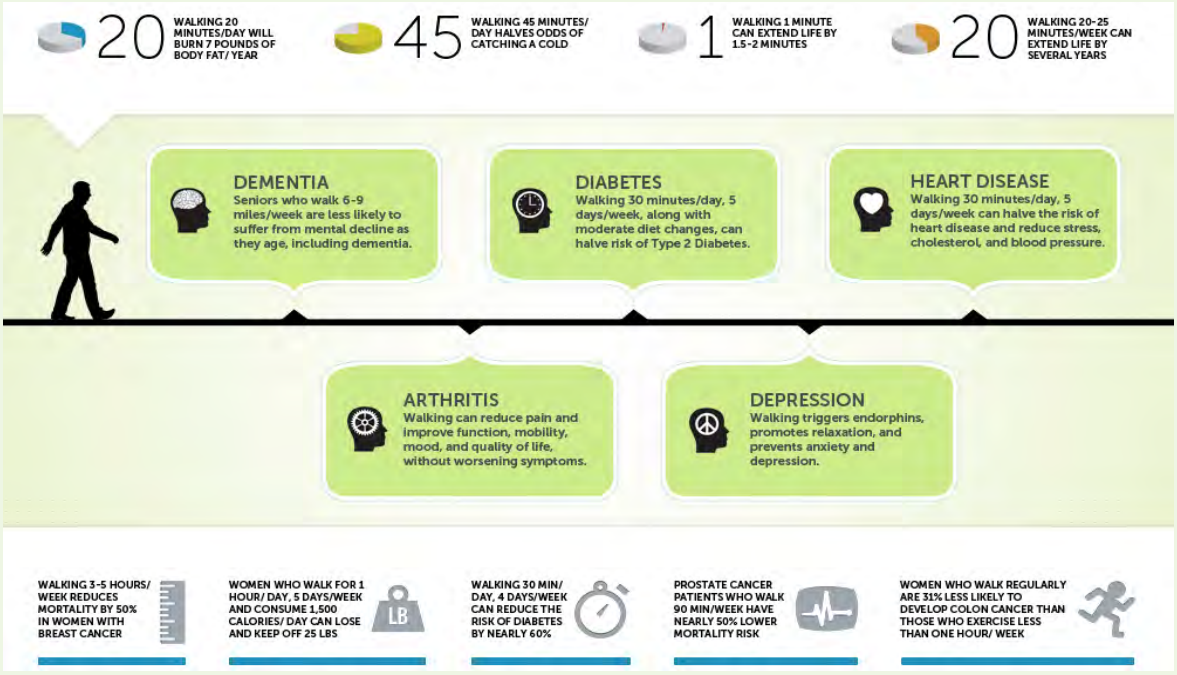


Image from EverybodyWalk!

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.

ity 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 should 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

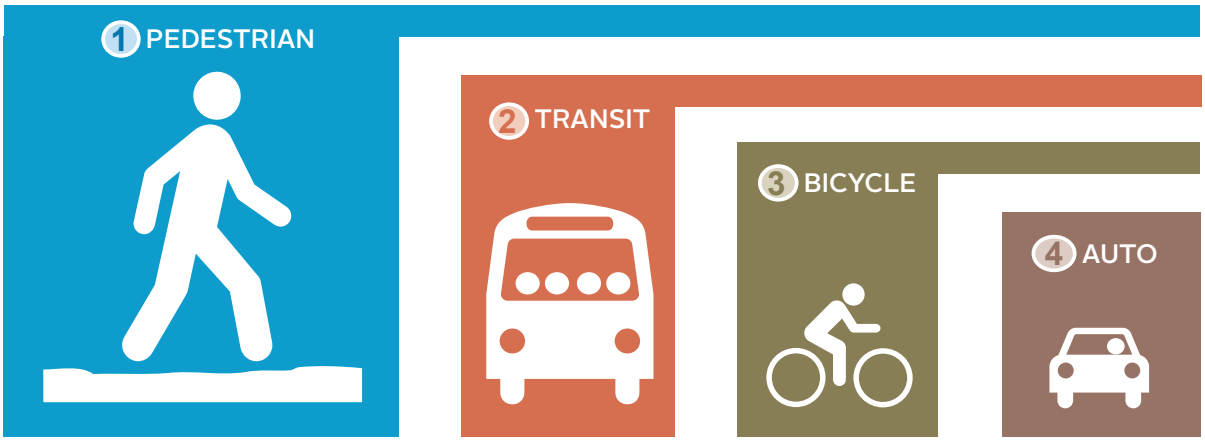
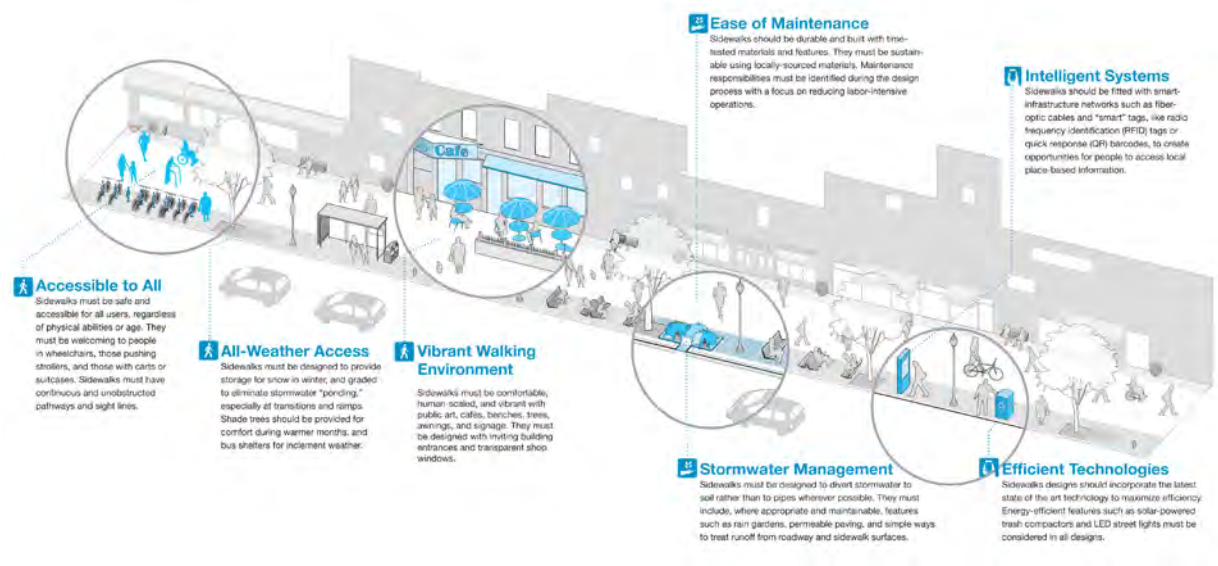


Figure 5-2 Pedestrian Elements of a Complete Street



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."

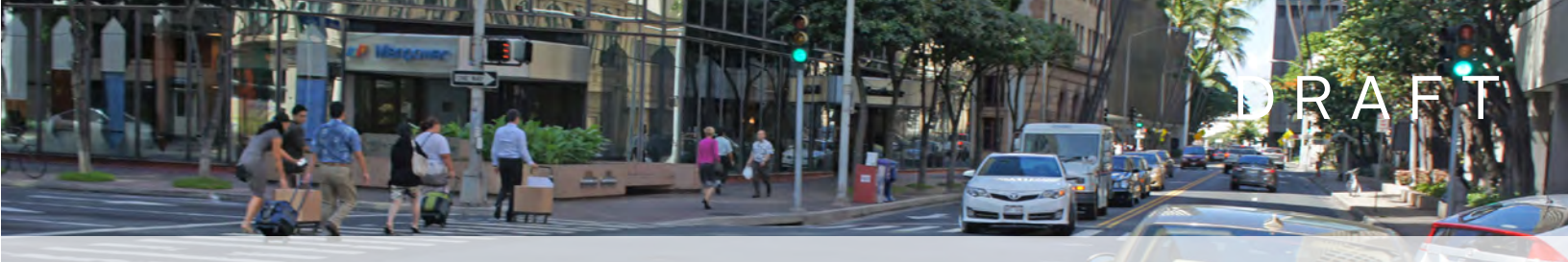
Current Transportation Systems and Use

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.

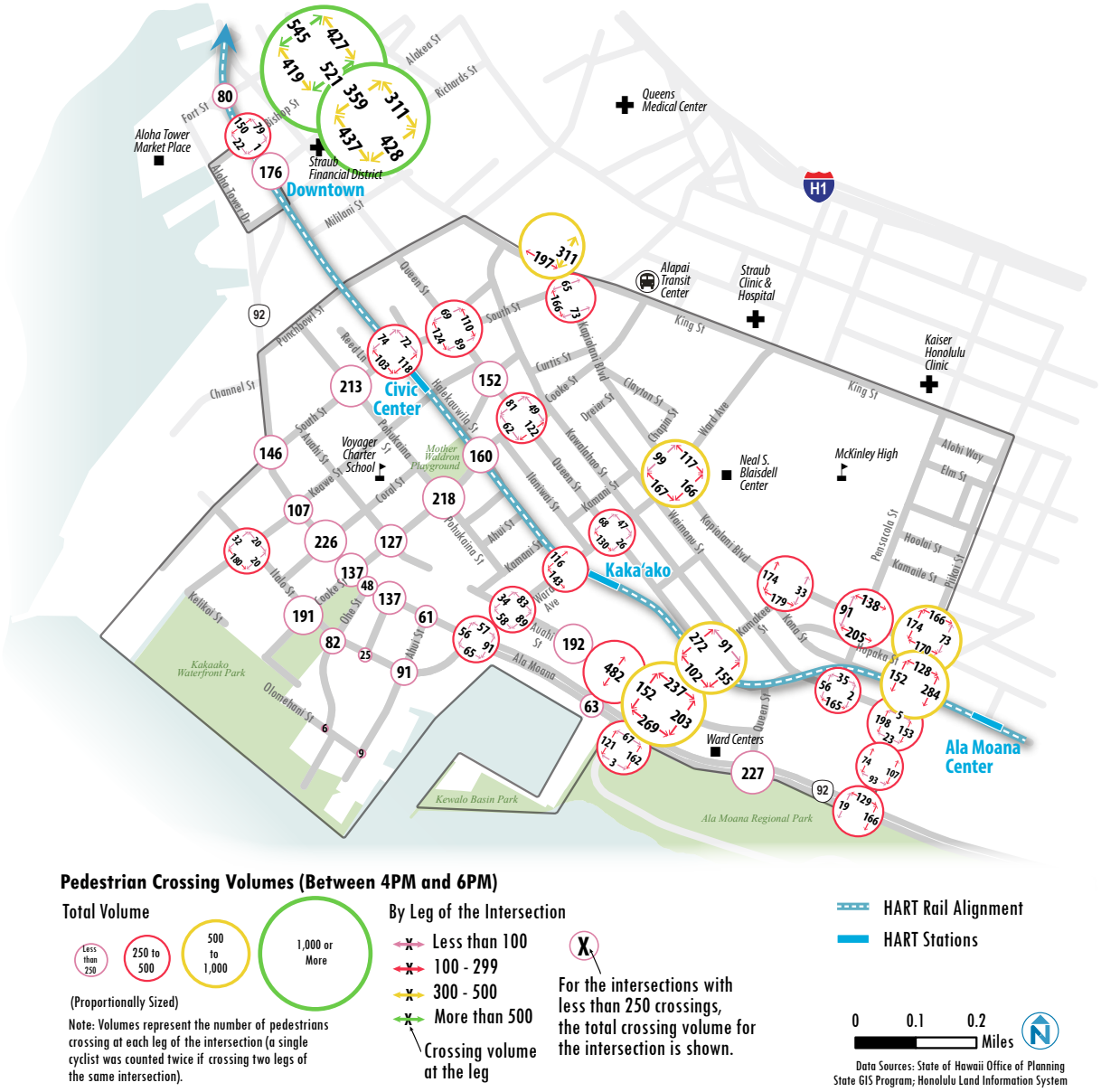
Mobility and Access in Kaka`ako Today

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)



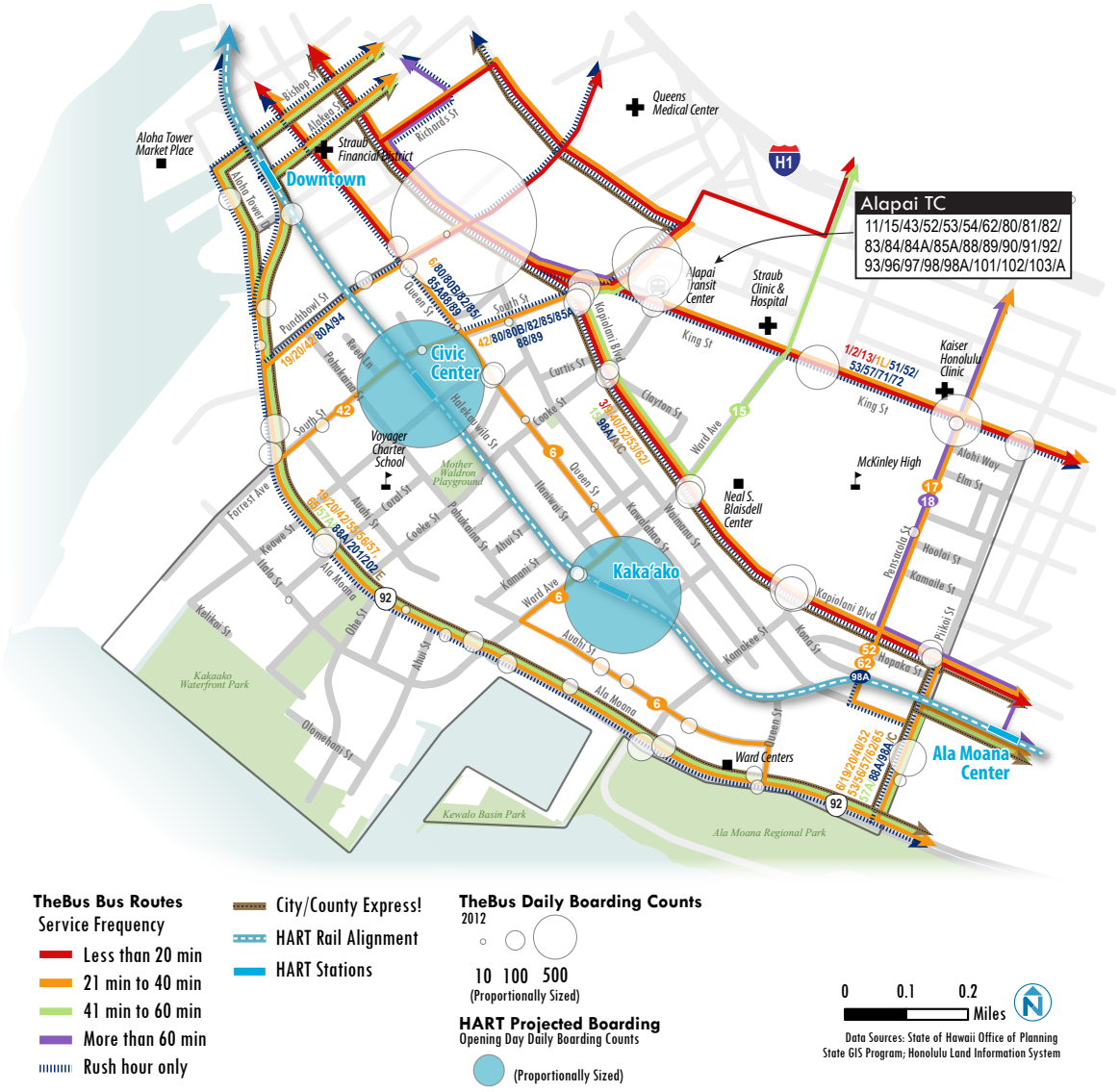
Transit

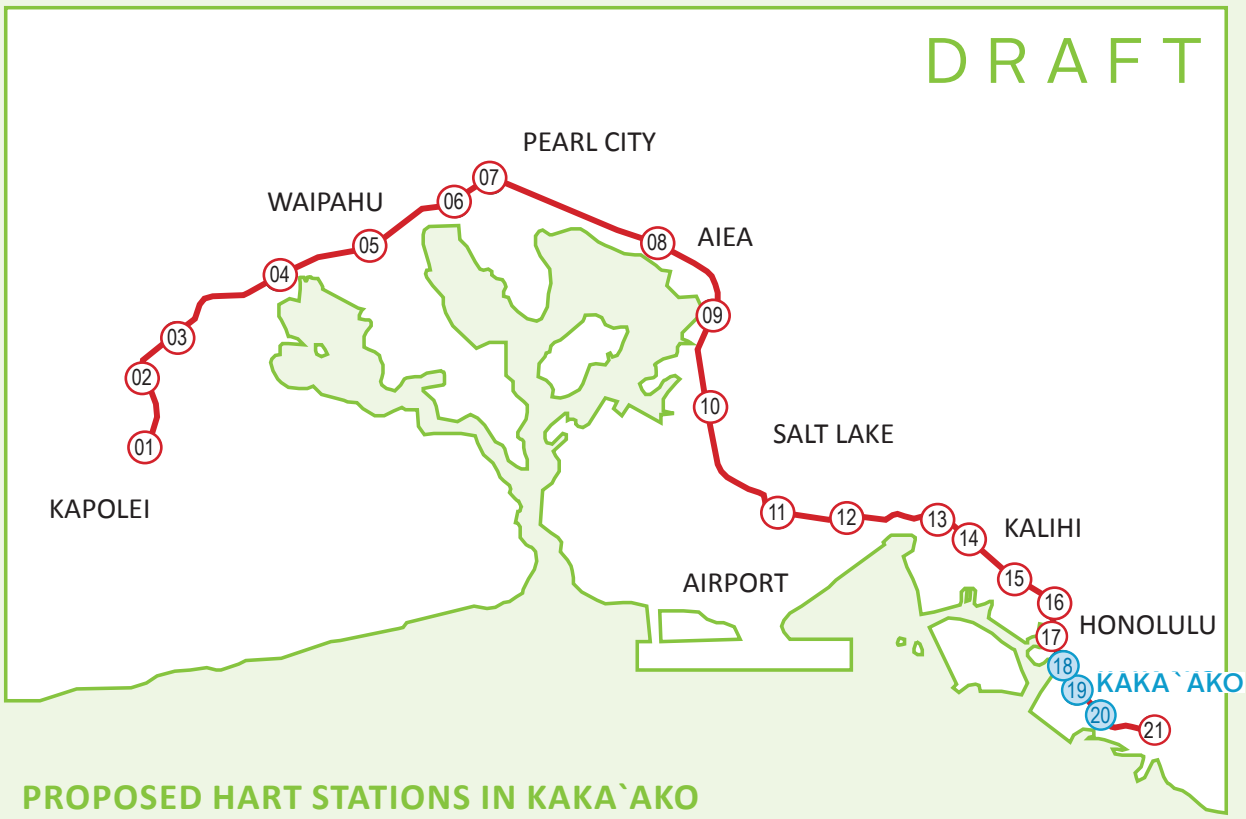
Figure 5-4 illustrates the current bus transit network operating in the KCDD as well as the proposed HART alignment and stations. Actual average daily levels of passenger boarding by stop are indicated by the scaled circles; HART ridership is average daily for the projected year of opening. The map indicates 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 HART STATIONS IN KAKA`AKO

The Honolulu Authority for Rapid Transportation (HART) is in the process of constructing a fixed guideway rail 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 HART 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

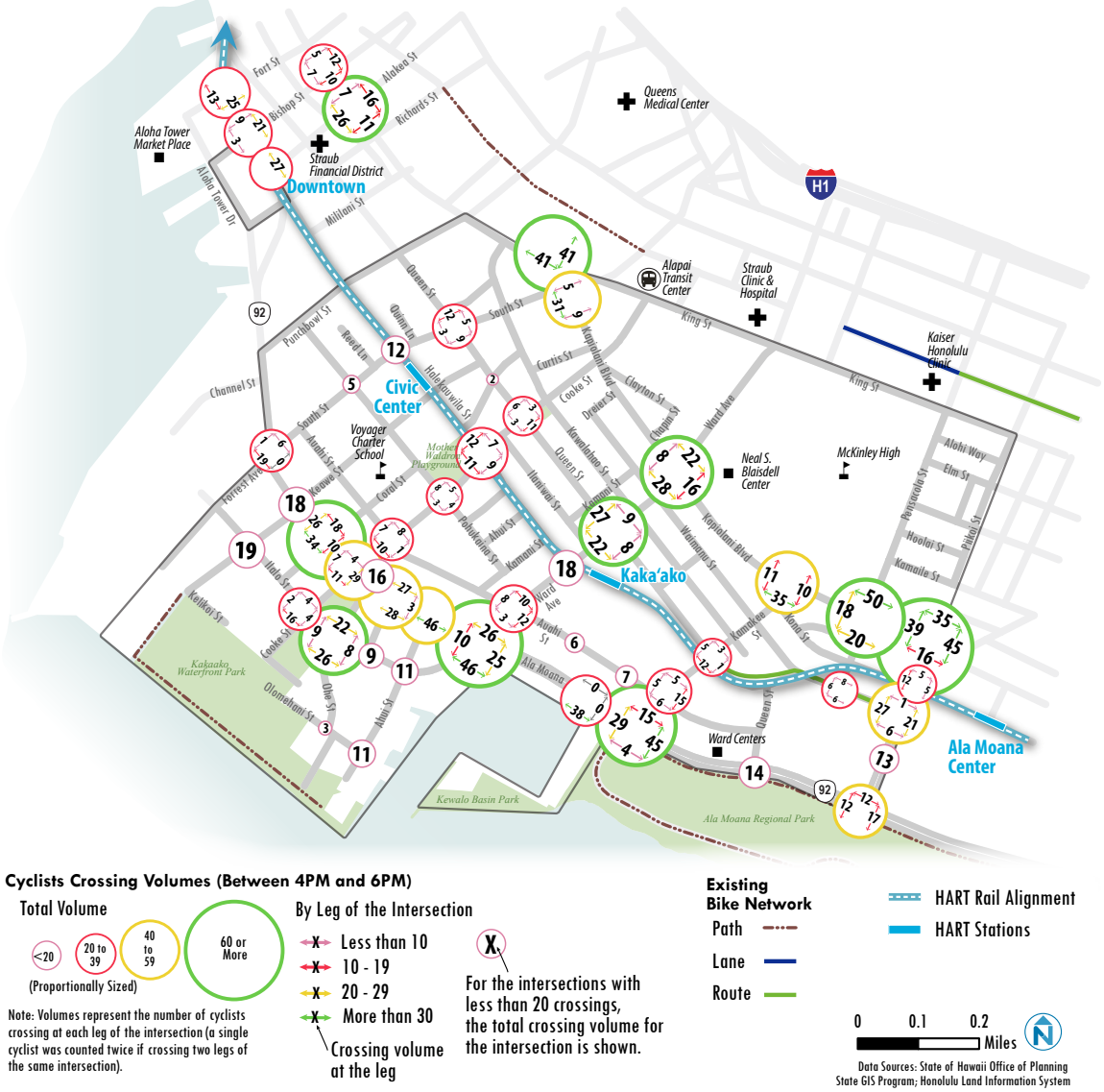
Relative to other U.S. and Canadian cities with well developed bicycle infrastructure, the rate of bicycle travel in the KCDD is relatively low. For example, a single intersection on a bicycle route on the fringe of San Francisco, Seattle, or Vancouver, B.C. downtowns might accommodate 600 to 1000 bicycles 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)

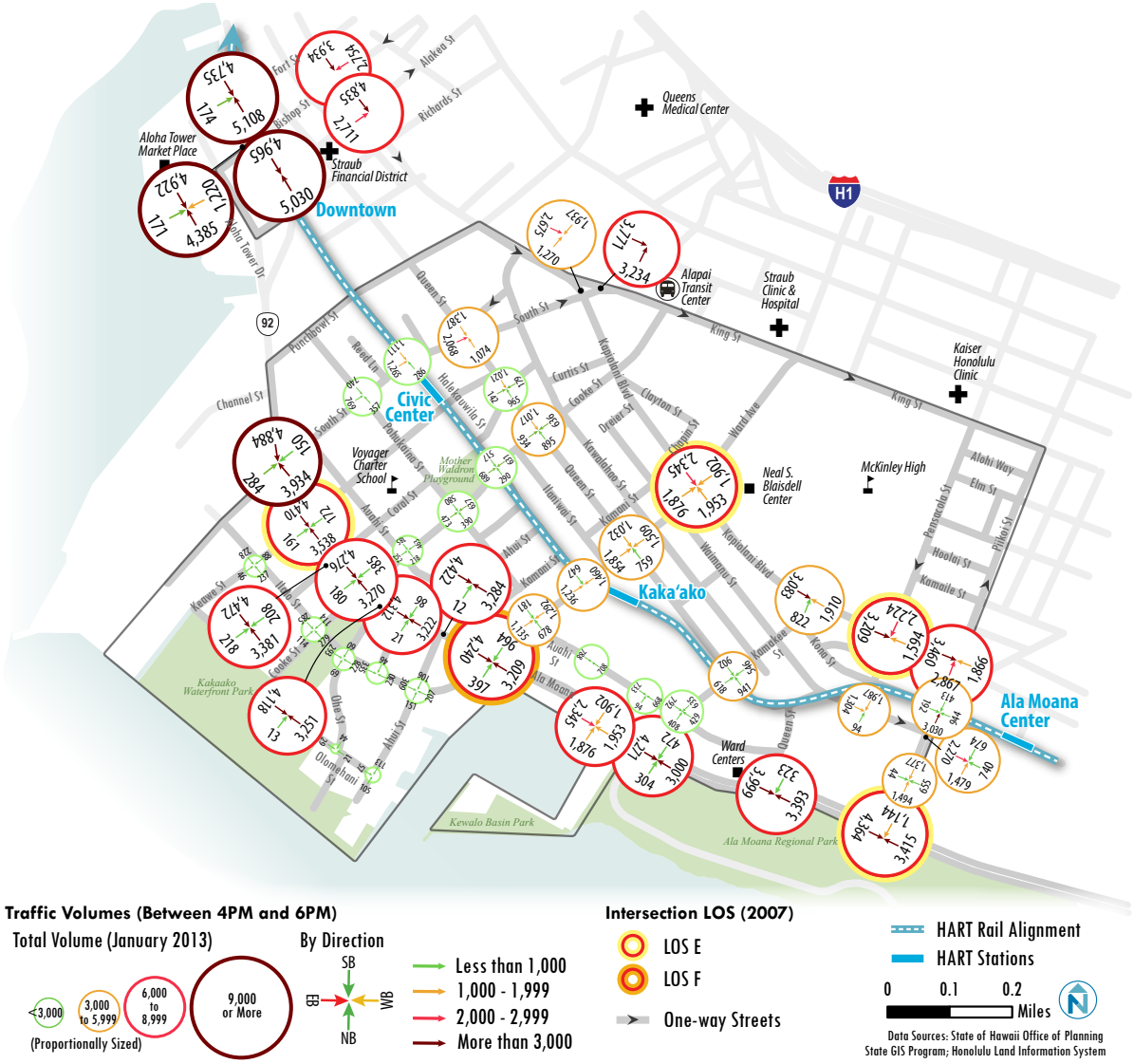


Motor Vehicle

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)

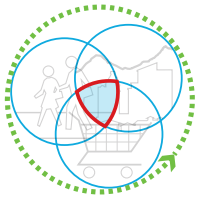


Parking

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 8 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.

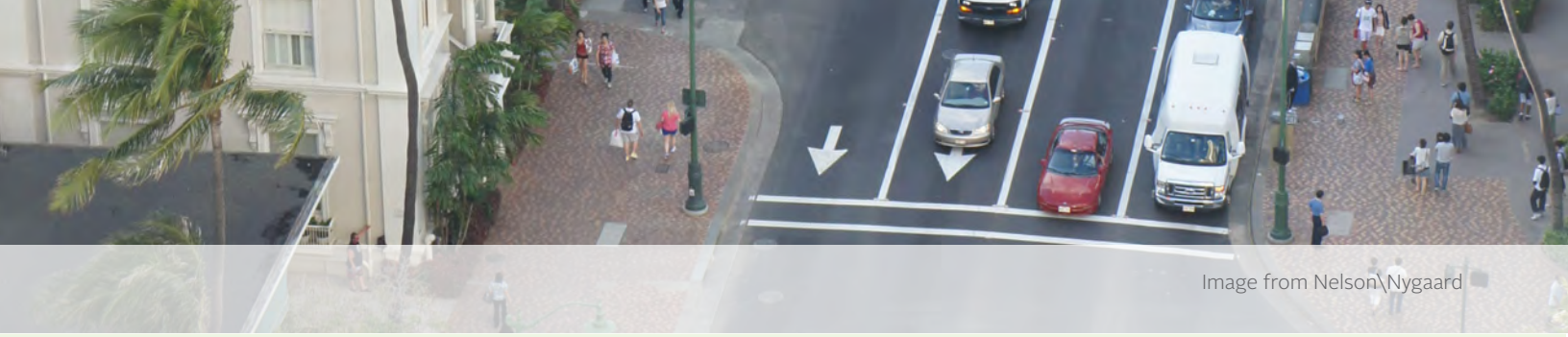


Image from Nelson\Nygaard

INTERSECTION DENSITY – PREDICTOR OF WALKABILITY

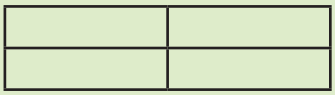
A recent meta-analysis researched and written by Professors Reid Ewing of the University of Utah and Robert Cervero of the University of California at Berkeley evaluated a number of factors thought to be predictive of people's choice to walk and bicycle in an urban setting. The results surprised many 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.'**

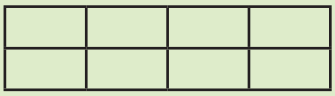
One of the best ways to measure this is by evaluating the number of intersections per square mile in an area or the granularity of the pedestrian infrastructure. Intersections are counted as a place where streets or pedestrian accessible paths, lanes, or alleys intersect. Intersection density is one 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:

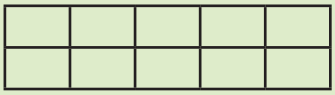
- 140 intersections per square mile = 400' x 750' average block size



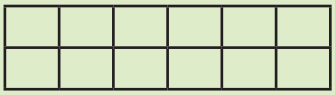
- 200 intersections per square mile = 400' x 350' average block size



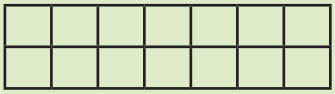
- 300 intersections per square mile = 300' x 310' average block size



- 350 intersections per square mile = 300' x 265' average block size

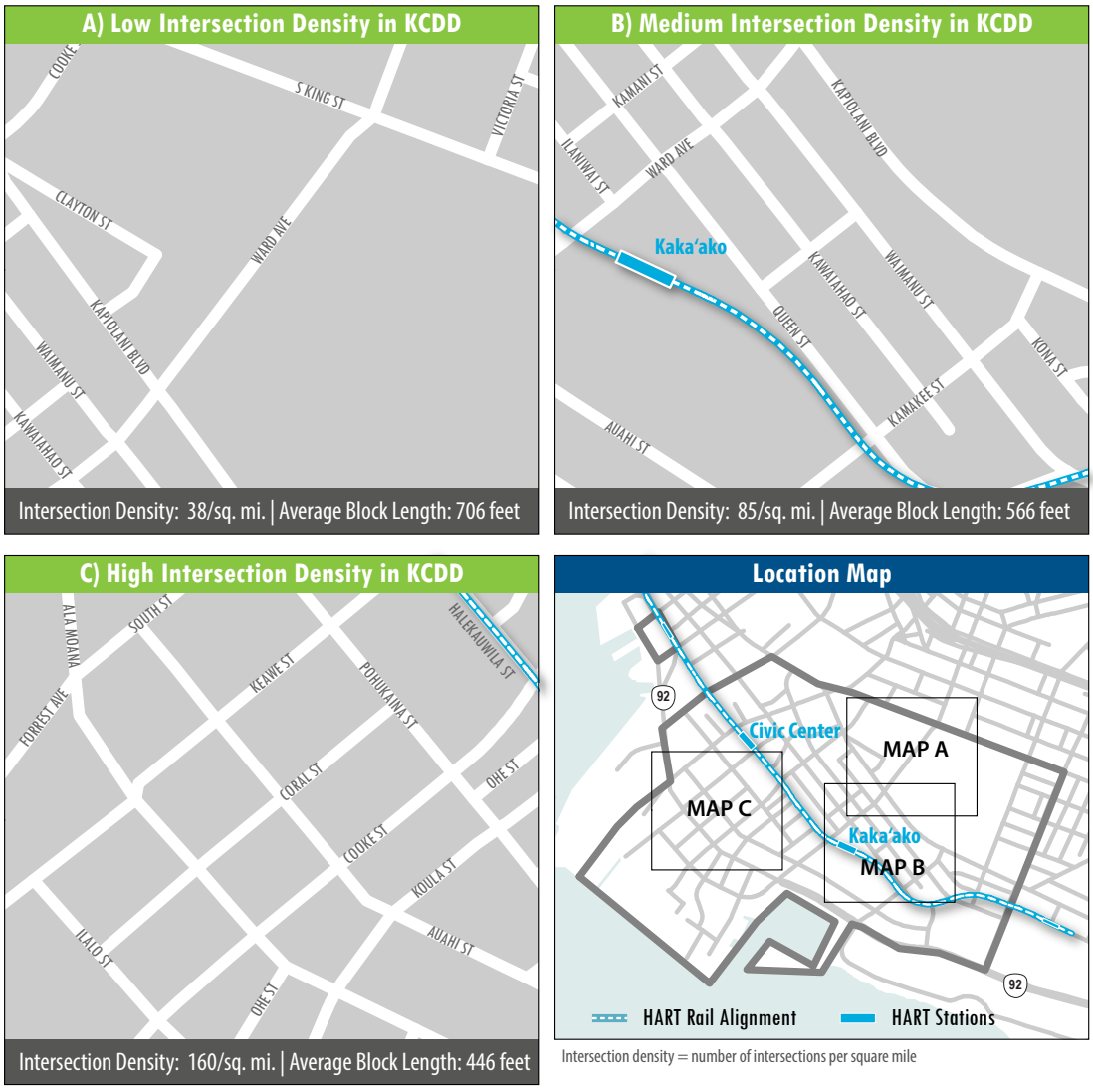


- 400 intersections per square mile = 300' x 230' average block size



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.

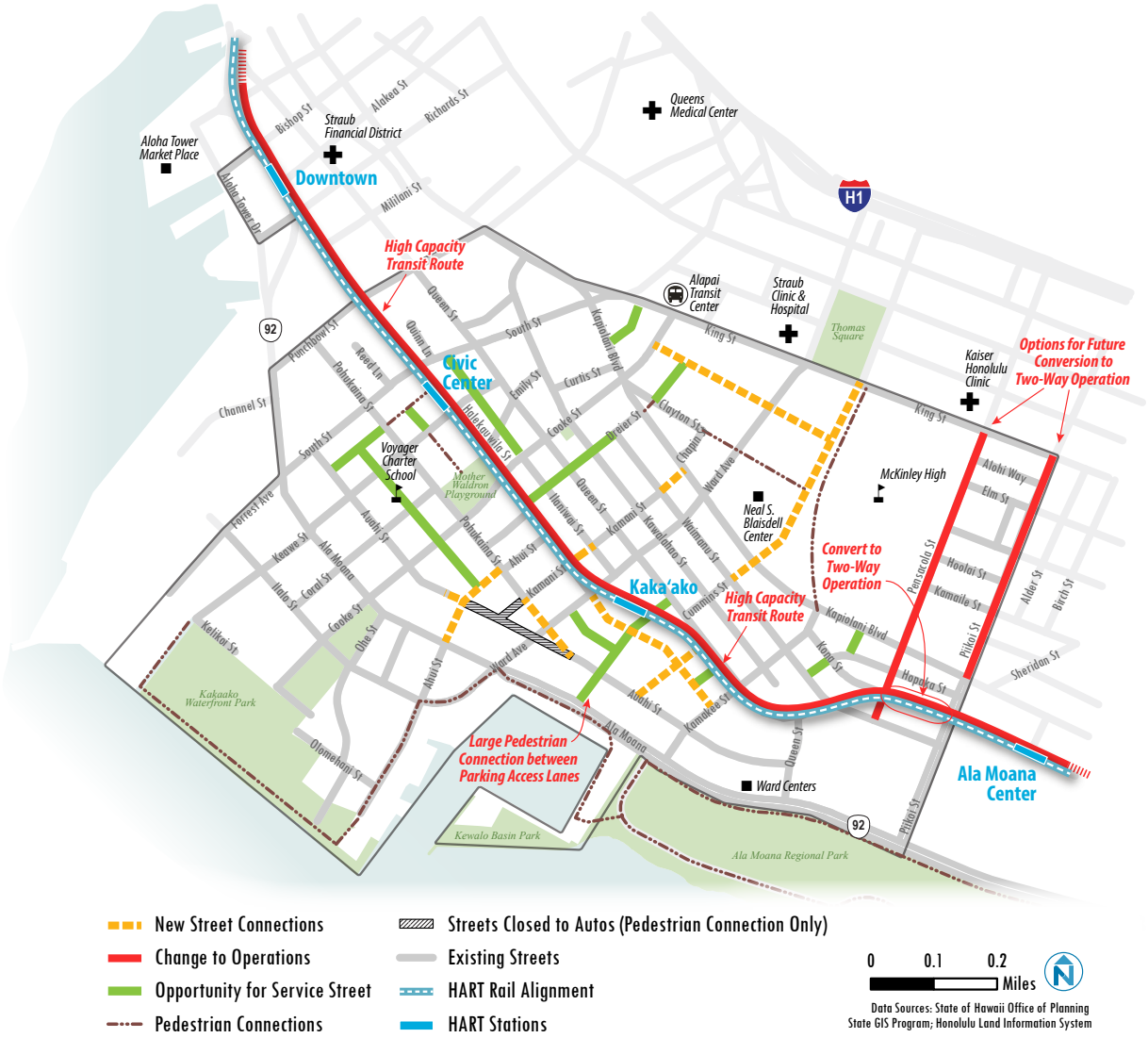
Figure 5-8 Intersection Density in KCDD



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 the 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 should 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 should be required. Connections should 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 should 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 should 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, crossover easements should be allowed to expanded access to parking. These rules should be applied throughout the district and alley or parking access street entry/egress should 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.

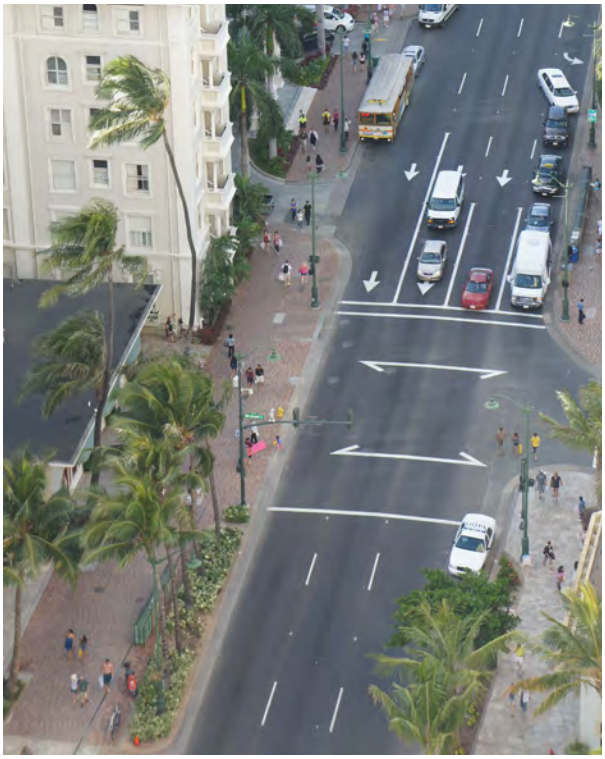
Action MA3.2 Encourage design that minimizes curb-cuts on all streets, particularly for high volume uses such as parking garages

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 should 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 rapid transit 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.

More detail policies and actions are included in Chapter 7 HART Stations and Access.

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.

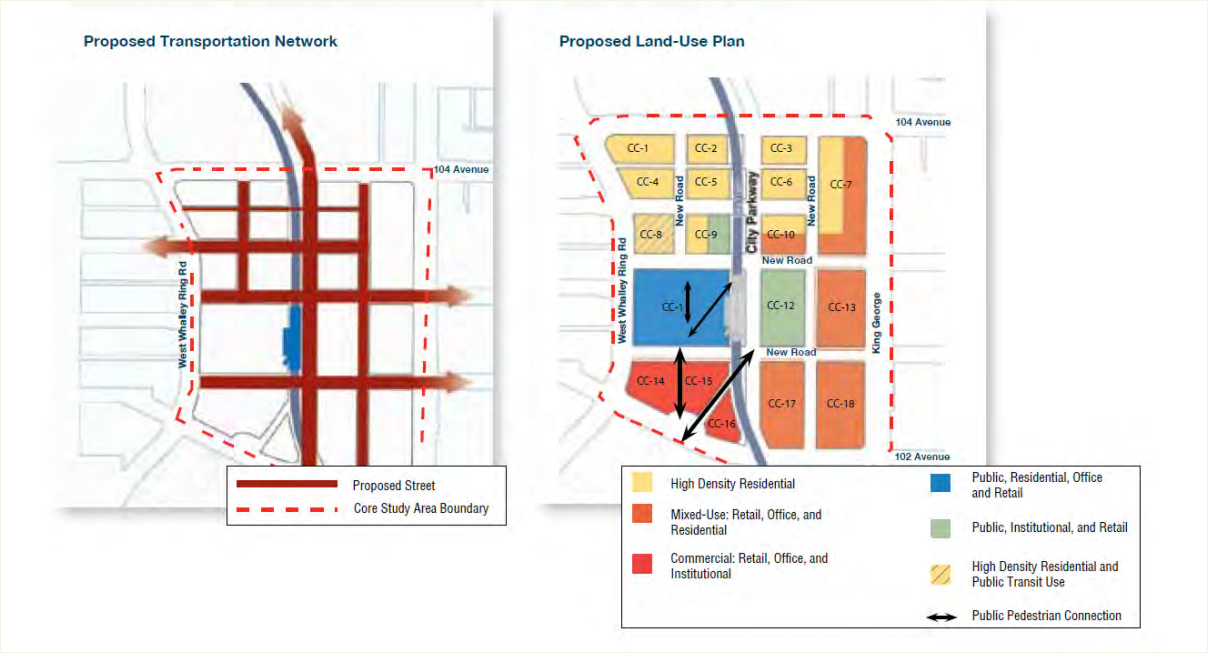
HCDA will establish a coordinated multimodal wayfinding program for the district using a single brand for all modal wayfinding signs. This program will help to orient visitors, highlighting key destinations

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.



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 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 should 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 should 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 should 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 should be provided, particularly at and around stations and key stops.** Real-time transit arrival information should 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

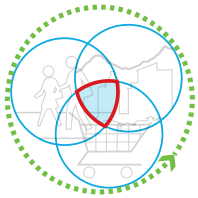
MAKING CITIES LEGIBLE WITH MULTIMODAL, INFORMATION-RICH WAYFINDING

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.



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

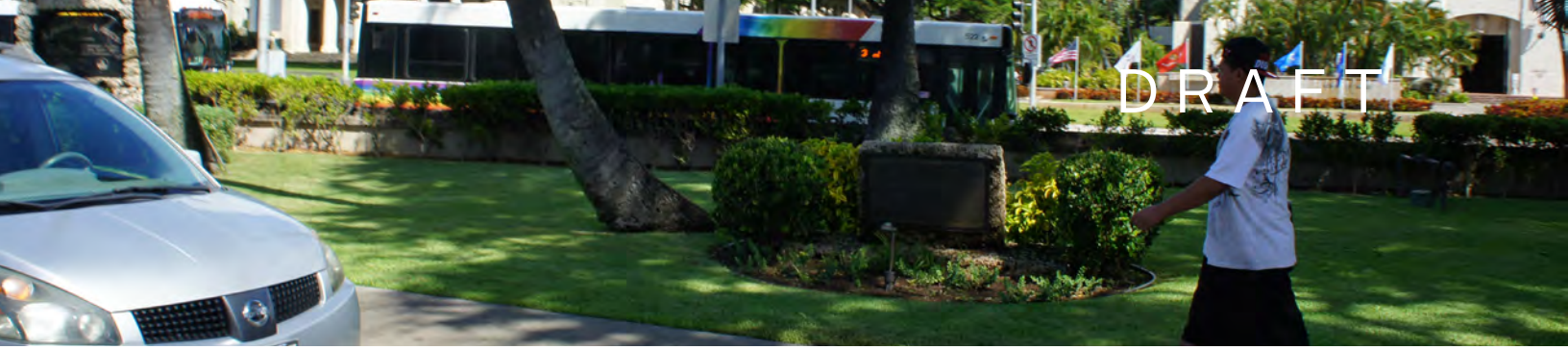
- **Regulation MA3.1(a):** Apply Section 15-217-63-B (Parking Access) requiring parking access from an alley or service/parking access street to all parts of the KCDD. Require parking access from alley or service/parking access street for all development sites where 300' minimum street spacing requirements 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

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 HART rail 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

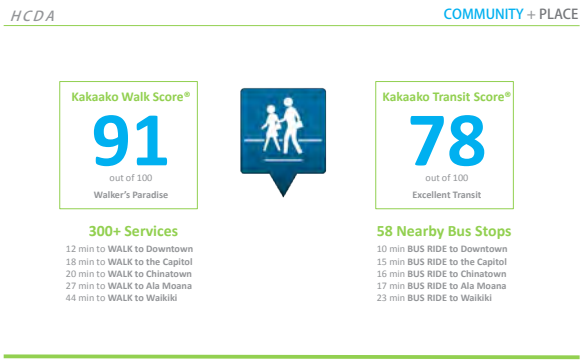
public plazas, and entertainment venues. These streets require spacious sidewalks and a high level of pedestrian amenity.

- **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 should be sized appropriately, according to land use context. When considering sidewalk width, standards should 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 should address signal timing and design; crosswalk placement and visibility; curb ramps; curb radii; sight lines; traffic calming, and illumination. Design standards should 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.

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 HCDA develops**

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

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

Complete Streets Design Standards. Standards should 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 should 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. When it develops Complete Streets Design Standards, HCDA will develop and implement a traffic calming program to slow vehicles in strategic locations to speeds that are consistent with pedestrian comfort and safety. Elements of the program should:

- 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 should 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.

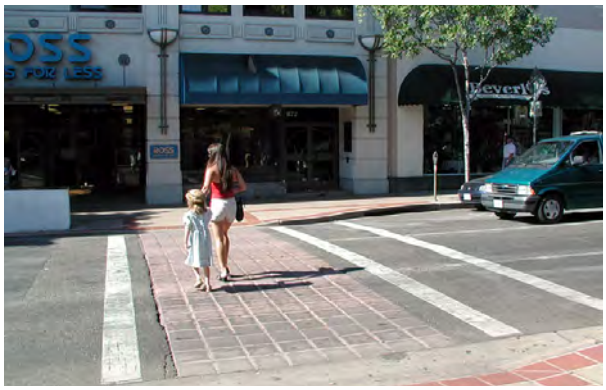
Key considerations include:

- **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 should 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, should be prioritized for pedestrians.
- **High collision streets and intersections.** Streets and intersections with a large number or high severity of vehicle-pedestrian collisions should 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 should be prioritized for investment. Specific recommendations for access to transit stations are provided in Chapter 8.
- **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 should 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

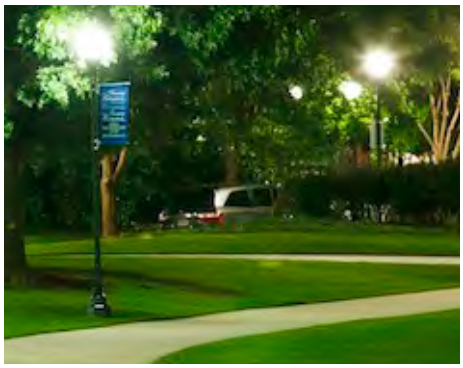
Far more than for other modes of transportation, the buildings and public spaces that surround the street are essential to the experience and utility of pedestrian travel. To support walking as a mode of transportation in Kaka`ako, HCDA should make a focused, coordinated effort to ensure that the district's 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 should 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 should 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 should be minimized whenever possible. Where

possible, vehicle driveways should not interrupt the sidewalk's grade and should 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 should 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 should 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 should 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 should 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

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

Transit Circulation

The Role of Transit

The City and County Honolulu operates 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 HART 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 HART 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 mobility choice 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 HART 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 HART 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 HART Rapid Transit Stations and Approximate Network Walk Times

The following strategies are recommended to ensure that transit investments are optimized to meet the KCDD vision.

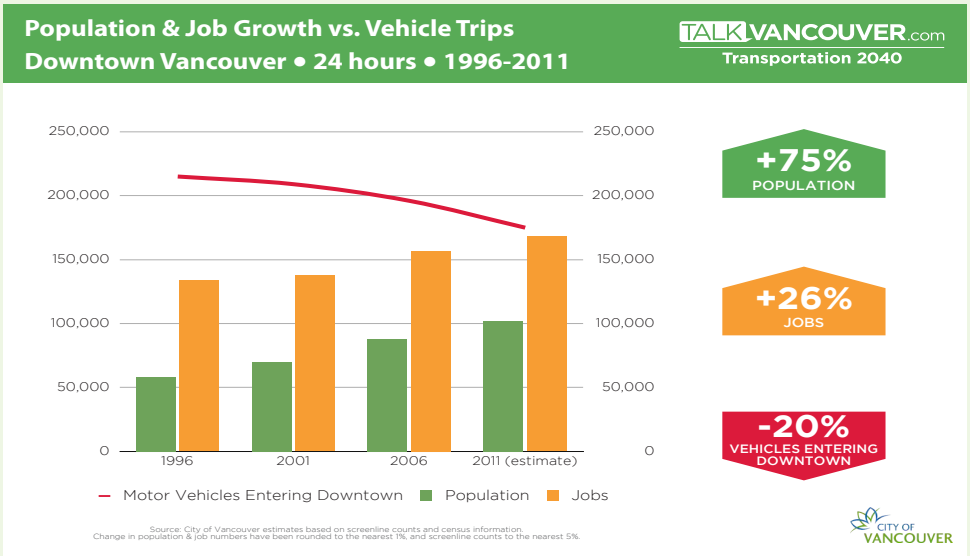
Strategy MA10 Maximize the value of HART rapid transit by providing high quality access to the line/stations

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.

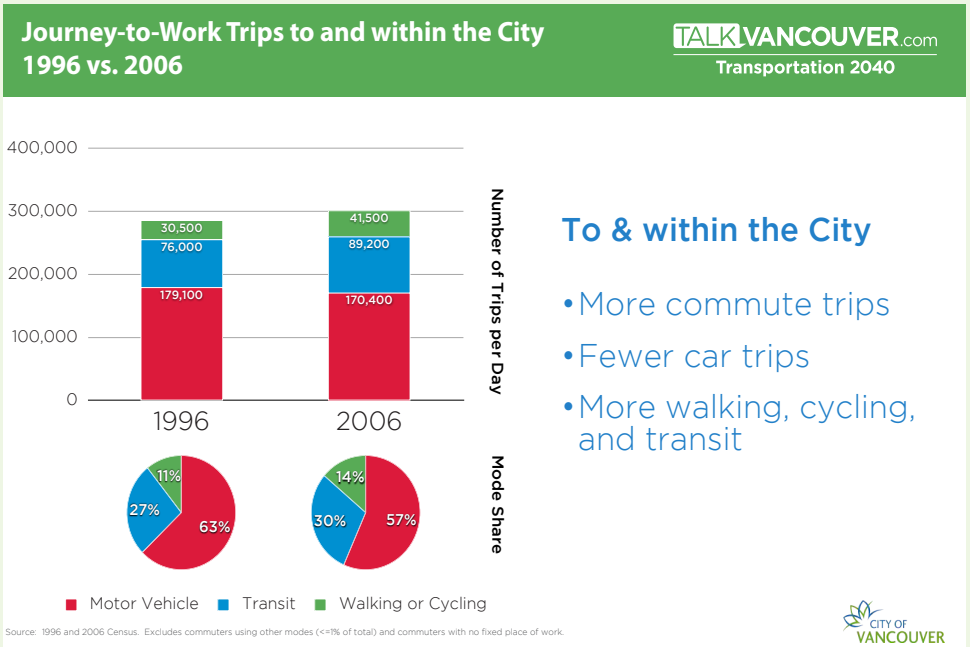
A number of additional strategies for managing auto traffic demand and increasing transit use are detailed in Chapter 8 – Parking and Transportation Demand Management.

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 should 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 should be integrated into every design choice to ensure the transit experience is synonymous with navigating through great places. Transit facilities in the KCDD should create a safe, comfortable, inviting, and interesting space at each trip end. Transit facilities and their surrounding environs should 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. Chapter 7 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 HART 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 should pursue the funding of a district circulator route designed to connect major destinations in the KCDD, future HART stations, major bus transit centers (Hotel Street and Punchbowl and King) and adjacent districts such as Ala Moana.

While the HART 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. HART 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 could 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 8) could 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.

Pending the results of the Waikiki Regional Circulator Study (results not available at time of writing of this draft), HCDA should 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

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.

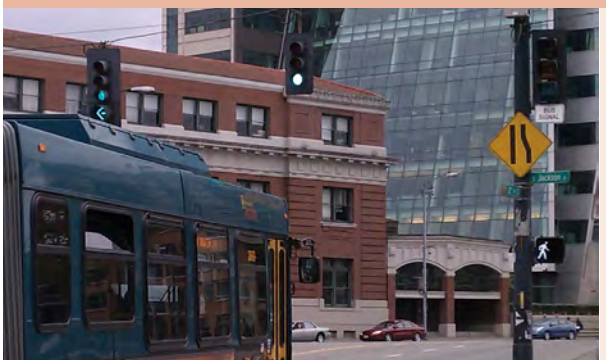
The planned Los Angeles Downtown Streetcar would connect South Park, the Fashion District, the Jewelry District, the Historic Downtown, Bunker Hill and the Civic Center as well as making ties to the Red/Purple, Blue, Gold, and Expo regional rail lines.

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 (i.e., 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.

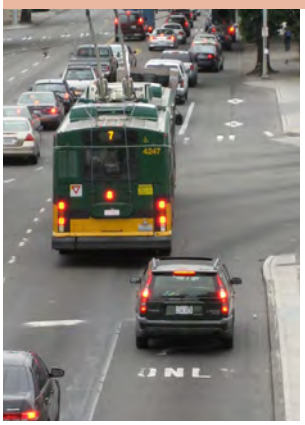
Effectiveness

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

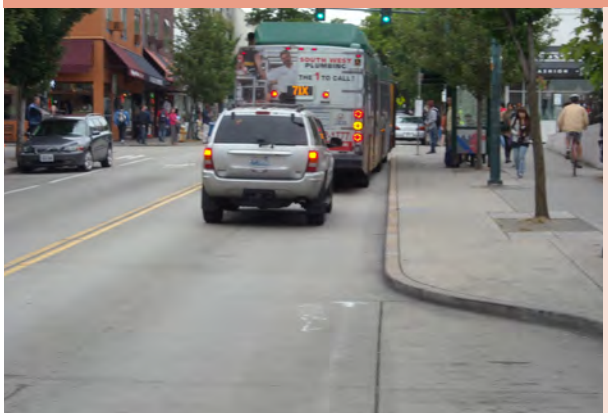
Highly contextual and must be considered within balance of person travel delay/benefit for specific street or corridor conditions.

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 over-stated. 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.

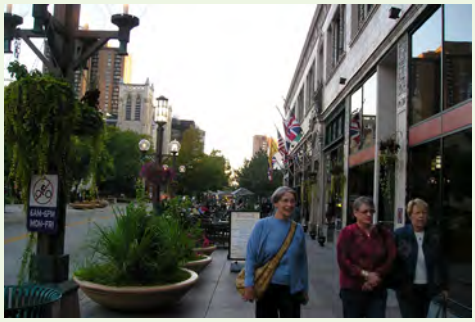
Denver has taken a unique approach to designing a primary transit street. Sixteenth Street is a transit and pedestrian-only street that elevates the transit experience by turning the street into the destination. This mixed-use pedestrian street bisects the core of Denver's Center City and offers a bevy 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 for 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

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

Strategy MA11 Support reliable bus operations in the 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 should be considered in conjunction with other street design and operations considerations detailed in Chapter 6.

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

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

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 could 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 should 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 should be clearly and consistently identifiable with up-to-date information for riders about services at the bus stop.
- The design of bus stops should 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 should be accessible and meet Americans with Disabilities Act (ADA) requirements.
- Bus stops should be located in support of institutions and with clients having special needs, large employers and community centers.
- Bus stops should 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 HART 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

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

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 should cover both TheBus and future rapid transit service. Such transit pass programs have been shown to reduce employee commute trips by 5 to 10 percent or more and can be adopted for residential buildings or neighborhoods.

Universal transit passes could 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 8.

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.

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 should work with the City/County of Honolulu DTS to implement a complete network of bicycle facilities.

Figure 5-15 illustrates where cycling facilities should be prioritized. Primary streets are those where fully separated facilities (i.e., cycle tracks or buffered bike lanes) or on-street bike lanes should be considered. Secondary streets are those that should be signed and marked for bicyclists, but where cyclists would share the lane with traffic. Low speed streets are those that have design features

Cycling is a normal part of daily like in Copenhagen, CK, 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 an 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.

which calm traffic and require motorists to drive at speeds that allow cyclists to easily integrate with traffic.

Figure 5-15 Cycling Priority Streets

While it may take many years to complete the cycling network illustrated in Figure 5-15, there are specific projects that the HCDA should consider prioritizing 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)

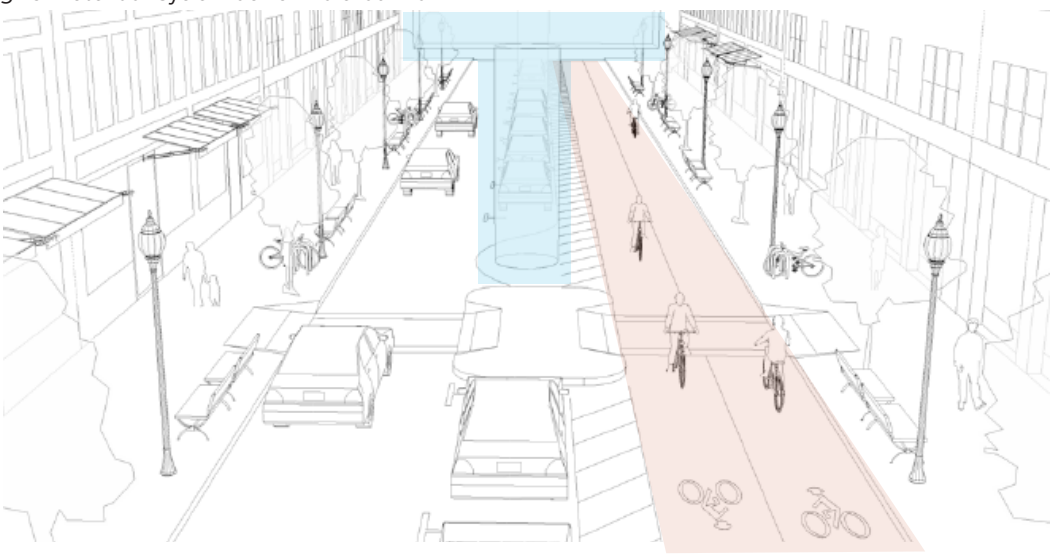
Innovative education programs and promotional campaigns

"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 Cycle Track on Halekauwila

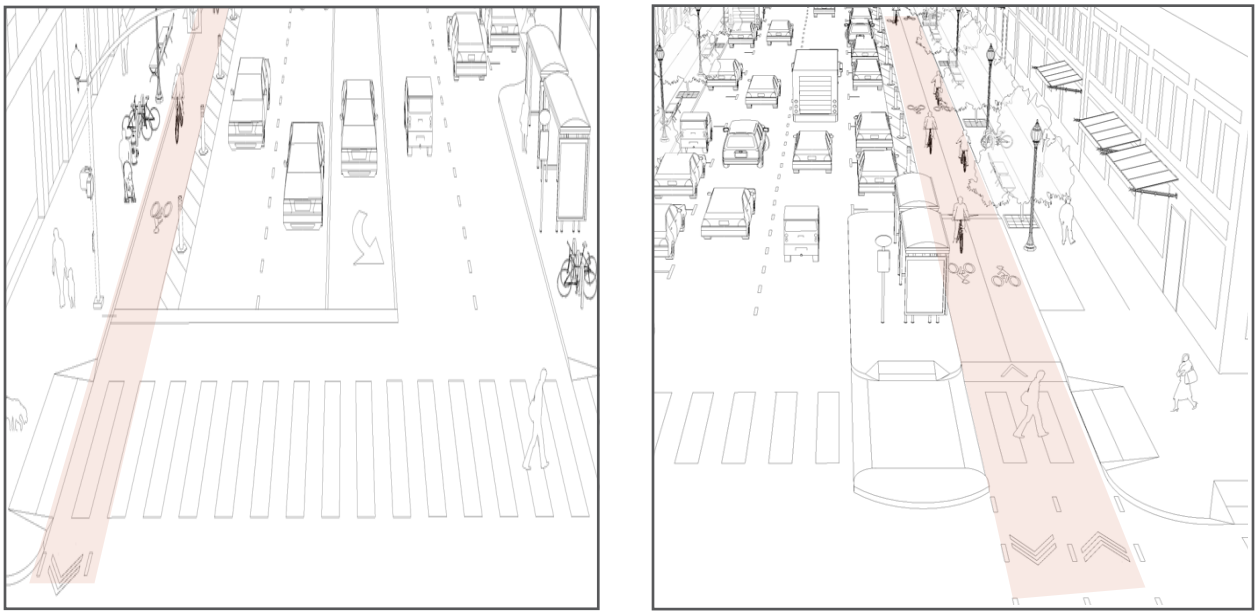


The guideway column for HART highlighted in blue in this illustration presents a concept for use of the HART guideway to create a shaded cycle track
Image from Nelson\Nygaard

- **Halekauwila Street cycle track:** 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 HART 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 HCDA 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 should 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

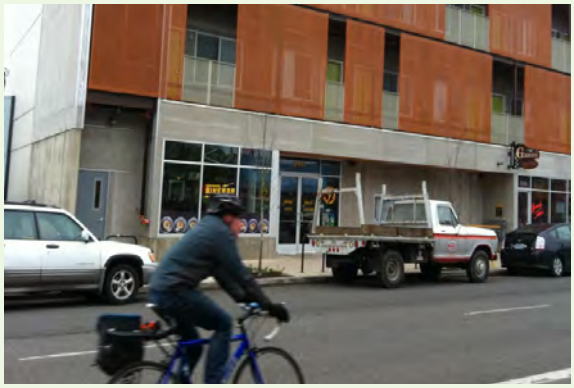
BUSINESS ACCESS

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 could develop a program to promote local businesses as bike friendly and accessible. Adaptive reuse projects such as the Salt Blocks could 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 could 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 rapid transit 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 should 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.

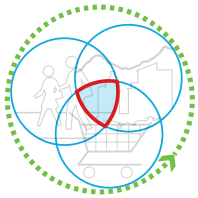
- **Tourists and visitors:** Station demand near hotels, points of attraction, recreational amenities, visitors services, and transit hubs
- **Residential customers:** Station demand near dense concentrations of housing, condo/apartment towers, transit hubs and stations
- **Workers and students:** Station 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 HART 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 should 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 should 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 could 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

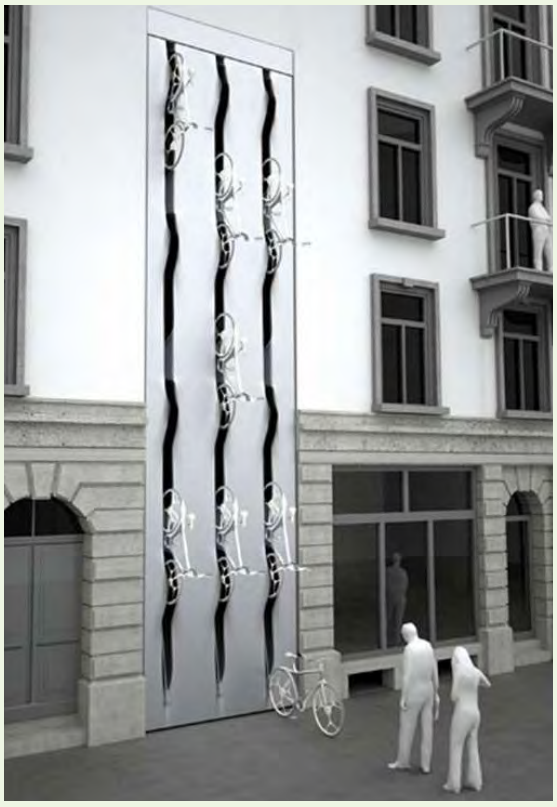
* URBEMIS is a tool for measuring air quality and transportation impacts of new developments (block level or district). It is being used to estimate trip generation impacts of development alternatives being evaluated in the KCDD TOD Plan.

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. Combine with improved bicycle facilities and connections to regional greenway trails, bikeshare could 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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- Anaheim (pending)
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- 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 should 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 should 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 HART stations and all new parking facilities should include long-term secure bicycle parking, and where possible, air pumps and repair stands should 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 should retrofit auto parking facilities and commercial areas to meet bicycle parking needs. HCDA should 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 should be required to build bicycle parking. Bicycle parking and facility requirements should 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 should work with the City and County of Honolulu DTS to establish a business-supported program for permitting bicycle corrals. The program could be business-initiated and should require buy-in from the major businesses fronting a block face. An application process should 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 should 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 rapid transit stations (e.g., Bikestation model), which provide amenities such as secure bike parking, bike repair, and transit information

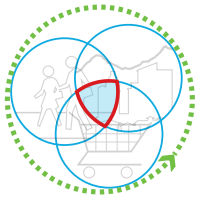
In addition to installing a variety of bicycle parking types for different time requirements, several major U.S. cities have located full service bike stations at or near transit hubs. The non-profit organization, Bikestation®, operates seven locations. Full service bike stations include bike parking, 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 should work with HART during the design process for the Downtown, Civic Center, and Kaka`ako rapid transit stations to incorporate an enclosed, full service bicycle center.

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



RULE CHANGES FOR KAKA`AKO

- **Regulation MA13.1:** New residential developments: secure, well-lit, visible, indoor ground-floor or below-grade bicycle parking for residents, as well as secure bicycle parking for guests.
- **Regulation MA13.2:** New non-residential development: secure, well-lit, visible, indoor ground-floor or below-grade bicycle parking for employees, ground-floor or below-grade commuter change room with showers and lockers; secure bicycle parking for visitors; prohibit building restrictions on bringing bicycles into buildings.
- **Regulation MA13.3:** Bike parking should be provided at a rate that accommodates a 10% mode share for the building.
- **Regulation MA13.4:** Encourage inclusion of lockers and showers

  All new mixed use and commercial developments above 500,000 square feet should require lockers and showers in the buildings' design. The proposed requirement is as follows:

  - At least 500,000 sq. ft = 4 showers/15 lockers
  - At least 750,000 sq. ft = 5 showers/22 lockers
  - At least 1,000,000 sq. ft = 6 showers/30 lockers
  - At least 1,250,000 sq. ft = 7 showers/37 lockers
  - At least 1,500,000 sq. ft = 8 showers/45 lockers
- **Regulation MA13.5:** Incent inclusion of bike share facilities

The potential for significant new development in the KCDD provides excellent opportunity to design streets, private building exterior spaces, and parking areas to effectively accommodate the spatial requirements of a bike share station. HCDA should build into Mauka/Makai Rules development incentives, reduced permitting fees, and additional TDM related incentives as a reward for establishing public benefits. Mauka/Makai Rules also need to integrate the spatial needs of bike stations into their pedestrian design standards (established in Figures PZ1-7 and FT1-12).

- **Regulation MA13.6:** Amend the Mauka/Makai sign code rules to allow for bike share advertising.

  Advertising will likely figure as a key revenue source that sustains bike share operations. The existing sign code needs to tolerate this type of signage while balancing the parameters for sign size and placement to ensure the public realm remains attractive.
- **Regulation MA14.1:** Require bicycle wayfinding signage

  As part of the district specific multimodal wayfinding with consistent branding, all bikeways and that the routes that lead into them should be furnished with wayfinding signage. Explain rationale and specific changes to existing Rules, if necessary.

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 should be distributed across the street system, and how streets should be managed so that they function well according to their purpose. Commercial boulevards that serve a whole region should be operated so that they serve regional trips more time competitively than district avenues and district streets. District streets, on the other hand, should be designed for local traffic and for speeds low enough that bicyclists and pedestrians can mix safely with cars.

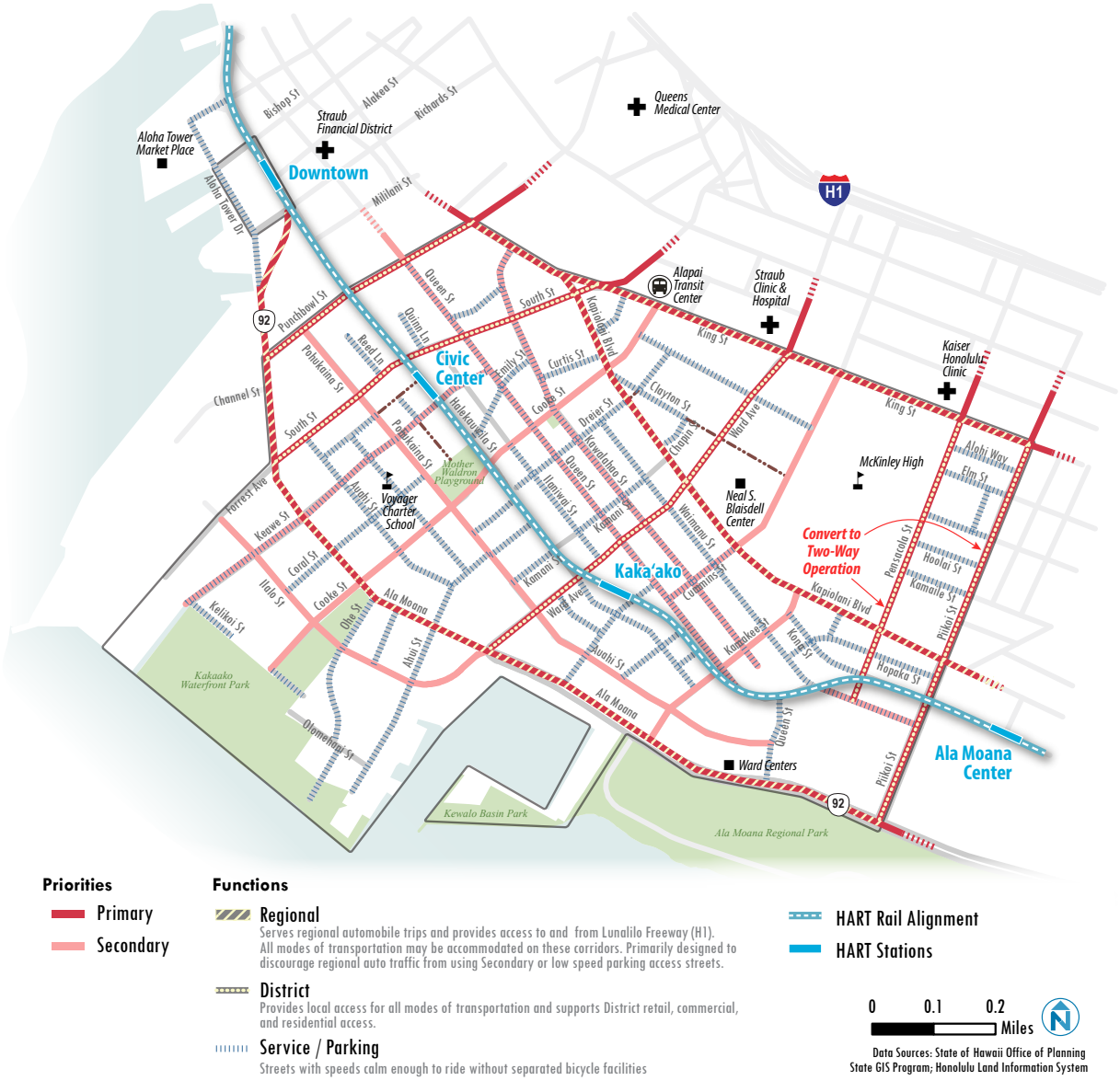
HCDA proposes conceptual modifications to the street designations established in the Mauka and Makai Area Plans. These are described in Chapter 6 along with guidance on how different streets should be designed and managed to accommodate automobiles. Recognizing that one function of streets is to carry 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 traffic to allow regional mobility and local access while limiting impacts to livability in the 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



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 adopts 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 can 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 should 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 should 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 should start with a consideration of our most vulnerable users. If an keiki or kupuna 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 complete street strategies 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 complete street strategies 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).

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)

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 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.

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.