CITY COUNCIL
CITY AND COUNTY OF HONOLULU
HONOLULU, HAWAII

No. 16-32

RESOLUTION

APPROVING THE KALIHI NEIGHBORHOOD TRANSIT-ORIENTED DEVELOPMENT (TOD) PLAN.

WHEREAS, the Revised Ordinances of Honolulu (ROH) Sections 21-9.100 through 21-9.100-4 of the Land Use Ordinance, enacted by Ordinance 09-4, establish a procedure for the creation of special districts known as transit-oriented development (TOD) zones, and accompanying development regulations, around rapid transit stations to encourage appropriate transit-oriented development; and

WHEREAS, ROH Section 21-9.100-2 provides that for each TOD zone, a neighborhood TOD Plan shall be approved by the Council and shall serve as the basis for the creation or amendment of a TOD zone and the TOD development regulations applicable thereto; and

WHEREAS, plans for the Honolulu Rail Transit project call for three stations in Kalihi—one near the Middle Street Transit Center, one near Dillingham Boulevard and Mokauea Street (Kalihi station), and a third near the intersection of Dillingham Boulevard and Kokea Street (Kapalama station); and

WHEREAS, the Department of Planning and Permitting (DPP) and its consultant, Dyett & Bhatia Urban and Regional Planners, have prepared the Kalihi Neighborhood TOD Plan (November 2014) to serve as the basis for the creation of TOD zones around the Middle Street, Kalihi, and Kapalama rail transit stations; and

WHEREAS, the process of creating the Kalihi Neighborhood TOD Plan was inclusive, open to residents, businesses, landowners, community organizations, government agencies, and others; and

WHEREAS, the process considered population, economic, and market analyses and infrastructure analyses, including capacities of water, wastewater, and roadway systems; and

WHEREAS, the Kalihi Neighborhood TOD Plan does not ignore past planning for the community, but builds on the objectives of the Kalilhi-Palama Action Plan (2004); and

DPPKATOD.R15

RESOLUTION

WHEREAS, the Kalihi Neighborhood TOD Plan is consistent with the Primary Urban Center Development Plan established by ROH Chapter 24, Article 5; and

WHEREAS, the Council desires to approve the Kailhi Neighborhood TOD Plan; now, therefore,

BE IT RESOLVED by the Council of the City and County of Honolulu that, pursuant to ROH Section 21-9-100-2(f), the Council hereby approves the Kalihi Neighborhood TOD Plan (November 2014) attached hereto as Exhibit A and incorporated herein by this reference; and

BE IT FURTHER RESOLVED that, pursuant to ROH Section 21-9.100-3(a), the Director of the DPP is directed to submit to the Planning Commission, within 120 days of the adoption of this Resolution, a proposed ordinance establishing TOD zones for the Middle Street Transit Center, Kalihi, and Kapalama rail transit stations, and the TOD development regulations applicable thereto; and

CITY COUNCIL
CITY AND COUNTY OF HONOLULU
HONOLULU, HAWAII

No. 16-32

RESOLUTION

BE IT FINALLY RESOLVED that copies of this Resolution be transmitted to the Mayor, the Director of the Department of Planning and Permitting, and the Honolulu Authority for Rapid Transportation.

INTRODUCED BY:

(br)

DATE OF INTRODUCTION:

FEB 10 2016

Honolulu, Hawaii

Councilmembers

Exhibit A

Kalihi Neighborhood

Transit-Oriented Development Plan

Draft Final Plan

November 2014

City and County of Honolulu

Kalihi
Neighborhood Transit-Oriented Development Plan

Draft Final Plan

November 2014

Prepared by

DYETT & BHATIA
Urban and Regional Planners

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Keyser Marston Associates

Weslin Consulting Services, Inc.

William Chang Architect

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1 INTRODUCTION

Kalihi is one of the most diverse communities in Honolulu. It hosts a range of small commercial and industrial businesses and serves as a home to long-time residents and new immigrants. With the introduction of rail transit, Kalihi has the opportunity to emerge as a vital mixed-use district, with a new neighborhood in Kapalama, more diverse housing and employment opportunities, reinvigorated educational centers, new open spaces, a promenade along Kapalama Canal, and a multi-modal circulation network connecting residents and workers to key destinations, homes, and jobs.

The rail project will improve travel reliability and is expected to shorten travel times for most riders between homes and jobs throughout Honolulu and Kalihi. It is also expected to improve access to the airport and other major destinations, as well as increase transportation options by transit, bicycle, and on foot. Integrating rail planning with neighborhood planning is essential to realizing the full potential of this major regional transit investment. The Kalihi Neighborhood TOD Plan will guide development over the next era of Kalihi's growth and enhancement.

This plan provides a land use and circulation framework to guide future development; identifies more detailed policies and regulatory standards for urban design, parks and community benefits and services; and recommends implementation measures to advance the community's vision into reality.

The rail project will provide reliable transit to Kalihi and opportunities for revitalization and quality of life improvements for generations to come.

1.1 Purpose and Process

Honolulu Rail Transit Project

The U.S. Department of Transportation Federal Transit Administration and the City and County of Honolulu (City) are undertaking a project that will provide rail transit service on Oahu. The Honolulu Rail Transit corridor is approximately 20 miles long, extending from East Kapolei in the west to Ala Moana Center in the east, with 21 station stops. In subsequent phases, the rail corridor is envisioned to extend to West Kapolei and the University of Hawaii at Manoa. The fixed-guideway system will operate in an exclusive elevated right-of-way to ensure speed and reliability and avoid conflicts with vehicles and pedestrians. The service will connect employment and residential centers and provide access via feeder buses and shuttles at stations to areas not served by rail.

The project is intended to improve the speed, reliability, and quality of transit. For example, the trip between the Middle Street Transit Center and the Downtown station will be eight minutes, and between Kalihi and Waipahu less than a half hour, with speeds comparable to, or faster than, driving (particularly in peak period traffic).

The project will be constructed in stages. The stage between East Kapolei and Aloha Station has begun and is expected to be operational by 2018. The last stage—which includes the three Kalihi stations—will be under construction between 2015 and 2018. The entire 20-mile long project is projected to be operational in 2019.

Following Section 106 guidelines, the Honolulu Authority for Rapid Transit (HART), the agency implementing the project, entered into a Programmatic Agreement with Consulting Parties in September of 2011. While the agreement primarily covers cultural, historical, and archaeological mitigation, there are also stipulations related to urban design around station areas and the consideration of historic preservation in the station areas.

Neighborhood Transit-Oriented Development (TOD) Plans

What is the Kalihi Neighborhood TOD Plan?

The City is preparing neighborhood transit-oriented development (TOD) plans that integrate land use and transportation planning around the rail stations in anticipation of the rail project. The plans are intended to address opportunities for new development including rehabilitation and adaptive reuse of existing buildings and assets, and to holistically plan for orderly growth and improved accessibility around the stations. The Kalihi Neighborhood TOD Plan addresses land use, local transportation, public facilities and services, economics, infrastructure planning, and implementation around the three Kalihi stations: Middle Street Transit Center, Kalihi, and Kapalama.

What are the objectives of the Plan, and how will it affect me?

The rail project is expected to increase transit ridership in Honolulu and help reduce the growth of traffic congestion by taking cars off the road as more people use transit to access their homes, jobs, and other destinations. This plan will further boost transit and walkability by promoting land use patterns that enable more people to live and work within walking distance of a rail station. This will also foster more efficient use of land by decreasing the need for parking and even car ownership, and promoting higher-density development.

Improved transit access and new shopping and services adjacent to rail will be beneficial for residents, employees, and visitors in Kalihi, where parking is limited. It will enable community members to enjoy new uses throughout Kalihi, such as restaurants and convenience shopping, as well as rail access to other parts of the city. A new high intensity mixed-use district in Kapalama, outlined in this plan, would provide housing in close proximity to Downtown and the rail system, and a full complement of neighborhood amenities, including stores, public facilities, social services, and parks. Kapalama could become an attractive neighborhood for a variety of population segments—professionals working in Downtown or Kalihi, young people just starting out their careers, students attending Honolulu Commu-

nity College, as well as seniors who want convenient access to services without having to drive.

How and when will this plan be implemented?

The TOD Plan works together with the City's other regulatory documents, including the Land Use Ordinance, to outline the vision, policies, and specific regulations for new development while preserving historic and/or cultural resources. Property owners and developers will ultimately decide on the opportune time to build. Some development may take place in the short-term in advance of, or soon after, rail becoming fully operational in 2019. Other development projects and improvements may take as many as 20 or 30 years to come to fruition. The availability of funding on the part of the City (e.g., through the Capital Improvement Program), timing of key infrastructure improvements (as described in Chapter 5 and 6), and the general economic and lending climate for private development are some of the factors that will affect the timing and extent of development and revitalization.

The TOD Plan articulates the community's vision and needs, while providing enough flexibility to allow land owners and applicants to make decisions based on market demand and economic conditions. Maps, diagrams, photographs, and conceptual three-dimensional models and sketches are used extensively throughout the Plan to illustrate the vision and policies and to provide guidance to developers and decision-makers. Actual future development will not precisely match the conceptual illustrations but should follow the intent.

In parallel to this TOD planning effort, the City is preparing zoning regulations that will create a TOD Special District to help implement the vision of each of the TOD plans. The TOD Special District regulations (Sec. 21-9.100 of the Land Use Ordinance) will supplement or modify the underlying zoning district regulations, establishing standards that explicitly promote TOD. Some design standards may apply to all station areas throughout the rail corridor, such as those relating to pedestrian-oriented design. Other standards may be specific to just one or a few stations. For example, different setbacks standards may apply in the urban setting of Kalihi versus the greenfield setting of East Kapolei.

Integrating land use planning with the rail project provides opportunities for improved connections for pedestrians, bicyclists, and transit riders, thereby reducing reliance on driving, promoting community health, and increasing interactions between neighbors.

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Transit-oriented development helps support transit ridership and creates vibrancy during the day and/or evening, depending on the types of uses—residential, office, or a mix of uses.

WHAT IS TRANSIT-ORIENTED DEVELOPMENT (TOD)?

Transit-oriented development (TOD) typically refers to development within easy walking distance of a major transit stop that both capitalizes on and supports transit ridership. TOD may be redevelopment of existing facilities or new development. Transit stops may be rail stations, major bus stops, or other well-used transit hubs. The areas where TOD typically occurs is within ¼- or ½-mile radius around the station/stop (a five or ten-minute walk). TOD should be designed at the pedestrian scale since all transit trips begin and end as walking trips.

TOD is typically moderate to higher-density development, with a mix of residences, employment, and shopping, but not necessarily all in the same building. Higher densities are an important part of the TOD definition in order to encourage use of transit, reduce the area devoted to parking, and support shopping, open space, and pedestrian facilities. In other words, a community cannot support the amenities of an ideal TOD without customers (residents or employees). For example, a contemporary supermarket of about 45,000 square feet requires the support of 8,000 to 10,000 people, ideally within a 1/4-mile radius.

Density can create more housing choices and more affordable housing, and reduce household transportation costs. Though typically composed of a mix of uses, depending on the community or site context, TOD areas or projects may be more oriented toward residential development or employment uses.

Process and Community Engagement

This plan was developed in a four-phase process, as shown in the graphic schedule on page 1-6. Community involvement was integral to shaping the Plan, with neighborhood board meetings, public workshops, interviews, a survey (described below), and project website providing opportunities for input during each phase.

The Project Advisory Committee, comprised of Kalihi community leaders and stakeholders, helped to shepherd the process, contributing to the community vision, identifying major issues and opportunities, reviewing policy recommendations and products, and helping to design community workshops.

Community Survey Findings

A community needs survey was mailed to 86 percent of all households within a ½-mile of the stations—a random sample of 4,000 households. The survey was offered in English, Tagalog, and Ilocano. The response rate was very high—28 percent (1,100 responses)—providing the perspective of a large portion of Kalihi residents that will be most affected by the rail and potential development. The priorities and issues identified in the survey results contributed to the vision and policies in this plan and are summarized below and in the relevant chapters throughout the Plan. Overall, Kalihi residents:

- Appreciate the neighborhood's convenient access to bus transit, jobs, shopping and affordable housing;
- Value the neighborhood's parks/landscaping, schools, small retail shops, and Bishop Museum;
- Identify the highest priorities for improvement as safety measures, road improvements, cleanliness, and overall appearance;
- Support sidewalks improvements, additional parking, more affordable housing, and additional children's playgrounds and parks;
- Support improving landscaping, seating, crosswalks, street lighting, and bus shelters as the top priorities for street and streetscape improvements; and
- Would like to see coffee shops, restaurants, pharmacies, and convenience/grocery stores around rail stations; and
- Support parks, retail stores, and parking structures along Kapalama Canal.

Residents, business owners, property owners, advocates and other stakeholders participated in key milestones during the TOD Plan process, creating the community vision and refining the Plan's key recommendations.

Project Phases

1. The **Visioning & Existing Conditions** phase included an extensive community outreach effort to understand neighborhood issues and aspirations. Outreach activities included interviews with over 20 stakeholders/groups, a workshop attended by over 80 community members, two meetings with the Advisory Committee, and a community survey completed by 1,100 residents. Supplementing the visioning process were a series of technical analyses that resulted in a Market Demand Study and an Existing Conditions Report, which looked at opportunities and constraints related to land use, circulation, community design, the real estate market, and infrastructure. An overall vision and set of planning principles emerged from this first phase and provided a guide for next steps in the process.
2. The **Emerging Vision/Concept** phase illustrated the emerging vision for the three station areas in Kalihi and explored options for land use, open space, and circulation. A Concept Plan described future land use and development possibilities based on the opportunities and challenges analyzed during the existing conditions analysis and direction from community outreach activities. Feedback from outreach meetings informed further revision of the concept.
3. The **Framework Plan** phase formed the bridge between exploration of various options and this plan. It outlined the overall concept for each station area and specific land use, circulation, and open space ideas. The Framework Plan was further refined following review by the Advisory Committee, government agencies and other project stakeholders. Policy recommendations were also explored in this phase.
4. The final **TOD Plan** phase involved the preparation of the TOD Plan report; public and agency review of the Draft Plan; public hearings; and formal acceptance by resolution by the City Council.

1.2 Project Location and Boundaries

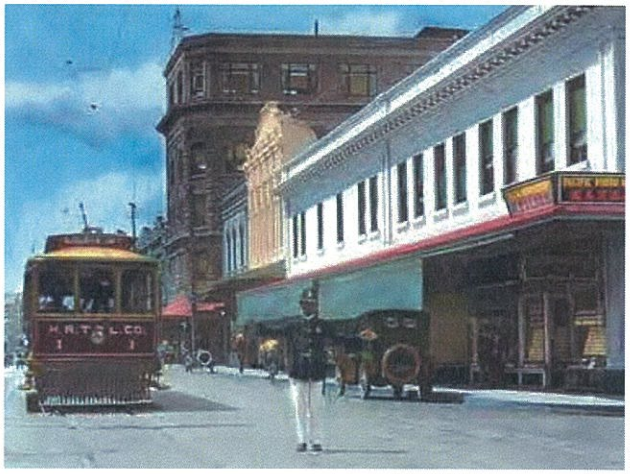
Project Location

The three Kalihi rail stations are located in urban Honolulu, as shown in Figure 1-1. The project location includes industrial/warehouse uses, a transit center, and a portion of Fort Shafter around the Middle Street station; residences and small businesses around the Kalihi station; and Honolulu Community College, big box stores, businesses and industrial warehouses around the Kapalama station. Dillingham Boulevard is the major roadway running through the project area and will serve as the spine for the rail line.

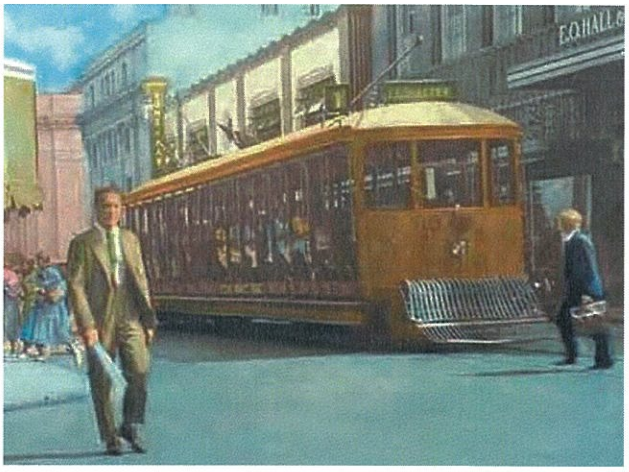
Throughout this plan, a ½-mile (2,600-foot) radius is drawn around each of the three stations to approximate a ten-minute walking distance, generally an acceptable maximum walking distance from transit. A ¼-mile (five-minute) walking distance is also drawn to highlight the sites closest to the stations, as shown in Figure 1-2. The plan generally uses the ½-mile radius to address transportation improvements, urban design recommendations, and infrastructure needs, though some portions of the area are excluded due to inaccessibility (i.e., mauka of H-1 and the freeway interchange, and Fort Shafter).

TOD Zone

A smaller area called the "TOD Zone" includes areas closest to the stations that are the most viable and important TOD sites. This zone encompasses most of the sites with development or redevelopment potential. The TOD Zone is the area where special district regulations will apply. Although the TOD Zone highlights the sites that are most likely to redevelop in response to rail transit access, it is also possible that sites beyond this area could also redevelop as TODs.



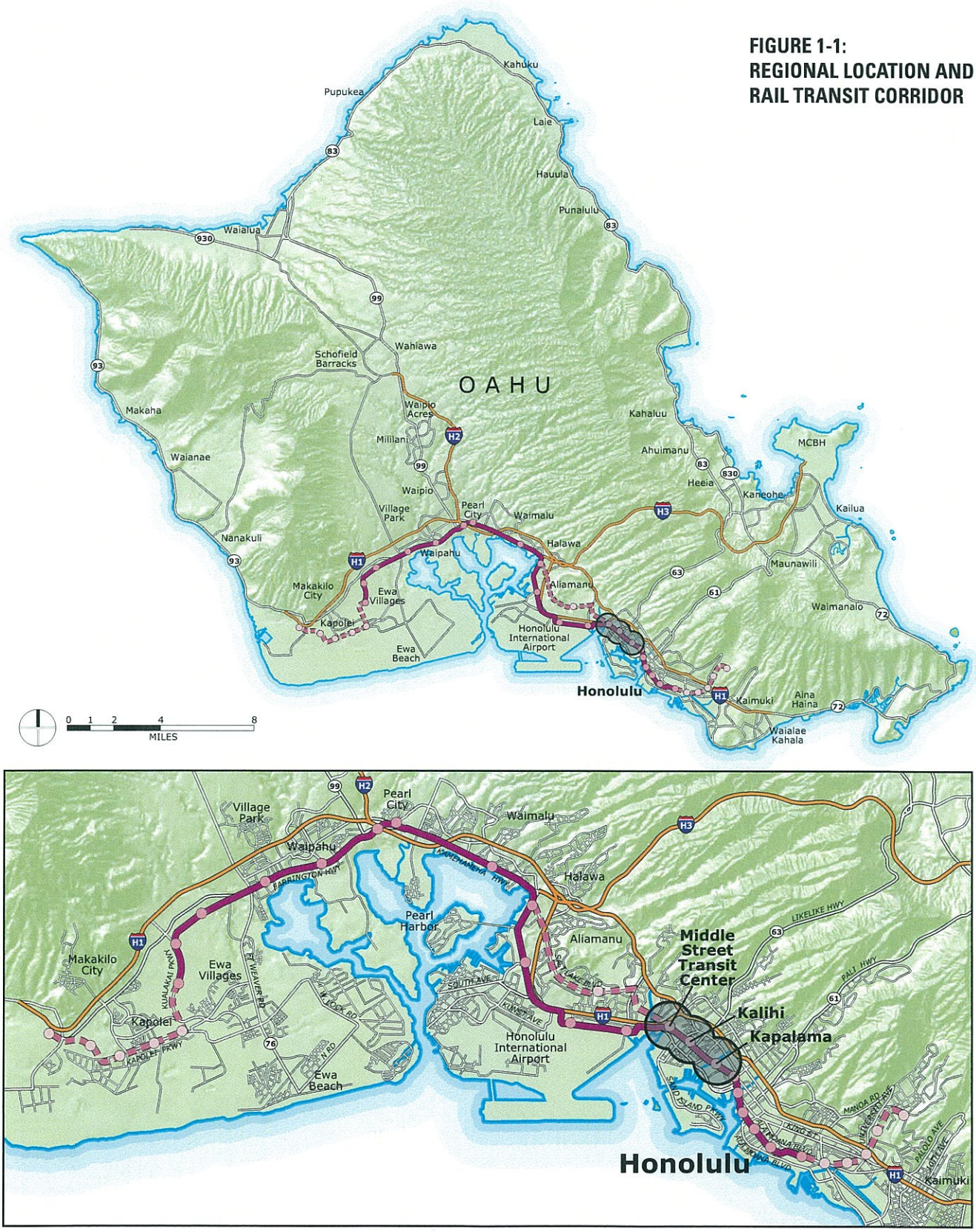
ISLAND PHOTO COLLECTION

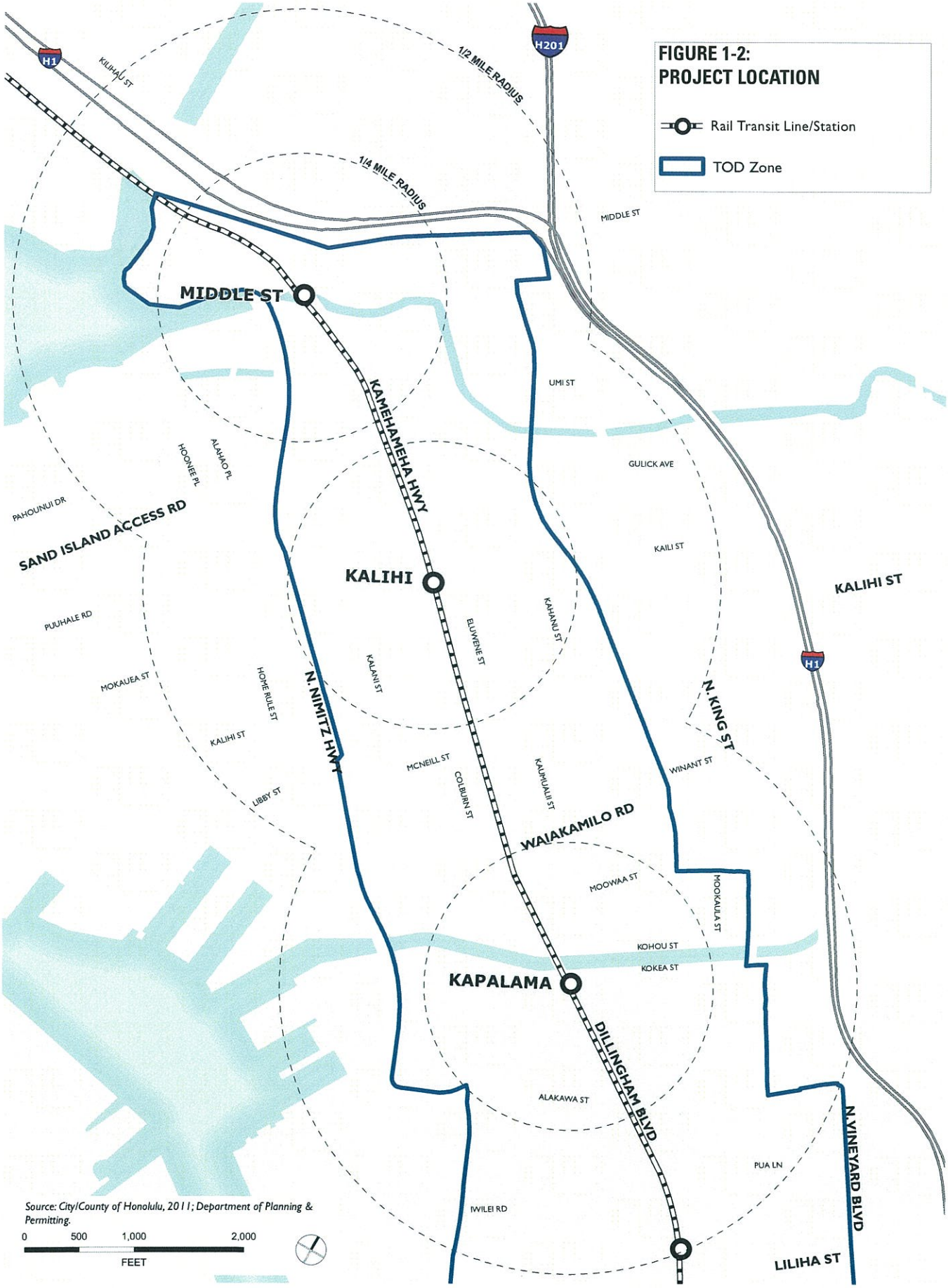


COLLECTION OF ROBERT C. PAOA

TOD is not a new concept in Honolulu. Private transit operators developed real estate and used the profits to subsidize transit operations beginning in 1901. Today, many Kalihi residents continue to utilize transit to get to and from work, school, and other destinations.

FIGURE 1-1: REGIONAL LOCATION AND RAIL TRANSIT CORRIDOR





Source: City/County of Honolulu, 2011; Department of Planning & Permitting.

1.3 Corridor Vision and Planning Principles

A community vision and a set of guiding principles emerged from the early public participation activities, including the survey and community visioning exercises, where community members described their aspirations for Kalihi once rail has been introduced. During Advisory Committee meetings and a subsequent workshop, community members further refined and expanded on the vision and principles. The vision and principles provide a foundation for all components of the TOD Plan, from the land use and transportation framework to more detailed policies and guidelines.

COMMUNITY VISION

Kalihi will be a livable urban community with a balance of employment, residential, and recreational uses that enjoy high-quality transit access and reflect the area's central location and rich cultural heritage. Neighborhoods will be pedestrian- and transit-friendly, where children walk to school, parents shop for basic goods near their homes, and community members enjoy access to good jobs, good food, safe streets, and quality open spaces, housing, and services.

Revitalized districts in strategic locations, particularly around Kapalama station, will capitalize on the presence of Honolulu Community College, the area's proximity to Downtown, and its natural resources. The community's ethnic, income, age, and small business diversity is maintained and enhanced through a variety of housing, commercial, education, and economic opportunities. The corridor's assemblage of varied districts—Kapalama, Kalihi, and Middle Street—will retain unique identities as they develop and evolve.

Guiding Principles

1. *Revitalize Kalihi into a More Livable Community.* Promote redevelopment/re-use depending on the unique conditions around each station. Invest in the community by enhancing existing facilities and encouraging new development that supports the community vision and capitalizes on transit access.
2. *Maintain and Enhance Diversity.* Enhance the unique character of Kalihi, including its multiple ethnicities, multi-generational households, small "mom and pop" businesses, mix of uses, and housing affordability. Address concerns about maintaining the affordability of housing, small businesses, and industrial/warehouse uses.
3. *Improve the Quality of Public Spaces.* Integrate the rail stations into their surroundings; improve overall streetscapes, including sidewalk improvements/provision, trees and landscaping, new streets to provide better walking connections (particularly mauka-makai connections), and undergrounding of utilities; provide safe and accessible parks and open spaces.
4. *Improve Connections to the Waterfront.* Improve access to Sand Island Park and Keehi Lagoon Park, and enable safe and comfortable pedestrian crossing of Nimitz Highway. Enable pedestrian and bicycle access to and views of the waterfront, where feasible.
5. *Create a Convenient and Accessible Transportation Network.* Create a convenient transportation system that integrates bus and rail transit, bicycle facilities, pedestrian connections, and adequate off-street parking. Provide a consistent set of amenities in and around each rail station (e.g., adequate lighting, bicycle parking) to ensure safety and meet basic service needs.
6. *Increase Public Safety.* Add lighting, find solutions for the homeless population, abate graffiti, encourage new residential and active uses that provide "eyes on the street," and offer programs for youth to ensure that community members feel safe and that streets are clean and attractive.

Overall Concept

Figure 1-3 illustrates the vision and guiding principles for the Kalihi Neighborhood TOD Plan, including generalized land uses, key destinations, views, and connections. Each of the components is explored in further detail in subsequent chapters and illustrations; a station-by-station summary is described here:

- **Middle Street Transit Center:** The Middle Street area is identified as a major multi-modal hub where residents from neighborhoods not served by rail transit can transfer from bus to rail to get Downtown, to the airport, and to other destinations along the rail line. Access to Keehi Lagoon Park and a new proposed waterfront park are improved through a new waterfront promenade. Vital commercial and industrial uses are preserved makai of Nimitz Highway. In the long-term, the plan envisions a revitalized district, catalyzed by the possible transformation of the Oahu Community Correctional Center site.
- **Kalihi:** The scale and character of uses around the Kalihi station are largely maintained, with a mix of industrial and commercial uses makai of the station and primarily residential uses mauka of the station. However, a greater mix of uses is envisioned along Dillingham Boulevard in order to provide transit riders with an array of shopping choices and services. In addition, new higher-density housing and rehabilitation of units in disrepair is encouraged in the residential neighborhood. New uses and public services accommodate the needs of seniors, children and families, and a multi-cultural community.
- **Kapalama:** The most transformative vision for TOD in Kalihi is a new high-intensity mixed-use Kapalama district with residences, public facilities, jobs, and neighborhood shopping services. It creates an opportunity for new housing within close proximity to Honolulu Community College. A new linear park/promenade along Kapalama Canal creates a new open space and pedestrian connection for the neighborhood. New streets and paths break up large blocks in Kapalama and improve accessibility to Kapalama station and future uses.

The vision and guiding principles support new uses, amenities and improved connectivity, while maintaining the affordability and diversity of this unique community.

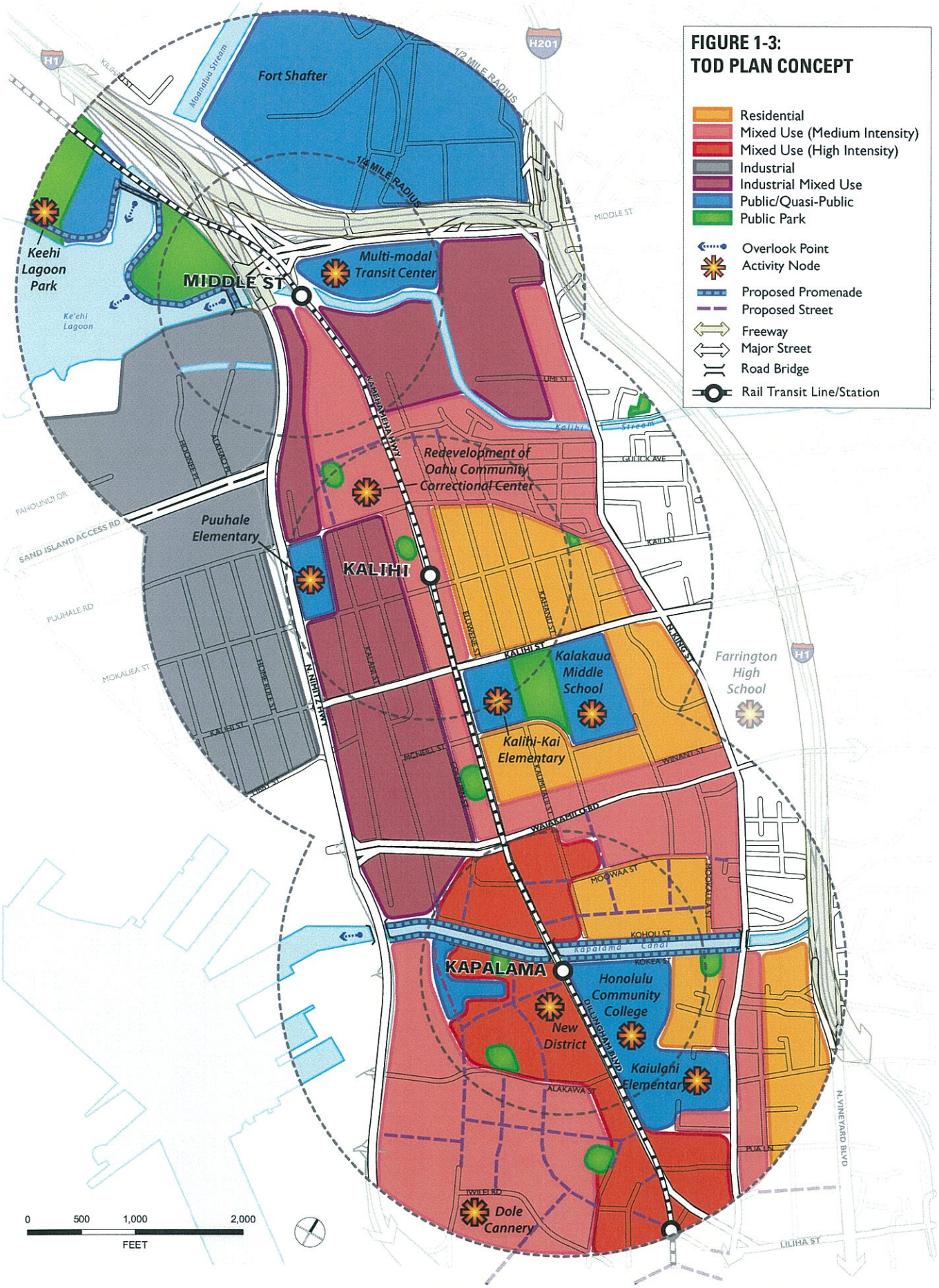


FIGURE 1-3:
TOD PLAN CONCEPT
Residential
Mixed Use (Medium Intensity)
Mixed Use (High Intensity)
Industrial
Industrial Mixed Use
Public/Quasi-Public
Public Park
Overlook Point
Activity Node
Proposed Promenade
Proposed Street
Freeway
Major Street
Road Bridge
Rail Transit Line/Station
Fort Shafter
1/2 MILE RADIUS
1/4 MILE RADIUS
Moanalua Stream
Keehi Lagoon Park
Ke'ehi Lagoon
MIDDLE ST
Multi-modal Transit Center
Redevelopment of Oahu Community Correctional Center
Puuhale Elementary
KALIHI
Kalakaua Middle School
Kalihi-Kai Elementary
Farrington High School
KAPALAMA
Honolulu Community College
New District
Kaiulani Elementary
Dole Cannery
Kalihi Stream
Kapalama Canal
KAMEHAMEHA HWY
N. NIMITZ HWY
N. KING ST
DILLINGHAM BLVD
N. VINEYARD BLVD
SAND ISLAND ACCESS RD
PUUHALE RD
PAHOUNUI DR
MOKAUEA ST
KUHIO HWY
LILIHA ST
0 500 1,000 2,000
FEET

1.4 Planning Context: Related Plans and Policies

While the focus of the Kalihi Neighborhood TOD Plan is to create new policies to promote TOD, the plan also functions alongside other policy and planning documents and associated implementing ordinances and rules as follows. (Transportation, parks, and infrastructure policy documents are described in their respective chapters.)

City and County of Honolulu General Plan

The General Plan establishes goals and policies to guide planning and development on Oahu. Prepared in 1977 (and amended several times since), the General Plan calls for rapid transit in an exclusive right-of-way from Ewa to Hawaii Kai. The TOD Plan also carries forward many of the General Plan's other policies including those related to a diverse economy, pedestrian and bicycle facilities, affordable housing, adequate public facilities/services, well-designed buildings and public spaces, community health, and educational opportunities.

Primary Urban Center Development Plan

Adopted in 2004, the Primary Urban Center Development Plan (PUCDP) is a policy guide for the development decisions and actions required to support expected growth in Oahu's most populous region. The PUCDP supports rapid transit for an east-west corridor and promotes transit-oriented development. It also recommends developing existing and new neighborhood centers: central places where people gather for shopping, entertainment or recreation, and which entail pedestrian and park improvements.

The PUCDP supports pedestrian improvements—prioritizing routes along the canals and Dillingham Boulevard—including a connected sidewalk network, crosswalks, curb extensions, pedestrian median refuges, broad promenades, pocket parks, shade trees, street furniture, and adjustment of traffic signal phasing. It also supports the continuation and enhancement of commercial and industrial uses in the Kalihi and Kapalama areas (makai of the stations), calling for appropriate noise and visual mitigations where located near residential and other sensitive communities.

Land Use Ordinance

The Land Use Ordinance regulates land use, lot size, building heights, setbacks, and building area regulates the use, size, and character of development in the city.

National and State Registers of Historic Places

The National Register of Historic Places (NRHP) is the United States federal government's official list of districts, sites, buildings, structures, and objects deemed worthy of preservation. In addition, the State Historic Preservation Division of the Department of Land and Natural Resources maintains a statewide Inventory of Historic Properties throughout Hawaii and works to preserve and sustain reminders of earlier times which link the past to the present. The TOD Plan covers properties on both registers.

Affordable Housing Rules

The City's inclusionary housing rules (Amendment of the Affordable Housing Rules for Unilateral Agreements) require residential projects of ten or more units seeking a zone change to provide affordable units below market rate. It stipulates that approximately 30 percent of the total number of dwelling units should be sold or rented to low and moderate income households. (The actual final percentage depends on the mix of unit types—units with two or more bedrooms are given more weight than studio and one-bedroom units.) The Rule also offers incentives for TOD housing. In addition, in-lieu fees may be paid to satisfy the affordable housing requirement for projects totaling 100 units or fewer. The City is pursuing new affordable housing requirements for residential projects of ten or more units not seeking a zone change.

Kalihi-Palama Action Plan

Prepared in 2004, the Kalihi-Palama Action Plan provides a vision for the future of the neighborhoods in the Kalihi-Palama area (8,500 acres between the coastline and the ridgeline) and a series of actions that would improve quality of life for residents, businesses, and visitors. The plan presents a vision statement, which reflects on the area's multi-cultural heritage and natural beauty. This Action Plan will continue to apply to the Kalihi corridor and is generally consistent with the Kalihi Neighborhood TOD Plan.

Specific recommendations and programs include:

- Revitalize existing buildings and redevelop vacant lots (into off-street parking facilities or park space).
- Improve Dillingham Boulevard with the addition of pedestrian and bike paths, and infrastructure upgrades, including undergrounding of utilities.
- Develop a "college town" around HCC with dormitories and commercial establishments that cater to students (e.g., copy services, dining), as well improvements to Kokea Street.
- Improve Kapalama Canal, including clean-up, preservation, and construction of trail amenities.
- Redevelop the Oahu Community Correctional Center as a community gathering place, such as a multi-cultural marketplace.
- Maintain Dillingham Boulevard and Waiakamilo Road area as major commercial shopping areas and limit big box stores to the Iwilei area.
- Improve existing open space (addressing concerns about insufficient lighting, homeless, and vandalism) and develop new open space to rectify park deficiency.
- Improve roadways and streetscapes, including adequate and ADA-compliant sidewalks, street lighting, street trees, landscaped medians, drainage systems, on- and off-street parking, and bus stops with a shelter, benches, and safe setbacks from moving vehicular traffic.
- Revitalize neighborhoods by rehabilitating deteriorated housing and encourage mixed-use development.
- Revitalize industrial uses and improve access for pedestrians makai of Dillingham, particularly for students at Puuhale School and residents, until residential uses transition to industrial or other uses.
- Encourage innovative high-tech and manufacturing "maker" businesses to preserve the area as a job center.

1.5 Plan Organization

Following this introduction, this report is organized as follows:

- **Chapter 2** describes the proposed land uses and potential build out of the plan, including the land use classification system, maximum building heights, and building density/intensity.
- **Chapter 3** describes the circulation plan and mobility strategy, including a set of improvements to create a safe, convenient transportation network for various travel modes.
- **Chapter 4** illustrates improvements to the public realm, including open space and streetscapes. It also includes recommendations for urban design measures that can help achieve the community vision of pedestrian-oriented station areas and community safety.
- **Chapter 5** discusses improvements to public facilities and services, specifically infrastructure systems (water, sewer, and drainage), affordable housing and social services, and other community services.
- **Chapter 6** provides a consolidated implementation program, including zoning and land use regulations, a responsibility matrix, phasing, and financing options.

Existing big box stores with large surface parking lots and warehouse uses, particularly in the Kapalama station area, offer opportunities for repositioning and redevelopment as mixed-use developments with residential, retail, and/or office components.

2 LAND USE

This chapter outlines the land use strategy that will enable development of the Dillingham Boulevard corridor into a series of vital mixed-use destinations that support transit ridership with expanded residential, retail, employment, and educational opportunities, as well as enhanced community services for existing and future residents. The chapter identifies the location and extent of proposed new land uses, presents a classification system for future land uses, and estimates development potential to help anticipate the implications of land use changes on circulation, infrastructure, and public facilities and services. A summary of the market demand study and analysis of constraints (economic and environmental), which served as the basis of the land use framework, is also provided in this chapter.

Kalihi's identity is reflected in part by its diverse range of land uses, including homes, independent small businesses, warehouses and manufacturing, and public spaces with great potential.

Industrial and warehouse uses, including wholesalers, self-storage, and manufacturing, are the most prevalent uses in the Kalihi corridor, and particularly in the Middle Street (top, middle) and Kapalama station areas (bottom).

2.1 Context

Kalihi residents already rely on transit extensively, compared with residents who live in other parts of the island. Particularly around the Kalihi station area—which accounts for nearly all the housing units in the corridor—the small-block grid pattern and dense mix of retail, employment, and residential uses support transit ridership by providing destinations that are a convenient walk to transit.

The Middle Street station area is less conducive to local transit ridership since blocks are large, streets often dead-end, and commercial and retail destinations are fewer. However, the presence of the transit center provides an important bus transfer hub where many bus lines intersect. The Oahu Community Correctional Center currently limits the desirability of the neighborhood for new development.

The Kapalama station area today has low-intensity, large floor plate buildings, underutilized large blocks, and missing sidewalks in many locations. It has the potential to be transformed into a vibrant high-intensity, walkable mixed-use district, in which Kapalama Canal becomes a public amenity and Honolulu Community College serves as an educational hub.

Achieving the vision for the entire Kalihi planning area will require new streets to improve connections to the rail stations, and the expansion of residential uses to create a critical mass of residents. It will also require the development of retail and office/business incubator uses that "activate" the streets during the daytime, as well as the evening, and new parks, open spaces and public facilities that make the district livable.

Existing Land Use

As illustrated in Figure 2-1, the Kalihi corridor currently encompasses a diverse range of land uses. The Middle Street station area is comprised primarily of industrial and warehouse development and public uses. The Fort Shafter Army base and a series of on- and off-ramps comprise much of the land ewa of the station. There are a range of businesses related to shipping, sheet metal, and airport operations, but also food production (e.g.

Love's Bakery) and wholesale/distributors. There is also some large-format retail development, including Airgas and Marukai Wholesale Mart. The Oahu Community Correctional Center and the Laumaka Work Furlough Center are located on either side of Dillingham Boulevard between the Middle Street and Kalihi stations.

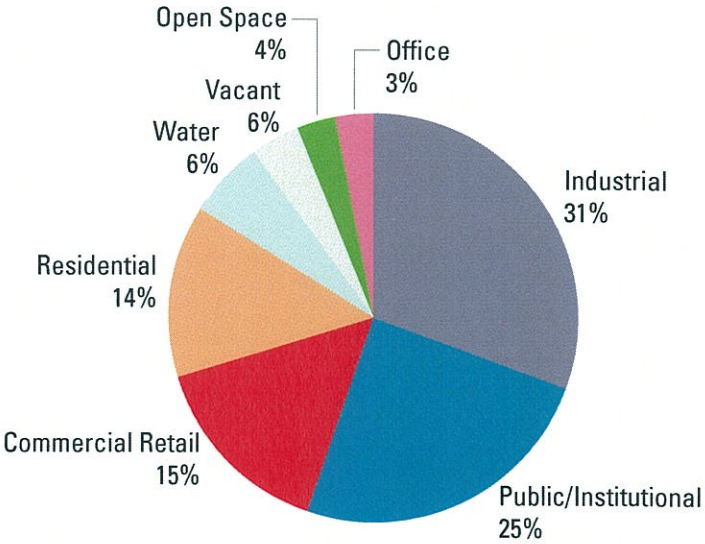
The Kalihi station area has two distinct characters: makai and mauka of Dillingham Boulevard. Makai of Dillingham, there are a range of uses from engineering offices/machine shops, food industries and warehouses to single-family residential homes. Mauka of Dillingham Boulevard, land uses are generally residential, with some stores and auto-related uses interspersed. Along Dillingham Boulevard, there are a range of small commercial buildings, including fast food, gas stations, offices, banks, and auto uses (e.g., sales and repairs). Notably, nearly all housing units within the three-station planning area are located around the Kalihi station. Most residences are two-story single-family homes with carport parking, though small and mid-size apartment buildings are also located throughout the neighborhood. The Kalihi station area is also home to a park and an elementary and middle school on Kalihi Street.

The Kapalama station area is characterized by retail and industrial/warehouse uses, as well as the presence of Honolulu Community College. There are several older retail buildings and shopping centers along Dillingham Boulevard with small and medium-sized tenants and surface parking. A range of retail services are provided, including restaurants, fast food, groceries, karaoke clubs, gas stations, self-storage, and student-oriented services. Makai and mauka of Dillingham Boulevard are commercial and warehouse uses, including trucking, import, and woodworking businesses, as well as hardware stores and contractor supplies, generally housed in one- or two-story buildings.

In the entire Kalihi ½-mile corridor, industrial uses represent the largest land area, in terms of both acreage and building square footage. These uses comprise 31 percent of the land area with 6.2 million square feet of building area. Public/institutional uses, such as the Honolulu Community College campus and the Oahu Community Correctional Center, represent a quarter

The Kalihi station area reflects a patchwork of uses, where industrial and commercial uses are interspersed with residential homes.

CHART 2-1:
EXISTING LAND USE, PERCENT BY ACRES



Note: Acreages exclude streets and other rights-of-way.

Source: City/County of Honolulu, Department of Planning and Permitting, 2008; State of Hawaii, 2011; Dyett & Bhatia, 2011.

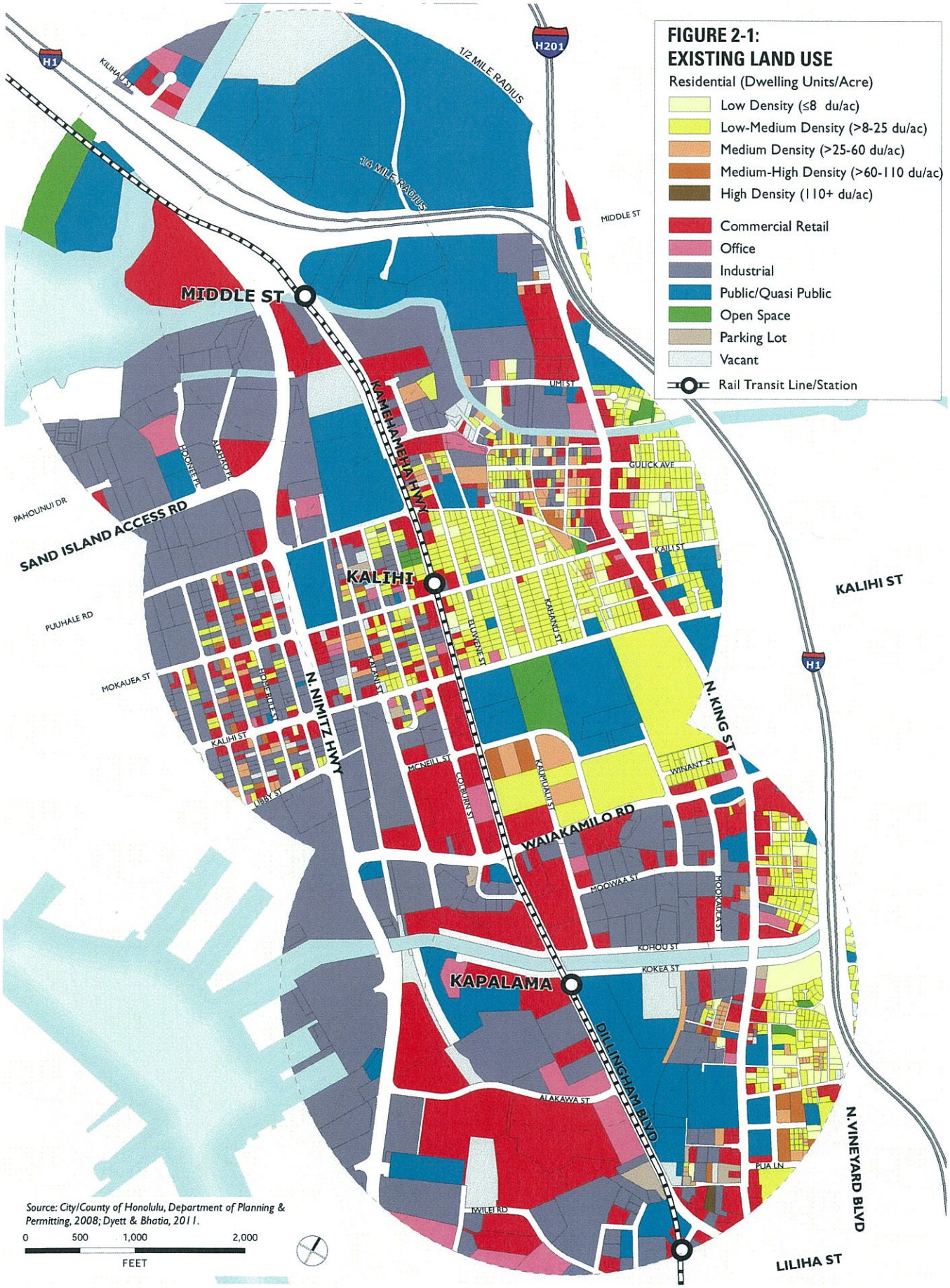


FIGURE 2-1:
EXISTING LAND USE
Residential (Dwelling Units/Acre)
Low Density (≤8 du/ac)
Low-Medium Density (>8-25 du/ac)
Medium Density (>25-60 du/ac)
Medium-High Density (>60-110 du/ac)
High Density (110+ du/ac)
Commercial Retail
Office
Industrial
Public/Quasi Public
Open Space
Parking Lot
Vacant
Rail Transit Line/Station
1/2 MILE RADIUS
1/4 MILE RADIUS
H1
H201
KILIHAU ST
MIDDLE ST
MIDDLE ST
KAMEHAMEHA HWY
UHI ST
GULICK AVE
KAILI ST
KALIHI
KALIHI ST
KALIHI ST
PAHOUNUI DR
SAND ISLAND ACCESS RD
PUUHALE RD
MOKAUEA ST
N. NIMITZ HWY
N. KING ST
WINANT ST
MCNEILL ST
WAIAKAMILO RD
MOOWAA ST
KOHOU ST
KOKEA ST
KAPALAMA
DILLINGHAM BLVD
ALAKAWA ST
N. VINEYARD BLVD
PUA LN
IWILEI RD
LILIHA ST
Source: City/County of Honolulu, Department of Planning & Permitting, 2008; Dyett & Bhatia, 2011.
0
500
1,000
2,000
FEET

of the ½-mile area, while commercial uses comprise 15 percent. Residential uses comprise 14 percent of the ½-mile area–approximately 3,700 housing units. Only two percent of the area is devoted to open space/parks. Office uses are also quite limited, representing just two percent of the land area.

Opportunity Sites

Although many uses in the Kalihi corridor may remain the same for years following the arrival of rail, there are sites around the stations that may be appropriate for redevelopment or revitalization in the short- (0 to 5 years), medium- (5 to 10 years), or long-term (10 to 25+ years). While buildings on some sites may be demolished and rebuilt from the ground up, others may be adaptively reused or improved.

Potential development or "opportunity" sites are those non-historic properties that are vacant or considered to be underutilized due to low building intensities or low building value relative to land value, or where buildings are vacant or in disrepair. In addition, stakeholders and City staff identified several sites during the initial community outreach and existing conditions analysis phases that have potential for transit-oriented development. These sites are the focus for transit-related improvements to sidewalks, streets, landscaping, and other amenities that can encourage walking, biking, and transit use.

The Kapalama station area has the most opportunities for redevelopment given vacant land, low-intensity warehouse uses, and consolidated ownership by Kamehameha Schools, which allows for easier lot assembly. There are also opportunity sites in the Middle Street station area, although many of these sites are constrained by flood risk and a lack of connectivity. Opportunities are more limited in the Kalihi station areas, where lots are small and there are many individual owners.

Opportunity sites may experience changes in use, redevelopment of underutilized sites, or adaptive reuse of existing buildings.

Much of Kalihi's housing stock is made up of single-family homes, though these homes often house multi-generational families or multiple families, or they serve as "care homes" for unrelated individuals. There is a need for additional housing and a variety of housing types to accommodate a range of households.

Market Demand Summary

As part of the first phase of the TOD Plan process, the consultant team assessed the potential market demand for residential, retail, office, hotel, and industrial uses in the ½-mile planning area. Trends and projections for each use analyzed are summarized below. The "Market Opportunities Study: Kalihi Neighborhood TOD Plan," a separate report published in 2011 and available on the City's website, should be consulted for additional details and data sources.

Residential Trends and Projection

Residential construction activity in Honolulu has declined over the past several years, even preceding the national recession. Furthermore, despite high demand for rental housing opportunities in the urban core, there has been almost no new development of market rate rental apartments in years, a reflection of the discrepancy between the values of for-sale condominiums versus those supported by apartment rents.

Currently, many workers commute long distances to jobs Downtown and in Kalihi. Construction of the rail system will result in greater demand for housing close to transit on Oahu as people seek to minimize the distance, time, and cost of travel. Locating this housing in attractive mixed-use neighborhoods and near jobs, stores, and cultural/entertainment amenities can further increase the desirability and market acceptance of housing closer to transit. For example, Downtown will be just a six minute train ride from the Kalihi station and within walking distance of the Kapalama station area.

With three of the system's rail stations, the Kalihi corridor could capture 1.9 percent of new housing in Honolulu in the next 25 years (compared to 1.1 percent without rail), or 4,000 additional units, as shown in Table 2-1. These units will likely be in low- to mid-rise buildings. Generally, we would expect the higher-density developments to occur in the areas immediately around the Kapalama station given the long-term opportunities for large-scale redevelopment of the Kamehameha Schools properties, the planned Honolulu Community College improvements, and proposed improvements to Kapalama Canal (see Chapter 4: Urban Design).

Retail Trends and Projection

Within the Kalihi corridor, there is a significant presence of big box retail adjacent to the Kapalama and nearby Iwilei stations, including Costco, Home Depot, and Best Buy. In addition, there are many neighborhood-serving convenience retail establishments which include supermarkets, pharmacies, and eating and drinking establishments. Much of the existing retail can be characterized as strip retail at low densities. Except for the big-box stores, much of the inventory of retail space was built more than 30 years ago; as a result, much of that space is in need of significant reinvestment or redevelopment.

Based on projected household growth, the market demand study finds that the market could support approximately 465,000 square feet of retail development within the ½-mile radius by 2035. Based on the anticipated breakdown of retail sales, it is likely that a large portion of future TOD-type retail will be in small- to medium-format stores with the largest of these stores being in the 50,000 to 60,000 square-feet range, or about the size of a modern supermarket. Other retail sales, such as clothing stores (non-discount), sporting goods, books and music, gift stores, and eating and drinking establishments, will likely be in smaller formats. A portion of the retail space, perhaps in the ten to 15 percent range, could be supported on the ground floor of mixed-use buildings, with residential or office uses above.

Office Trends and Projections

The vast majority of office space in Honolulu is located Downtown and was built in the late 1980s and early 1990s. Just over 700,000 square feet of office space is recorded in the Kalihi corridor. There continues to be high vacancy rates and weakness in the finance, insurance, real estate, and tourism-related sectors of the office market, while office space catering to tenants with government and military contracts remains fairly steady, according to Hawaii Commercial Real Estate, LLC.

In the near term, there will be limited opportunities for new office development given the high cost of construction, the projected slow recovery in the economy, and the availability of vacant space. As the economy stabilizes over the longer term and more healthy growth patterns return, there will likely be demand for new office space, expected in the following industries: high tech, life sciences/biotech, and defense contracting. This growth in demand will continue to put upward pressure on office rents. The market demand study estimates that approximately 1,600 new office jobs could be generated in the Kalihi ½-mile area between 2010 and 2035, within an additional 575,000 square feet of office space.

TABLE 2-1: MARKET DEMAND PROJECTIONS (WITHIN 1/2-MILE AREA) BY 2035

DWELLING UNITS	RETAIL (SQ. FT.)	OFFICE (SQ. FT.)
+/-4,000	+/-465,000	+/-575,000

Source: Keyser Marston Associates, "Market Opportunities Study Kalihi Neighborhood TOD Plan," May 2011.

Hotel Trends and Projections

Visitor numbers to Hawaii dropped dramatically during the recession, with the Japanese earthquake and tsunami of March 2011 providing another blow. However, the state attracted nearly 7.3 million visitors in 2011, just shy of the 2006 record, according to the Hawaii Tourism Authority. Vacationers spent $12.58 billion in 2011, the second-highest total in state history. Demand for hotel rooms is likely to continue to increase in the future. However, there are currently no hotels in the Kalihi planning area, and the market assessment did not see new tourist-based hotels being developed in Kalihi in the foreseeable future.

Industrial Trends and Projections

Generally, industrial uses would not be considered consistent with TOD due to the large land areas involved and the low intensity of use. However, because many of the existing industrial businesses in the area appear to be economically healthy, there may not be a compelling reason for many of those properties to be redeveloped for any other use in the near term. The market fundamentals for industrial uses are, in fact, relatively healthy, particularly in the Iwilei/Kapalama submarket, where vacancy rates are low. Furthermore, these uses

support jobs near transit, so their continued presence will in fact help meet the planning objectives.

While the rents that might be supported by alternative uses in this area are generally not yet sufficient to justify the costs of new construction in the near term, development will likely occur in the long term. Eventually, rising property values will justify redevelopment of some industrial uses with higher value uses such as office and retail. The Dole Cannery and Gentry Pacific Design Center in Iwilei are examples of large industrial uses that have been converted to other uses.

Major Development Projects

There are several development initiatives already underway in the Kalihi corridor, including Honolulu Community College's proposed Master Plan and a master planning effort by Kamehameha Schools. These development projects could help to catalyze TOD, particularly in the Kapalama station area.

Honolulu Community College

Honolulu Community College's main campus is located along Dillingham Boulevard and Kokea Street. The auxiliary campus area is located one block makai of the main campus. The college has recently prepared a Long Range Development Plan to redevelop its campus. This plan accommodates the Kapalama station on the corner of its main campus in an effort to provide direct access to/from rail. The plan includes new instructional facilities; mauka-makai pedestrian connections through campus and an east-west pedestrian-only mall leading to the rail station; a student union to provide more recreation and activity space for students; and a parking garage that may include ground-floor commercial uses and housing above the parking decks. New buildings, between two and six stories, will increase the overall density of the campus.

Kamehameha Schools

Kamehameha Schools owns many properties around the Kapalama and Kalihi stations and is doing long-term planning efforts for the potential future use of these parcels. Their plan considers redevelopment opportunities, specifically targeting Dillingham, Kokea and Kohou Street waterfronts. New development may comprise a mixed-use approach including mid-rise housing units along Kohou Street, commercial development that could serve existing and new residents and students, as well as maintaining industrial uses. Also, improvements to public amenities and the waterfront are envisioned.

Development Constraints

Development opportunities may be affected by a host of constraints. Market constraints, discussed above, will largely determine the viability of development. Some constraints, such as crime and homelessness, particularly in the Middle Street and Kapalama station areas, may be addressed through new housing and community design measures. Other factors that are specific to individual properties, such as financing availability, environmental constraints, and historic resources are discussed here, while policy measures to alleviate them are identified in Section 2.4.

Economic Constraints

TOD on any significant scale will require redevelopment of existing built properties. Due to poor physical condition or property underutilization, there may be numerous buildings within the corridor that will be good candidates for redevelopment. Station-specific economic constraints that may limit redevelopement are described below:

- **Middle Street Station Area**, with its new bus transfer station that will ultimately provide connections between bus and rail, presents opportunities for TOD. However, since industrial properties appear to be well-tenanted, and because there are environmental constraints in the area, it could be some time before these properties are ready for redevelopment.
- **Kalihi Station Area** is also challenged, though for different reasons. There are small parcels and many owners, making larger-scale reuse and consolidation unlikely. In addition, the area is in need of sidewalks and other pedestrian improvements.
- **Kapalama Station Area** appears to hold the most promise of the three stations areas for successful

TOD in the Kalihi corridor. This area is dominated by two large landowners who already have plans for TOD: Kamehameha Schools and Honolulu Community College. However, the perception of crime presents a critical constraint that will need to be addressed.

From an implementation perspective, TOD can be encouraged if the City, together with the State of Hawaii, is able to adopt a consistent, well-coordinated set of policies that removes regulatory barriers, prioritizes key infrastructure improvements, and (to the extent possible) assists in lowering the costs of, and providing more certainty for, private development. These policies may include flexibility in meeting parking requirements and priority funding for projects in TOD areas.

Environmental Constraints

The environmental constraints evaluated include hazardous materials, flooding, and sea level rise. Fire hazards, erosion, and seismic risk are deemed to be low and are not discussed here. Infrastructure constraints are discussed separately in Chapter 5: Public Facilities, Services, and Infrastructure. Figure 2-2 describes potential environmental hazards that could affect development potential. Further site-specific analysis may be required before development can take place.

Hazardous Materials

Given the industrial nature of much of the Kalihi corridor, hazardous materials, such as lead and petroleum, exist on sites due to past or present activities. The presence of hazardous materials can pose air quality and fire threats, add time and cost to redevelopment, or make certain uses infeasible due to their sensitive users (such as residential units or schools). The State Department of Health Hazard Evaluation & Emergency Response Office maintains an inventory of known and potential hazardous materials sites, including clean up completed to date, additional clean up required, and ongoing assessments. Compliance with this and other State regulations are necessary before embarking on development projects. Federal and State grants are, however, available to help remediate brownfields. Approximate locations are illustrated on Figure 2-2.

Narrow rights-of-way, small lots, and the need for infrastructure improvements are challenges to redevelopment in the Kalihi station area (top, middle). Middle Street and Kapalama (bottom) station areas have larger opportunity sites but will need substantial investment to add new streets and pedestrian amenities.

Flooding

Flooding could occur as a result of storms, sea level rise, or tsunamis in some portions of the ½-mile area, particularly in the Middle Street station area. As of January 19, 2011, the City and County of Honolulu adopted revised Flood Insurance Rate Maps (FIRM). Most of Kalihi and Kapalama station areas were identified as being in Zone X, defined as "areas determined to be outside the 0.2 percent annual flood (500-year) chance."

The Middle Street station area is affected by FIRM mapping, as shown on Figure 2-2. Large portions of the station area have minimum finished floor elevation requirements related to AE zones and AO zones. These zones are subject to a one percent annual flood (100-year). AE zones designate the minimum finished floor elevation (up to 13 feet in the area makai of Nimitz Highway). AO zones designate the required feet a finished floor must be above existing ground (up to three feet around Middle Street station). In addition, flood insurance rates carry a higher premium when in AE and AO zones.

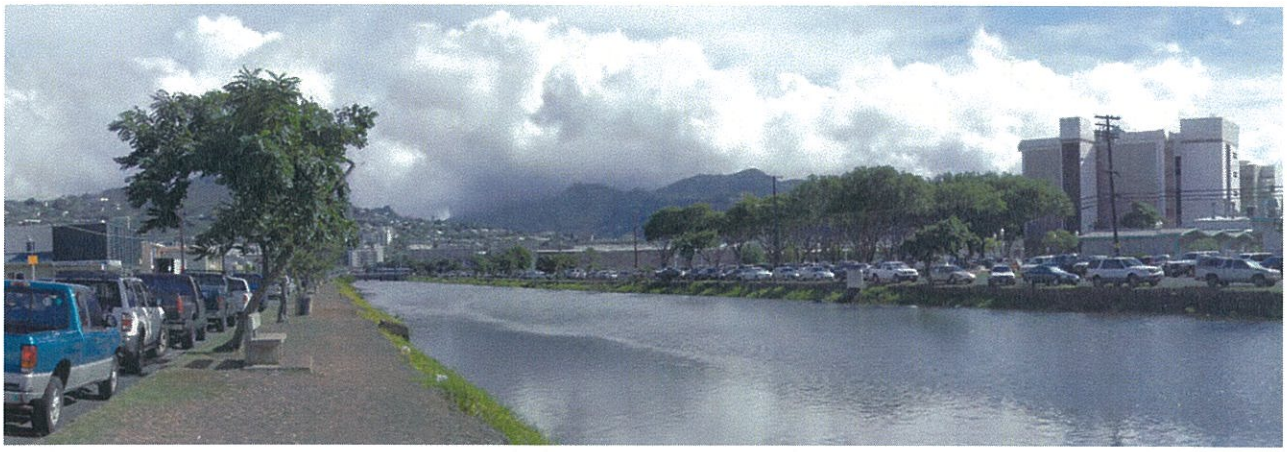
Within potential flood zones, the City requires flood certification to be prepared by a qualified professional to certify that construction of improvements meet the flood hazard district regulations of the zoning code, conform to flood elevations of FIRM, are adequate to resist regulatory flood forces, and do not adversely increase flood elevations or affect flooding on surrounding properties.

Sea Level Rise

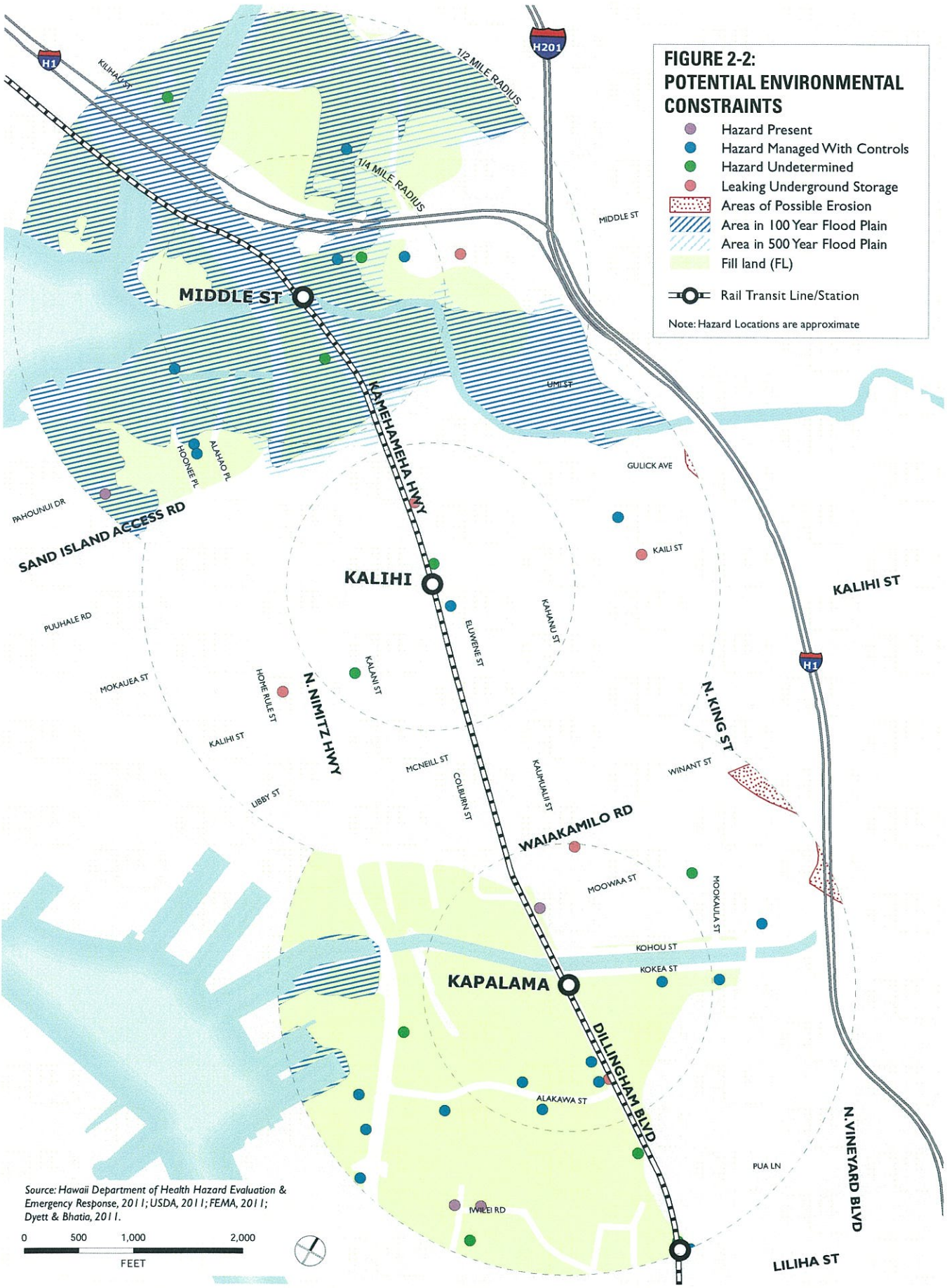
The University of Hawaii Coastal Geology Group researchers predict that up to one meter (just over three feet) of sea level rise may be plausible by 2100. Initial modeling suggests that three feet of sea level rise at mean higher high water height (the average of only the higher of the high water heights) could inundate areas makai of Dillingham Boulevard near the Kapalama station, along Kapalama Canal, and the Middle Street station area makai of Nimitz Highway if no protection measures are put in place.

Sea level rise will need to be addressed on a regional and statewide scale since it has implications beyond the scope of this neighborhood plan. The Oahu Metropolitan Planning Organization has been working to identify and prioritize assets for protection, including Honolulu Harbor and Honolulu International Airport.

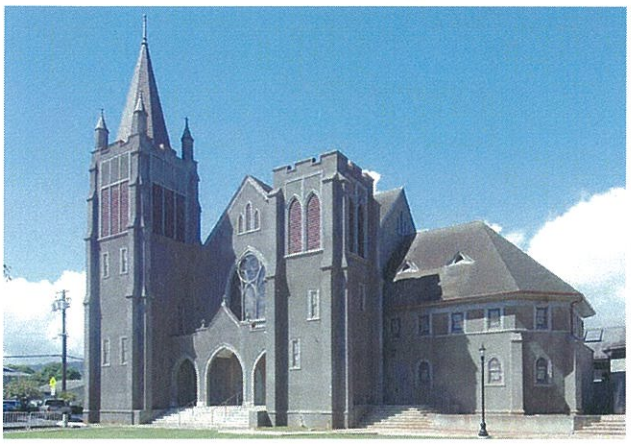
The Kalihi Neighborhood TOD Plan supports mitigation of, and adaptation to, global climate change and sea level rise. Its emphasis on developing walkable station areas and access to transit will have the effect of reducing vehicle miles traveled and the corollary greenhouse gas emissions that are known to contribute to climate change.



Kapalama Canal serves as a drainage facility but could be upgraded with a promenade to control erosion and create a recreational amenity to serve students and staff at Honolulu Community College (at right) and to attract new development and users, as the River Walk in San Antonio and the Vancouver waterfront have done..



Source: Hawaii Department of Health Hazard Evaluation & Emergency Response, 2011; USDA, 2011; FEMA, 2011; Dyett & Bhatia, 2011.



Two historic properties along King Street are the Palama Fire Station (top) and Kaumakapili Church (above).

Historic and Cultural Resources

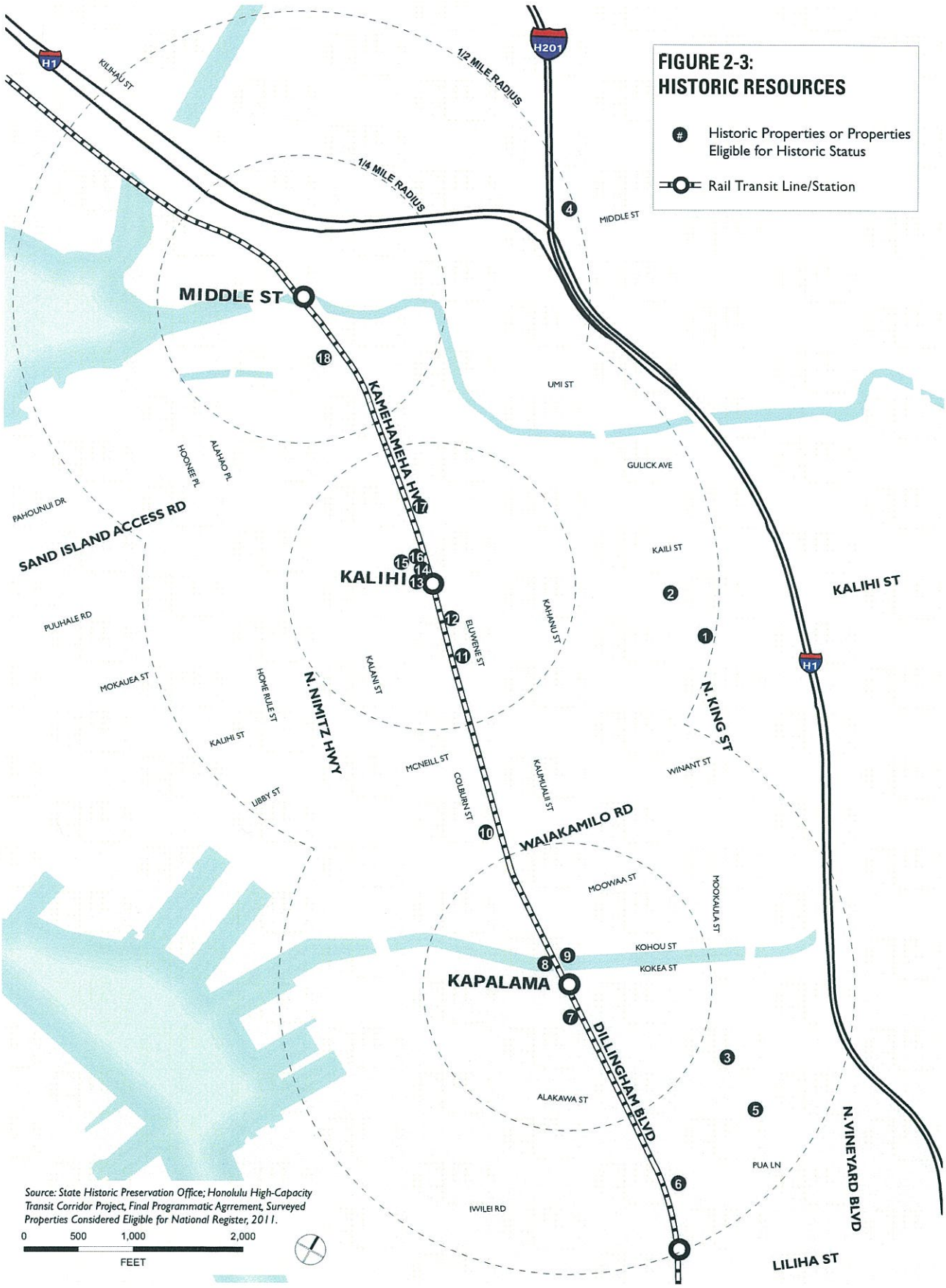
Historic and cultural resources are essential parts of the character and identity of a place. There are several properties within a ½-mile of the stations designated as historic or eligible for listing on the State or National Register of Historic Places, as shown in Table 2-2 and Figure 2-3. Registered historic properties are clustered along North King Street. Several properties that may be eligible for historic status are also shown. The TOD Plan encourages the preservation and reuse of historic resources. Buildings may be preserved and improved through adaptive reuse, allowing new businesses to occupy historic structures.

Cultural resources include properties that yield information important to Hawaiian prehistory or history. According to the Final EIS for the rail project, there is high potential for archeological resources and burial sites in the Kalihi corridor. The State's constitution recognizes the value of conserving and developing historic and cultural property for the public good, declaring historic and cultural heritage of the state among its most important assets. Any significant historical properties—whether architectural, archaeological, or cultural—identified during the development process will have to comply with federal, State, and local preservation laws and regulations.

TABLE 2-2: HISTORIC RESOURCES

MAP ID	NAME	HAWAII REGISTER	NATIONAL REGISTER	ELIGIBLE
1	Farrington High School	√		
2	Kalihi Fire Station	√	√	
3	Palama Fire Station	√	√	
4	Fort Shafter, Palm Circle		√	
5	Kaumakapili Church		√	
6	Kamani Trees			√
7	Quonset Huts			√
8	Lava Rock Curbs			√
9	Kapalama Canal Bridge			√
10	Boulevard Saimin			√
11	Duarte House			√
12	10 Courtyard Houses			√
13	Teixeira House			√
14	Higa Four-Plex			√
15	Pang Craftsman-style House			√
16	Afuso House			√
17	Pu'uhale Market			√
18	Gaspro Store			√

Source: State Historic Preservation Office; Honolulu High-Capacity Transit Corridor Project, Final Programmatic Agreement, Surveyed Properties Considered Eligible for National Register, 2011.



Source: State Historic Preservation Office; Honolulu High-Capacity Transit Corridor Project, Final Programmatic Agrrement, Surveyed Properties Considered Eligible for National Register, 2011.

2.2 Development Framework

The TOD Plan land use framework provides the foundation for development around the stations. The Land Use Plan (Figure 2-4) presents the community vision of a livable urban community with a range of uses that reflect the area's central location and rich cultural heritage, and that support transit ridership.

In the Middle Street station area, the TOD Plan maintains the existing industrial and commercial designations, but allows for a greater mix of residential and commercial uses. The residential neighborhood mauka of the Kalihi station is preserved and enhanced with opportunities for higher-density housing and a greater mix of uses along Dillingham Boulevard. The most substantial land use changes are proposed in the Kapalama station area, where new residential uses along the canal and a new mixed-use district makai of the station are envisioned. Land use designations for the Iwilei station area are shown for reference and described in more detail in the Downtown Neighborhood TOD Plan.

TOD Zone

As described in Chapter 1, the TOD Plan establishes a more focused Transit-Oriented Development Zone ("TOD Zone") within the ½-mile radius of the stations. The TOD Zone encompasses sites that have the most potential to support transit ridership and take advantage of transit proximity. Sites within the TOD Zone can generally be accessed from a station on foot in fewer than ten minutes. As shown in Figure 2-4, the TOD Zone is generally bounded by Nimitz Highway, Middle Street, blocks makai of King Street through the Middle Street and Kalihi station areas, and King Street/ Kanoa Street through the Kapalama station area. Sites within the TOD Zone are subject to TOD Special District regulations (detailed in the Land Use Ordinance) and may be eligible for incentives for development adjacent to transit.

Land use, maximum building intensity, and maximum building heights are identified for sites in the TOD Zone in the subsequent pages. Note that building intensities and heights are designated separately from land use, enabling the three development features to be combined as needed for various sites in the planning area.

Land Use Classifications

Figure 2-4 shows land use designations and Table 2-3 describes these designations, including typical uses. Specific allowed uses will be regulated through a TOD Special District in the Land Use Ordinance, which will also reflect the building intensities and height limits established in this plan. Together with the policies at the end of this chapter, the following table and the land use, height, and intensity diagrams represent adopted City policy.

Active Ground-Floor Frontage and Pedestrian-Oriented Design

The Plan seeks to create concentrated areas of vitality by identifying streets where "active" ground-floor frontages are required. Active uses include uses that allow window shopping and entice customers inside with visible entrances, such as: retail stores, restaurants and cafés, markets, personal services (e.g. salons, banks), bars, theaters, or galleries. Figure 2-5 identifies frontages (generally limited to areas designated as Urban Mixed Use) where active uses are required. Dillingham Boulevard, Kohou Street, and streets near Kapalama station are prioritized since high levels of pedestrian activity and visibility are anticipated in these areas.

While the entire TOD Zone should be comfortable and attractive to pedestrians, Figure 2-5, also indicates areas where the pedestrian experience is top priority. In this area, uses need not be active, but they must exhibit design that anticipates and accommodates pedestrian traffic. All uses, including residential, office or hotel, must be legible as such from the sidewalk, and buildings must be designed at the pedestrian scale. The ground floor should include features such as transparency; clearly-marked entrances; accessible and inviting lobbies; stoops; porticoes; or public plazas. See Chapter 4: Urban Design, Section 4.2 for more detail about pedestrian-oriented design.

"Active" ground-floor frontage may take the form of markets or cafés, where windows, articulation, and signage engage customers, encourage window shopping, and help to create a pedestrian-oriented land use pattern, as depicted on King Street (left) and Fort Street Mall (right).

DYETT & BHATIA

DYETT & BHATIA

Commercial office/lab space may be developed in the longer term and should accommodate new industries with large floor-plate needs and smaller tenant spaces, as shown in these Palo Alto, CA (left) and San Mateo, CA (right) examples.

DYETT & BHATIA

DYETT & BHATIA

Allowing a variety of housing types and densities, such as where townhomes front taller buildings, ensures that high-density districts are livable, vital, and scaled to the pedestrian, as shown in these San Diego, CA examples.

TABLE 2-3: LAND USE DESIGNATIONS

LAND USE DESIGNATION	DESCRIPTION
Medium Density Residential	Allows urban residential development typically in a low- to mid-rise setting with adequate public facilities and infrastructure.
High Density Residential	Allows high-density residential development in an urban setting, typically in mid- to high-rise buildings, with adequate public facilities and infrastructure.
Urban Mixed Use-Medium	A lower intensity classification of Urban Mixed Use to create a medium-density mixed-use district and a transition to lower intensity uses. Supports medium-density housing in a neighborhood setting with a mix of commercial, residential, and public uses. Supports a mix of uses, either horizontally or vertically and single-use projects (i.e., 100% residential or 100% non-residential).
Urban Mixed Use-High	Accommodates a diverse array of uses, including a mix of commercial, residential, live/work, research and development/lab, and public uses immediately adjacent to the Kapalama station and the rail corridor to create a high-density mixed-use district (outside the central business district). Supports a mix of uses, either horizontally or vertically, as well as single-use projects (i.e., 100% residential or 100% non-residential).
Industrial Mixed Use	A mix of commercial and industrial uses allowing a range of business and employment opportunities.
Public/Quasi-Public	Intended for a variety of public and quasi-public uses, including schools, community services, and transit stations.
Public Park	Intended for public open space, parks, recreation, promenades, and greenways for the general community.

Source: Dyett & Bhatia, 2012.

DYETT & BHATIA

DYETT & BHATIA

Mixed-use designations accommodate a range of uses that support neighborhood vibrancy at various times of the day and week.

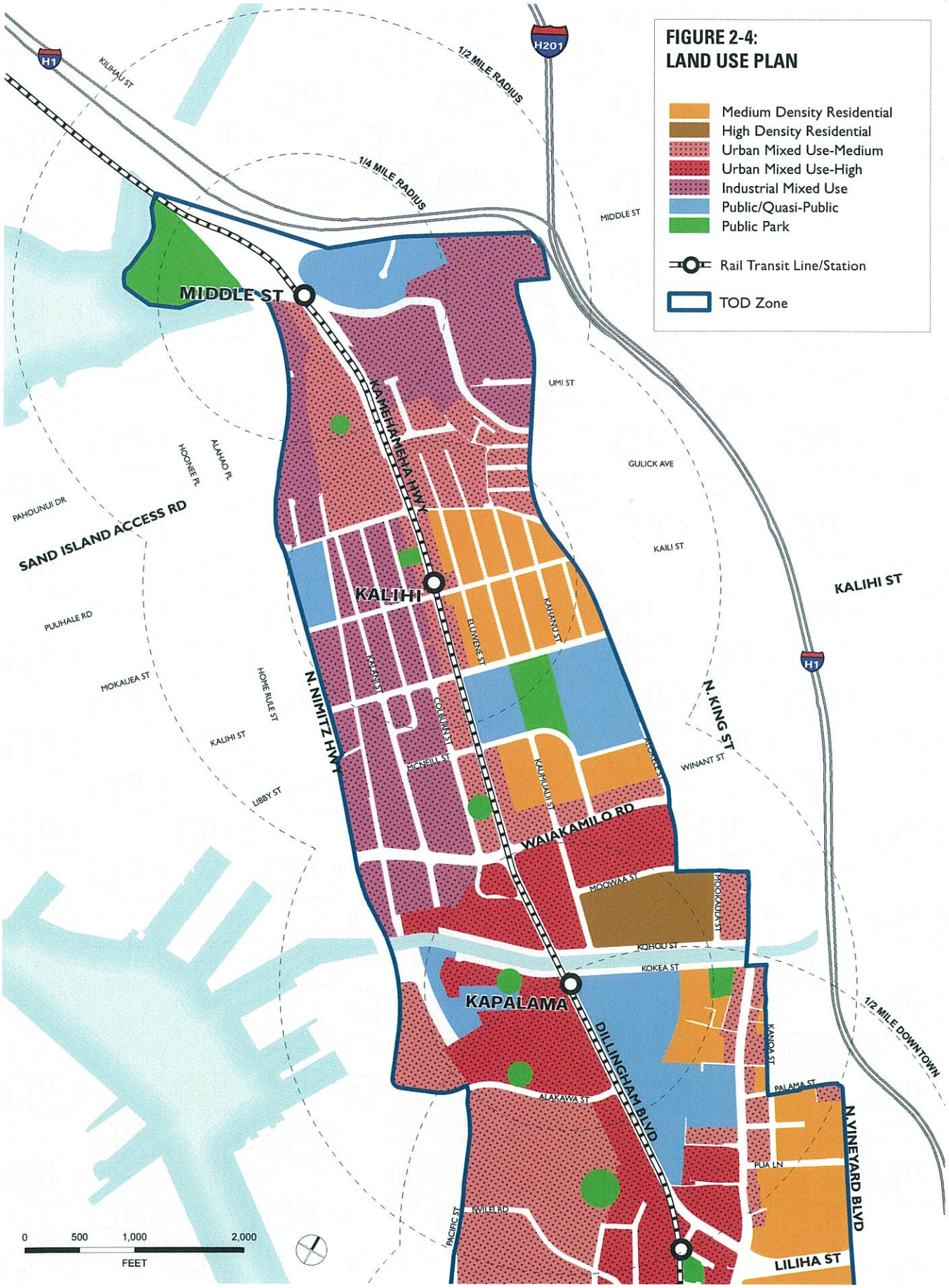


FIGURE 2-4:
LAND USE PLAN
Medium Density Residential
High Density Residential
Urban Mixed Use-Medium
Urban Mixed Use-High
Industrial Mixed Use
Public/Quasi-Public
Public Park
Rail Transit Line/Station
TOD Zone
1/2 MILE RADIUS
1/4 MILE RADIUS
H1
H201
KILIHAU ST
MIDDLE ST
MIDDLE ST
UMI ST
KAMEHAMEHA HWY
GULICK AVE
HOONEE PL
ALAHAO PL
PAHOUNUI DR
SAND ISLAND ACCESS RD
KAILI ST
KALIHI
KALIHI ST
PUUHALE RD
KAHANU ST
BLUWENE ST
KAANI ST
MOKAUEA ST
HOME RULE ST
N. NIMITZ HWY
COLBURN ST
N. KING ST
KALIHI ST
MCNEILL ST
WINANT ST
LIBBY ST
KAUMUALI ST
WAIAKAMILO RD
MOOWAA ST
MOOKAULA ST
KOHOU ST
KOKEA ST
KAPALAMA
1/2 MILE DOWNTOWN
DILLINGHAM BLVD
KANOA ST
PALAMA ST
ALAKAWA ST
N. VINEYARD BLVD
PUA LN
IWILEI RD
PACIFIC ST
LILIHA ST
0
500
1,000
2,000
FEET

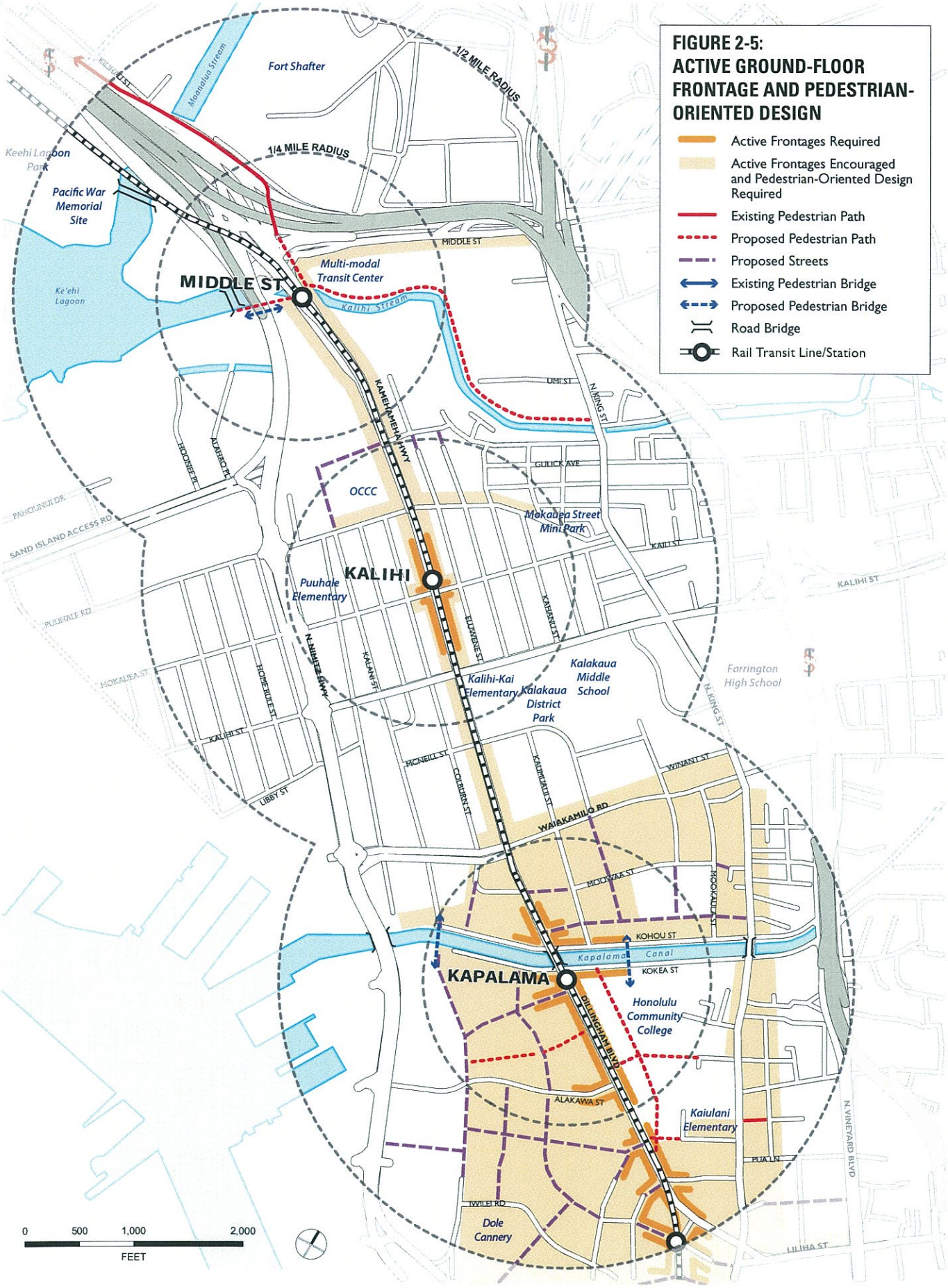
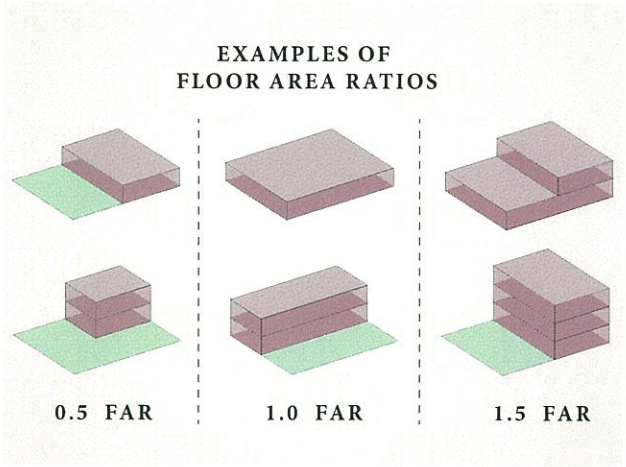


FIGURE 2-5:
ACTIVE GROUND-FLOOR FRONTAGE AND PEDESTRIAN-ORIENTED DESIGN
Active Frontages Required
Active Frontages Encouraged and Pedestrian-Oriented Design Required
Existing Pedestrian Path
Proposed Pedestrian Path
Proposed Streets
Existing Pedestrian Bridge
Proposed Pedestrian Bridge
Road Bridge
Rail Transit Line/Station
1/2 MILE RADIUS
1/4 MILE RADIUS
Fort Shafter
Moanalua Stream
Keehi Lagoon Park
Pacific War Memorial Site
Ke'ehi Lagoon
MIDDLE ST
Multi-modal Transit Center
Kalihi Stream
KALIHI
KAPALAMA
OCCC
Mokauea Street Mini Park
Puuhale Elementary
Kalihi-Kai Elementary
Kalakaua Middle School
Kalakaua District Park
Farrington High School
Honolulu Community College
Kaiulani Elementary
Dole Cannery
Kapalama Canal
KAMEHAMEHA HWY
N. KING ST
KALIHI ST
SAND ISLAND ACCESS RD
PUUHALE RD
MOKAUEA ST
WAIAKAMILO RD
KOHOU ST
KOKEA ST
DILLINGHAM BLVD
ALAKAWA ST
N. VINEYARD BLVD
LILIHA ST
0 500 1,000 2,000
FEET

Building Intensity

Achieving development intensities that create vibrant and walkable communities is a central tenet of TOD. Figure 2-6 illustrates maximum building intensities for the TOD Plan. Existing allowable buildings intensities are attached as an appendix for reference. Intensity is expressed as floor area ratio (FAR), which measures the ratio of building square footage to land square footage. For example, an allowable FAR of 2.0 means that for every square foot of land, a developer may build two square feet of building area. However, this does not necessitate a two-story building that covers the entire site. As shown in the accompanying graphic, there are many different ways to achieve the same FAR.

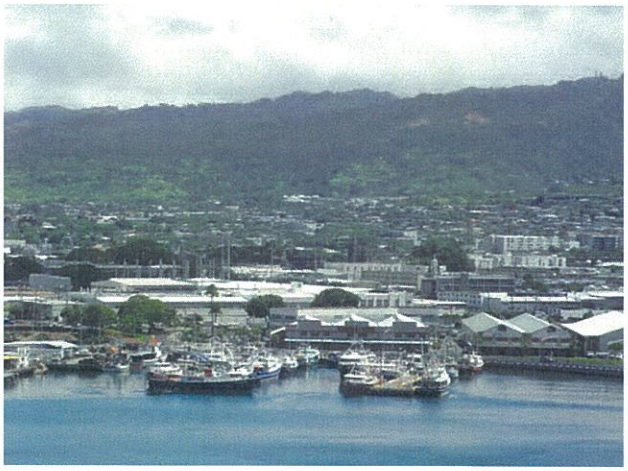


The highest intensities in the TOD Plan are proposed in the Kapalama station area. Allowable intensities decline with distance from the station. Moderate intensities are shown around the Middle Street station, while the lowest intensities are depicted in the residential neighborhood mauka of the Kalihi station. Intensities outside the TOD Zone are based on existing zoning.

Building Heights

Figure 2-7 illustrates proposed maximum building heights in the TOD Plan. These heights, together with FAR, setbacks, building massing, and other site planning requirements (described in the City's Land Use Ordinance) influence the bulk and design of a development. Existing allowable buildings heights are attached as an appendix for reference. The tallest building heights are proposed in the Kapalama station area, stepping down away from the station and toward the waterfront. Building heights are moderately high around the Middle Street station and along Dillingham through the Kalihi station area where a greater mix of uses is proposed.

Per CFR Part 77, the Federal Aviation Administration may require Notification of Proposed Construction or Alteration (FAA Form 7460-1) for structures within the maximum building height limit.



Building heights and intensities will remain fairly low in the Kalihi station area to preserve existing uses and character, while allowing for some revitalization. Building heights and intensities are expected to increase somewhat in the Kapalama and Middle Street station areas given the new mix of uses desired.

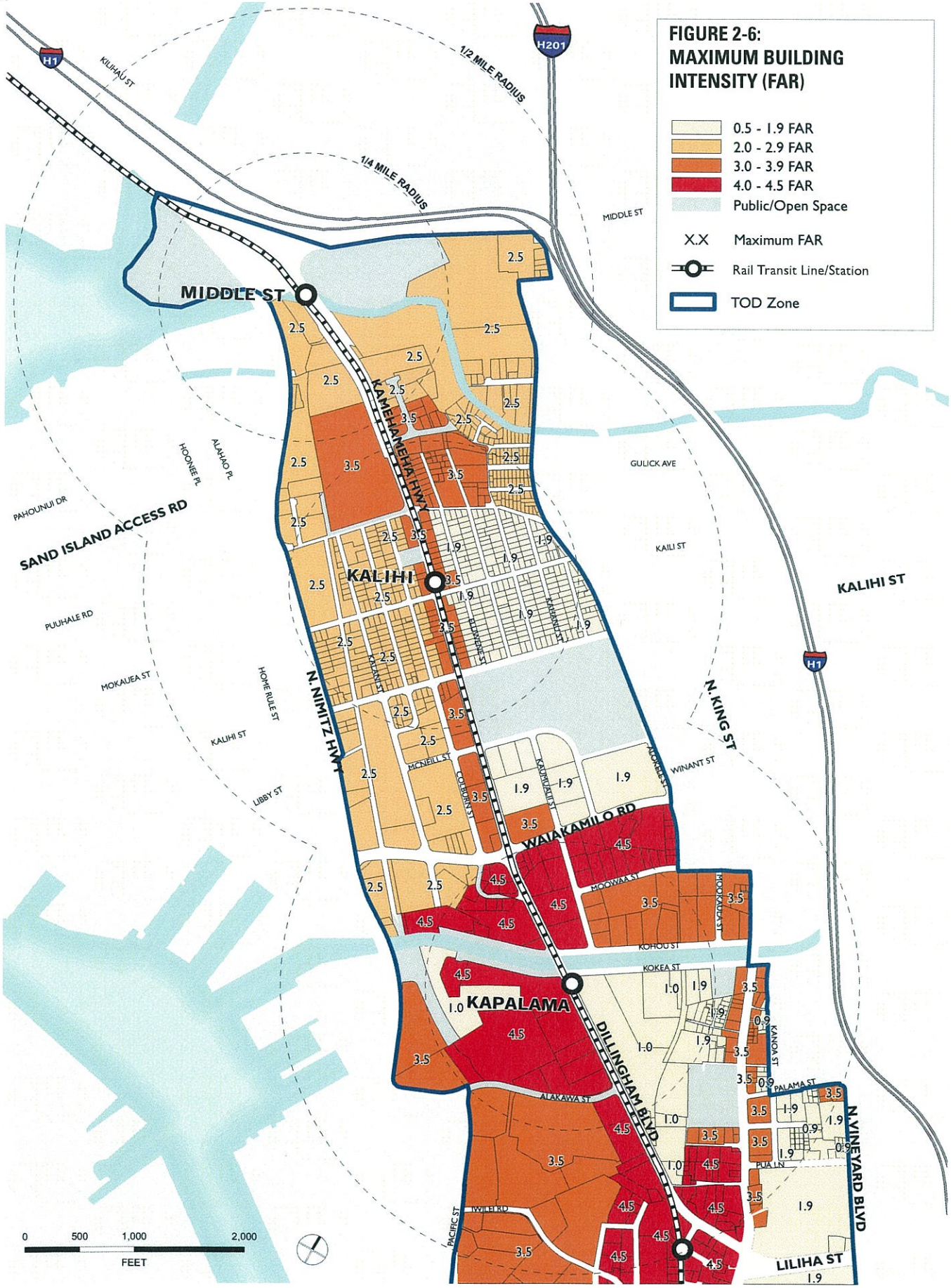


FIGURE 2-6:
MAXIMUM BUILDING INTENSITY (FAR)
0.5 - 1.9 FAR
2.0 - 2.9 FAR
3.0 - 3.9 FAR
4.0 - 4.5 FAR
Public/Open Space
X.X Maximum FAR
Rail Transit Line/Station
TOD Zone
MIDDLE ST
KALIHI
KAPALAMA
LILIHA ST
KAMEHAMEHA HWY
N. NIMITZ HWY
WAIAKAMILO RD
DILLINGHAM BLVD
N. KING ST
N. VINEYARD BLVD
SAND ISLAND ACCESS RD
KALIHI ST
1/2 MILE RADIUS
1/4 MILE RADIUS
H1
H201
0 500 1,000 2,000
FEET

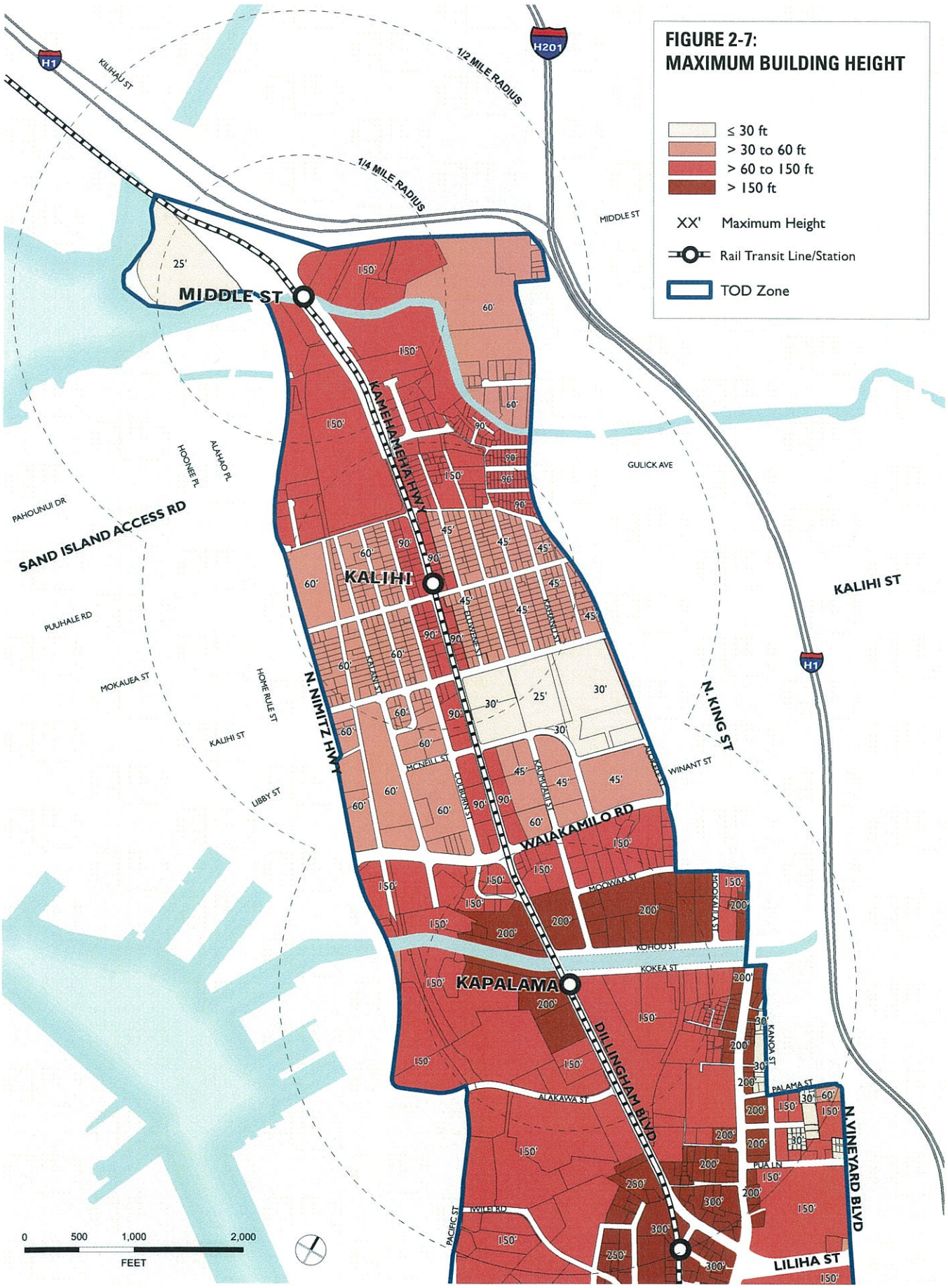


FIGURE 2-7:
MAXIMUM BUILDING HEIGHT
≤ 30 ft
> 30 to 60 ft
> 60 to 150 ft
> 150 ft
XX' Maximum Height
Rail Transit Line/Station
TOD Zone
1/2 MILE RADIUS
1/4 MILE RADIUS
H1
H201
KILIHAU ST
MIDDLE ST
MIDDLE ST
KALIHI
KAPALAMA
LILIHA ST
KALIHI ST
GULICK AVE
SAND ISLAND ACCESS RD
PAHOUNUI DR
HOONEE PL
ALAHAO PL
PUUHALE RD
MOKAUEA ST
HOME RULE ST
KALIHI ST
LIBBY ST
KAMEHAMEHA HWY
N. NIMITZ HWY
N. KING ST
WAIAKAMILO RD
MCNEILL ST
COLBURN ST
WINANT ST
MOOKAUEA ST
KOHOU ST
KOKEA ST
DILLINGHAM BLVD
ALAKAWA ST
KANOA ST
PALAMA ST
PUA LN
N. VINEYARD BLVD
WILE RD
PACIFIC ST
0 500 1,000 2,000
FEET

A three-dimensional computer model was prepared as part of the planning process to analyze how various height and intensity regulations could influence development and to ensure compatibility with existing buildings. Renderings are shown here to illustrate how future buildings may appear. In addition, illustrative drawings show how development consistent with the land use framework, including density and height regulations, could look and feel from a pedestrian's perspective at street level. Since multiple design solutions are possible, these drawings are hypothetical and are not intended to show the exact nature of future development.

View of the Kalihi corridor, looking due north. Building color corresponds to the land use designations on the Land Use Diagram.

View of Kapalama station area, looking north.

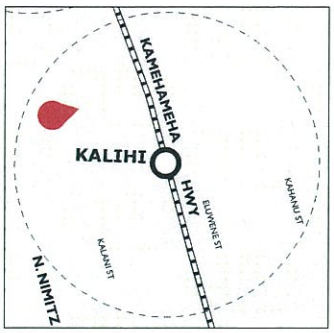
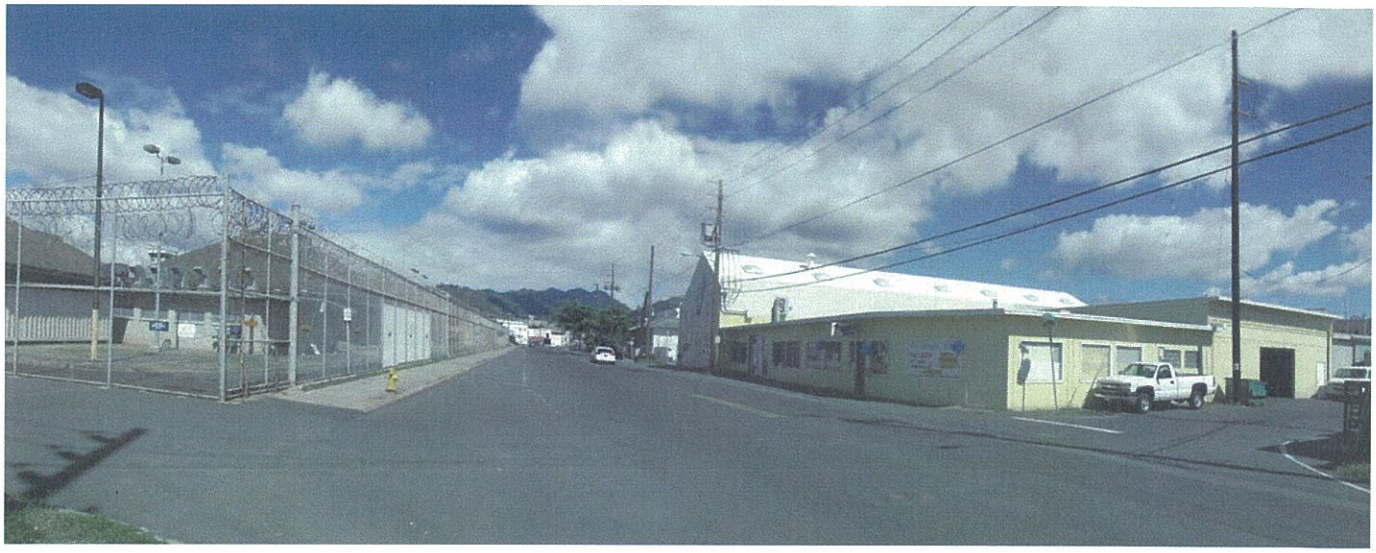


FIGURE 2-8:
ILLUSTRATIVE VIEW, LOOKING MAUKA FROM PUUHALE ROAD



Existing

Conceptual illustration of Puuhale Road in the Kalihi station area. Enhanced streetscapes and crosswalks within mixed-use development transform the area into a busy, walkable district with a mix of business and employment opportunities, residences, and neighborhood-serving retail.

2.3 Potential Development

Methodology

Development potential is summarized in terms of the building floor area and housing units that can be expected with implementation of the TOD Plan, as well as an estimated number of new residents and jobs. The potential is calculated based on the existing/future land uses shown on the land use maps, assumptions for intensity and use mix, lot coverage and allowances for new streets and open space, the likelihood of redevelopment (i.e., vacant sites are assumed to be more likely to redevelop than underutilized sites), and existing development on opportunity sites that would be lost due to redevelopment.

The three-dimensional diagrams on previous pages and the potential development projections below assume a realistic amount of development over time, as opposed to a maximum permitted by the Plan, as it is unlikely that every site will build out to the maximum intensity permitted. Sites that are currently vacant or have been specifically identified by the City, stakeholders, or property owners are assumed to have a high level of redevelopment potential—about 80 percent of these sites are expected to redevelop. Sites with low densities and/or low building values are illustrated as having a moderate level of redevelopment potential. In general, about 65 percent of the sites that have been identified as opportunity sites are assumed to redevelop over the next 20 to 30 years.

Potential Buildout

Table 2-4 describes potential new development around the rail stations. TOD could result in approximately 6,000 additional housing units (primarily in the Kapalama/Iwilei station area), which translates to 14,500 new residents based on the City's projections for future household size. In terms of non-residential development, TOD could result in a 352,000 square feet increase in retail development and 451,000 square feet of additional office and light industrial development (including lab and R&D space), potentially producing about 1,900 new jobs. Finally, 37 acres of new parks, open spaces, and paths are included in the TOD Plan. These open spaces are discussed in more detail in Chapter 4: Urban Design. In addition, Chapters 3 and 5 review the potential impacts and necessary transportation and infrastructure improvements that will need to be developed concurrently.

These new development values reflect the level of development that can be absorbed from transit-oriented development, based on the assessment of market data and real estate conditions. As described in Section 2.1 above, the market demand analysis estimated that the Kalihi corridor could support +/- 4,000 new dwelling units, +/- 465,000 square feet of retail, and +/- 575,000 square feet of office by 2035. The development potential described here falls within these ranges, while leaving some flexibility in the distribution between the Kalihi corridor and the adjacent Downtown corridor, for which a separate TOD plan has also been prepared.

The planning areas for the Downtown and Kalihi TOD Plans overlap around the Kapalama and Iwilei station areas by approximately 1,200 dwelling units, 13,000 sq. ft. of retail, 4,000 sq. ft. of office/R&D, and eight acres of parks. If the reader is interested in the total development potential for all six stations, the values above must be subtracted out to avoid double counting.

TABLE 2-4: KALIHI TOD PLAN DEVELOPMENT POTENTIAL

	RESIDENTIAL (DWELLING UNITS)	COMMERCIAL RETAIL (SQUARE FEET)	OFFICE/R&D/ LIGHT INDUSTRIAL (SQUARE FEET)	PUBLIC USES/PARKS (ACRES)
Existing Development	3,700	4,196,000	714,000	8.5
Iwilei Station Area (Net New)	*1,012*	*7,950*	*26,676*	*4*
Kalihi Station Area (Net New)	*853*	*90,607*	*193,729*	*9*
Kapalama Station Area (Net New)	*4,088*	*199,086*	*151,792*	*19*
Middle Street Station Area (Net New)	*40*	*54,676*	*79,037*	*4*
TOD Plan (Net New)[1,2]	6,000	352,000	451,000	37
GROSS FUTURE DEVELOPMENT[2]	**9,700**	**4,548,000**	**1,165,000**	**45.5**

1. The planning areas for the Downtown and Kalihi TOD Plans overlap around the Kapalama and Iwilei station areas by approximately 1,200 dwelling units, 13,000 sq. ft. of retail, 4,000 sq. ft. of office/R&D, and eight acres of parks. If the reader is interested in the total development potential for all six stations, these values must be subtracted out to avoid double counting.

2.4 Goals and Policies

As described in Chapter 1, the community vision and guiding principles provide a foundation for all components of the TOD Plan. The goals and policies below provide more detailed objectives and direction to guide City departments and decision-makers implementing the plan through amendments to the Land Use Ordinance, the Capital Improvement Program, or other means. Chapter 6: Implementation provides a summary of responsible agencies and departments.

GOALS

Land Use

LU-G1: Foster vibrant districts that build on the unique character and opportunities of each station area; enhance Kalihi's sense of community, ethnic culture, family-orientation and diversity; and improve quality of life and public safety.

LU-G2: Revitalize the Middle Street station area as a regional hub for multi-modal transportation and waterfront parks, expand uses in the area, and establish a new residential neighborhood between the Middle Street and Kalihi stations, catalyzed by the transformation of the Oahu Community Correctional Center site.

LU-G3: Maintain the character and fabric of the existing residential neighborhood mauka of the Kalihi station, while encouraging new higher-density residential uses, neighborhood-serving retail, and upgrades to existing properties to create a more vibrant neighborhood.

LU-G4: Guide transformation of the Kapalama district into a new mixed-use high intensity/high-rise, pedestrian-oriented neighborhood, capitalizing on its pivotal location adjacent to Downtown/Chinatown and role as the gateway to the Kalihi neighborhood.

LU-G5: Expand housing opportunities with a range of housing types—townhomes, mid-rise, and high-rise—to create a new mixed-income neighborhood in Kapalama with a full range of amenities and services, including parks and open space, a promenade along the canal and a walkable street grid. (Affordable housing policies are described in Chapter 5.)

LU-G6: Establish a TOD Zone that extends approximately a five- to seven-minute walking distance around each station, as shown in Figure 2-4, to foster transit-oriented development, prioritize streetscape and other public realm improvements, and focus community investment.

Building Intensity and Height

LU-G7: Create a varied skyline with the highest heights and intensities in the Kapalama station area and on North King Street, stepping down toward the waterfront, industrial areas, and the Kalihi station area, and rising up, but more moderately, to create a mid-rise node around the Middle Street station.

Economic Development

LU-G8: Enable a wide range of economic activities, from high-tech and lab development in the Kapalama station area to small lot/small businesses development in the Kalihi station area to industrial and commercial industries in the Middle Street station area that capitalize on exceptional access to freeways, the airport, and Sand Island to attract and support harbor- and airport-related businesses.

LU-G9: Retain and foster the growth of Honolulu's small businesses that provide economic and employment opportunities for Kalihi and island residents.

POLICIES

Land Use

MIDDLE STREET STATION AREA

LU-P1: Foster transit ridership at the intermodal station by allowing uses such as cafés and convenience stores that promote vibrancy in the immediate station area.

LU-P2: Coordinate with the Department of Transportation, Department of Land and Natural Resources, and Department of Parks and Recreation to create a waterfront park on the peninsula in Keehi Lagoon and improve public access from the station to existing and future waterfront park space.

LU-P3: Maintain industrial and warehouse uses makai of Nimitz Highway, but permit a wider range of uses—commercial and industrial—through the Industrial Mixed Use designation adjacent to the station. Ensure that new development responds to potential flood risk, as shown on Figure 2-2, consistent with City regulations.

LU-P4: Coordinate and communicate with the Department of Public Safety about the status of the Oahu Community Correctional Center and the potential for consolidation or relocation through a land swap or other means. In the long-term pursue redevelopment of the site into a new mixed-use community that includes a new park, housing, and community services (e.g. medical care).

KALIHI STATION

LU-P5: Allow higher-density residential development and lot consolidation mauka of Dillingham Boulevard within the Medium Density Residential designation, as shown on Figure 2-4, and encourage multi-family housing that can accommodate large household sizes.

LU-P6: Encourage home improvements, particularly mauka of Dillingham Boulevard:

- Continue code compliance and notice to abate on properties in disrepair and out of compliance with City code.
- Improve marketing of City programs, such as the home repair loans, to encourage property improvements.
- Assess the feasibility of a program and process by which property owners could be granted amnesty for a period of time to bring properties up to code without necessitating off-site improvements unrelated to fire and life safety.

LU-P7: Cluster neighborhood-oriented commercial uses such as restaurants, day care centers, and small grocery stores along Dillingham Boulevard to foster a sense of community and vitality around the station. Build on Kalihi's existing character with businesses that are multi-cultural, family-friendly, small, and locally-owned.

KAPALAMA STATION AREA

LU-P8: Promote the development of the Kapalama station area as a mixed-use walkable district with an educational hub at Honolulu Community College and a full complement of uses:

- A residential neighborhood with a range of housing types and affordability levels to accommodate people who work in the Kalihi corridor, Honolulu Community College students, seniors seeking housing near transit, families and professionals working Downtown;
- An employment center focused on high-tech, lab, and research and development uses, as well as spaces for small emerging businesses;
- Local-serving retail, destination shopping (e.g. big box stores) and entertainment activities; and
- New parks and open spaces that balance the high-intensity development and create identity for the district.

LU-P9: Allow a diverse range of retail establishments of any size provided that they are pedestrian-oriented and have active street frontages. Encourage developers to build upon big-box retailers within new, higher-density developments, such as two-story retail or mixed-use retail with offices or residential units on upper floors.

LU-P10: Accommodate parking for big-box retailers and other large commercial uses in parking structures or within new developments to enhance walkability and foster intensity within the TOD area.

LU-P11: Rezone sites to designations consistent with the Urban Mixed Use (High and Medium) designations as shown in the Land Use Plan (Figure 2-4) and classification system (Table 2-3).

ALL STATIONS

LU-P12: Maintain working harbor and port activities and jobs makai of Nimitz Highway.

LU-P13: Permit complementary retail uses and amenities on sites adjacent to or integrated with the rail stations, such as day care centers, food markets, pharmacies, and other daily services.

LU-P14: Require or permit active ground floor uses on key streets consistent with Figure 2-5. Active uses include uses that attract walk-in visitors and have a high degree of visibility (i.e., windows/transparency) from the street, such as retail stores, restaurants, cafés, markets, bars, theaters, personal services, and galleries.

LU-P15: Prohibit new auto-oriented establishments, such as drive-through establishments that create curb cuts and require substantial paved drive aisles.

LU-P16: Promote adaptive reuse of historic buildings and structures and encourage preservation and rehabilitation.

- Provide incentives such as streamlined permitting, tax credits or reductions, additional use allowances, transfer of development rights, and other public or private programs.
- Advertise opportunities for adaptive reuse tax incentives and other benefits on the City's website.
- Except for those concerning health and safety, remove regulatory constraints to preservation—for instance, the cost of upgrading infrastructure and utilities.
- Require future development projects to comply with applicable State and federal historic preservation laws and regulations.

LU-P17: Identify specific park and open space locations in advance of rail operations to ensure that development proceeds in tandem with new open spaces. Proactively locate new parks that meet the design criteria and intent of the open space network (see Chapter 4) through a variety of mechanisms, including but not limited to:

- Acquisition: Use in-lieu fees to purchase properties and construct parks.
- Dedication: Coordinate with developers and property owners in advance of project development to secure good locations for open spaces through dedication and tools such as development incentives and land swaps.
- Easements: Enable public access through permanent easements, while retaining private ownership and maintenance.
- Park Impact Fees: Determine appropriate impact fees on residential and non-residential development.

Building Intensity and Height

LU-P18: Permit maximum building intensities, as defined in the Maximum Building Intensity Diagram (Figure 2-7) and maximum building heights, as defined in the Maximum Building Height Diagram (Figure 2-7).

LU-P19: Focus the planning area's tallest building heights and greatest intensities in the Kapalama district. Taper heights down beyond the immediate station areas.

LU-P20: In the Kalihi station area, allow taller heights along Dillingham Boulevard to support transit access with new uses. Preserve the height and scale of development in the districts mauka and makai of Dillingham Boulevard.

Economic Development

LU-P21: Attract leading edge industries based in technology, medicine/life sciences, engineering, and media that provide good quality jobs with potential for career advancement to the Kapalama station area, where parcels are larger and can accommodate larger floor-plate buildings. Coordinate with local universities and existing businesses to understand the space needs of new enterprises.

LU-P22: Support small spaces and the continuation of small businesses and start-ups by accommodating incubator spaces and multi-tenanted buildings.

LU-P23: Build on the Kalihi corridor's existing industries, such as food-related businesses, wholesalers, craftspersons, and harbor- and airport related activities.

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3 MOBILITY

This chapter outlines strategies for developing an integrated multi-modal transportation network in the Kalihi corridor that will enhance community livability and also support rail transit ridership. The chapter identifies enhancements to the street network and facilities for all users, including but not limited to pedestrians, bicycles, automobiles and transit riders, that will improve connectivity, safety, and ease of travel, as well as enhance overall quality of life for residents, workers, and visitors.

Developing a comprehensive multi-modal circulation network will be essential to enabling safe, convenient access between the rail stations and jobs, homes, schools, shopping, and other destinations. The new Middle Street bus transit center, shown above, will provide easy access to the rail line.

3.1 Existing Circulation Network and Operations

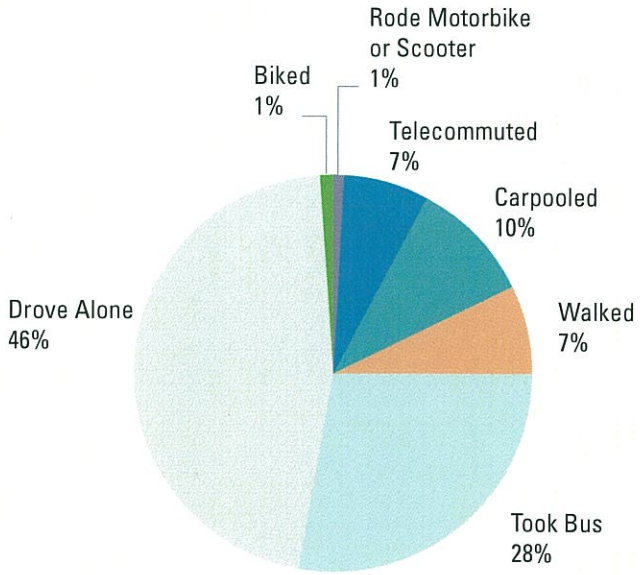
This section describes the existing (as of 2012) circulation network and conditions in the ½-mile area around the three Kalihi stations. It also describes City and State plans that have been prepared or are underway, as well as deficiencies identified during the technical analysis phase of the project and articulated by community members through the household survey and at workshops and meetings. The improvements described in Section 3.2 respond to the context and deficiencies identified here.

Travel Patterns

Kalihi already has a culture of transit use, evidenced by the relatively high rates of bus transit ridership among residents, as shown in the journey to work statistics in Table 3-1. Although 87 percent of households have one or more vehicles, according to respondents to the community survey, residents often prefer to use transit, whether due to convenience or low cost. Approximately 29 percent of commuters in Kalihi used public transportation to get to work, compared to eight percent of residents citywide.

These statistics are confirmed by the community survey completed as part of this planning effort (see Chapter 1 for details). As shown in Chart 3-1, approximately 28 percent of respondents used transit to get to work or school, seven percent walked, and one percent biked. Driving alone was the most frequently used mode of transportation, representing 46 percent of trips. Carpooling and telecommuting accounted for ten and seven percent of trips, respectively. Results did not vary substantially by station. This suggests that rail transit may be well utilized and successful when implemented.

CHART 3-1: OVERALL COMMUTE MODE SHARE, 2011



Source: Kalihi Community Survey, prepared for City and County of Honolulu Department of Planning and Permitting by National Research Center, September 2011.

TABLE 3-1: JOURNEY TO WORK MODE SHARE, BY LOCATION, 2000

	DAILY PERSON TRIPS TO WORK, BY PERCENT				
	KALIHI SUB-AREA	HONOLULU	HAWAII	US	OBSERVATIONS
Drove Alone	41%	61%	64%	76%	Only NY and DC were lower than Hawaii.
Carpooled	19%	19%	19%	12%	Only two metro areas were higher than Honolulu.
Public Transportation	29%	8%	6%	5%	Six metro areas were higher than Honolulu.
Walk	8%	6%	5%	3%	Six states were higher than Hawaii.
Other Modes	2%	2%	2%	1%	
Worked at Home	1%	4%	4%	3%	

Sources: City and County of Honolulu, Department of Planning and Permitting, 2000 Census SF 1 File. Journey to Work: 2000 - Census 2000 Brief; Clara Reschovsky, U.S. Department of Commerce, Economics and Statistics Admin., U.S. Census Bureau; tables 5 and 6, March 2004.

Street Network

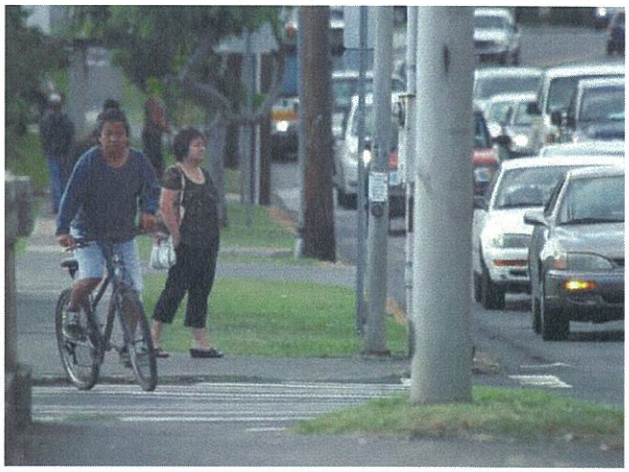
The street network represents the foundation for the circulation system and all modes of travel. Buses, personal vehicles, bicycles and trucks share the roadways, and sidewalks, where present, line the roadways for pedestrian (and sometimes bicycle) travel. Circulation is provided by streets that generally comprise a grid-like network, especially around the Kalihi station. However, large industrial operations occupy large tracts of land in the vicinity of the Middle Street station, limiting mobility. Similarly, Kapalama Canal, bridged only by highway and arterials, and large commercial and industrial uses around Kapalama station result in large parcels and block sizes that are not pedestrian friendly.

Kalihi has good regional access to freeways, highways, and major arterials, as shown on Figure 3-1. The H-1 Freeway runs east-west along the mauka edge of the ½-mile area, and Nimitz Highway acts as the makai border. There are also on- and off-ramps to the H-1 at several points near Middle Street and mauka of King Street within Kalihi.

Nimitz Highway, Kamehameha Highway/Dillingham Boulevard, and North King Street are the principal high volume roadways that define the transportation network of the area. Dillingham Boulevard functions as both a local and regional arterial that provides access to adjacent commercial uses, as well as servicing through-traffic. It will also host the rail line through the corridor. Minor arterial streets that provide mauka-makai access between the interstate and principal arterials in the Kalihi neighborhood include Middle Street, Kalihi Street, and Waiakamilo Road.

Collector streets, including Puuhale Road, Mokauea Street and Alakawa Street, provide access to industrial, commercial and residential areas within the planning area.

According to the community survey conducted as part of preparing this plan, two-thirds of neighborhood residents rated traffic flow on local streets as fair or poor, and three-quarters identified the condition of local streets as fair or poor. These findings were fairly consistent for all three station areas.



Streets are shared by personal vehicles, buses, trucks, bicycles, and pedestrians, which often leads to competition for right-of-way and potential safety conflicts, as shown on Dillingham Boulevard. Ensuring that the circulation network is safe for all users is a priority of the TOD Plan.

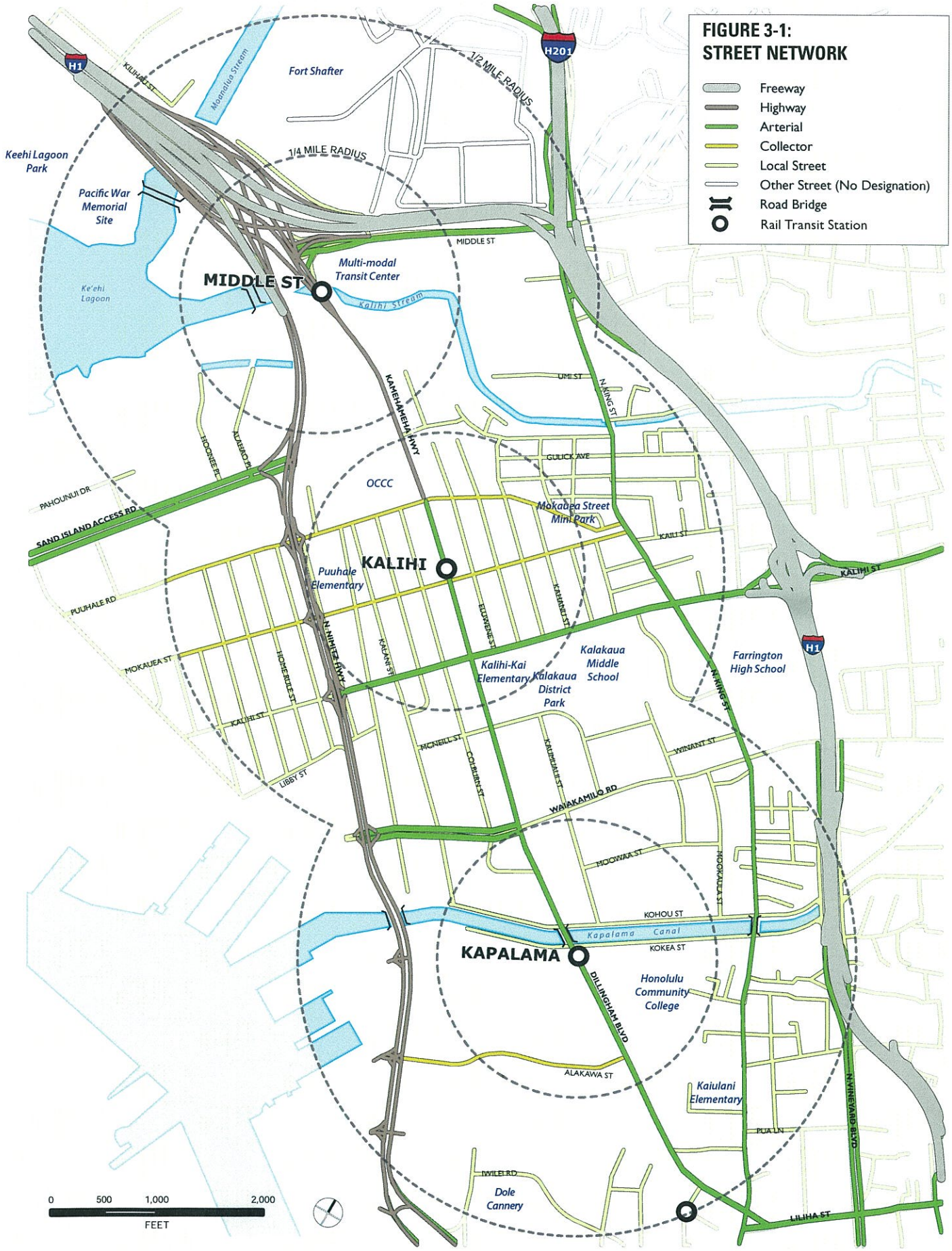


FIGURE 3-1:
STREET NETWORK
Freeway
Highway
Arterial
Collector
Local Street
Other Street (No Designation)
Road Bridge
Rail Transit Station
H1
H201
1/2 MILE RADIUS
1/4 MILE RADIUS
Fort Shafter
Moanalua Stream
Keehi Lagoon Park
Pacific War Memorial Site
Ke'ehi Lagoon
MIDDLE ST
Multi-modal Transit Center
Kalihi Stream
KAMEHAMEHA HWY
UMI ST
N. KING ST
GULICK AVE
OCCC
Mokauea Street Mini Park
KAILI ST
PAHOUNUI DR
SAND ISLAND ACCESS RD
KALIHI
Puuhale Elementary
KALIHI ST
PUUHALE RD
MOKAUEA ST
N. NIMITZ HWY
HOOKIE PL
KOEHO PL
HOMERULE ST
KALANI ST
ELDWEIS ST
KAHANI ST
Kalihi-Kai Elementary
Kalakaua Middle School
Kalakaua District Park
Farrington High School
KALIHI ST
MCNEILL ST
COLBURN ST
KAUPUAILE ST
WINANT ST
LIBBY ST
WAIAKAMILO RD
MOOWAA ST
MOOKAULA ST
KOHOU ST
Kapalama Canal
KOKEA ST
KAPALAMA
DILLINGHAM BLVD
Honolulu Community College
ALAKAWA ST
Kaiulani Elementary
PUA LN
N. VINEYARD BLVD
IWILEI RD
Dole Cannery
LILIHA ST
0
500
1,000
2,000
FEET

Pedestrian Facilities and Station Access

Pedestrian facilities and safe, convenient access to transit are essential components of successful TOD. The introduction of the rail system and successful implementation of the Kalihi Neighborhood TOD Plan necessitate safe and convenient connections to transit, since approximately 74 percent of rail transit trips to Kalihi's three stations will begin as walking or biking trips by 2030, according to analysis completed for the rail transit project.

Hawaii is consistently ranked higher than most other states for pedestrian fatalities by the Fatality Analysis Reporting System, though the state also reports more trips by walking compared to other states. Pedestrian facilities in Kalihi are varied, and survey respondents rated pedestrian facilities as good to poor. Fewer than half of respondents rated the presence or condition of sidewalks and the overall safety of walking as excellent or good; satisfaction was lowest among respondents closest to the Middle Street station. Most telling, improving sidewalks was the number one priority for public improvements among respondents.

Statewide Pedestrian Master Plan

To address safety concerns and infrastructure deficiencies, the 2013 Statewide Pedestrian Master Plan identifies pedestrian mobility and safety needs on state facilities and roadways. Through a process that combined community mapping with data analysis of sidewalk/crosswalk conditions and accident reports, the Hawaii State Department of Transportation describes deficiencies, areas with high pedestrian accident rates, and proposed improvements. The master plan includes a toolbox to identify best practices for pedestrian safety, mobility, and accessibility, including layout of sidewalks and intersections, signaling, and design of streets near schools. It also defines potential funding sources for listed improvements, including federal, state, and local funding; improvement districts; and parking fees.

According to this plan, the highest priority pedestrian project in the Kalihi corridor is located on Kalihi Street between Dillingham Boulevard and North King Street, in part due to the high accident rate and proximity to Kalihi-Kai Elementary and Kalakaua Middle School, as described in Table 3-2.

TABLE 3-2: STATEWIDE PEDESTRIAN MASTER PLAN IMPROVEMENTS WITHIN THE 1/2-MILE AREA

LOCATION	DESCRIPTION	PROPOSED IMPROVEMENT
Kalihi Station Area: Kalihi Street, between N. King Street and Dillingham Boulevard	Eight reported accidents involving pedestrians (2004-2008). The lack of crosswalks may not be the primary contributing factor, since there are crosswalks at most, if not all, street intersections along Kalihi Street.	Consider the consolidation of some of the crosswalks to a primary one across from Kalakaua Middle School, with the installation of a Rectangular Rapid Flash light-emitting diode Beacon (RRFB). The site would also benefit from enhanced crosswalk markings with wider white lines.

Source: Highways Division, Department of Transportation, State of Hawaii. Statewide Pedestrian Master Plan, May 2013.

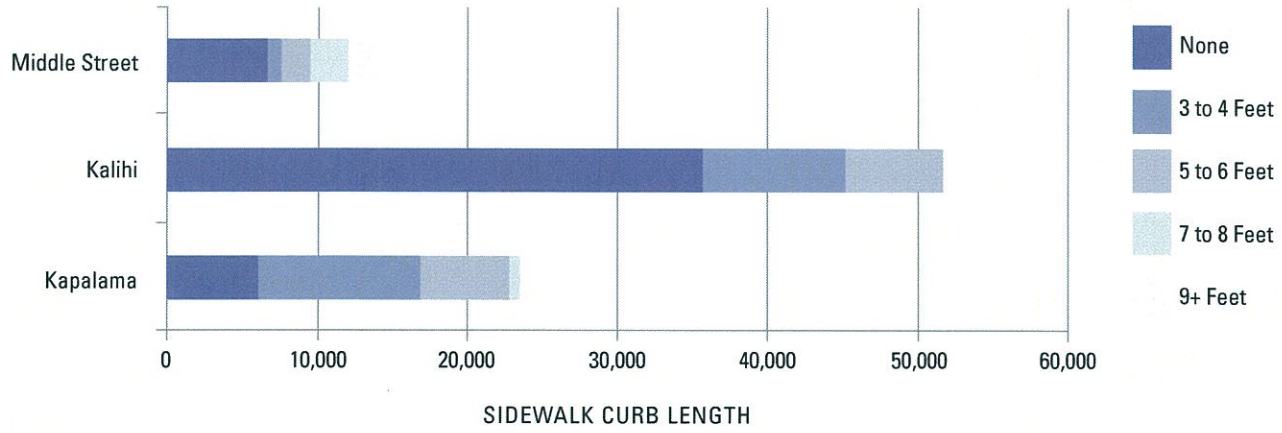
Sidewalk Conditions Inventory

As part of this TOD planning process, an inventory of sidewalk and crosswalk conditions was completed on all streets within ¼- mile of each station to understand relative walking conditions.

Sidewalk conditions were categorized as follows: (1) no sidewalk, (2) 3-4 feet of effective width, (3) 5-6 feet of effective width, (4) 7-8 feet of effective width, and (5) 9+ feet of effective width. Effective width is defined as the amount of sidewalk that provides a continuously unobstructed pathway with the exception of occasional temporary obstructions, such as illegally parked vehicles. Chart 3-2 provides a summary of this analysis.

Overall, 54 percent of all curb length within a ¼-mile of the three stations was found to lack sidewalks. Of the 70 crosswalks identified, most are concentrated in the Kalihi station area. Even where sidewalks are present, including along Dillingham Boulevard or adjacent to the future stations, they are not generous. Significant variations exist in the consistency and quality of the sidewalk network, as described for each station area.

CHART 3-2: SIDEWALK CURB LENGTH AND WIDTH, BY STATION, 2012



Source: Weslin Consulting Services, 2012.

Sidewalks are missing on most streets in Kalihi, creating actual and perceived safety concerns. Where sidewalks do exist, they are sometimes inadequate due to their narrowness and/or obstructions, such as utility poles and boxes.

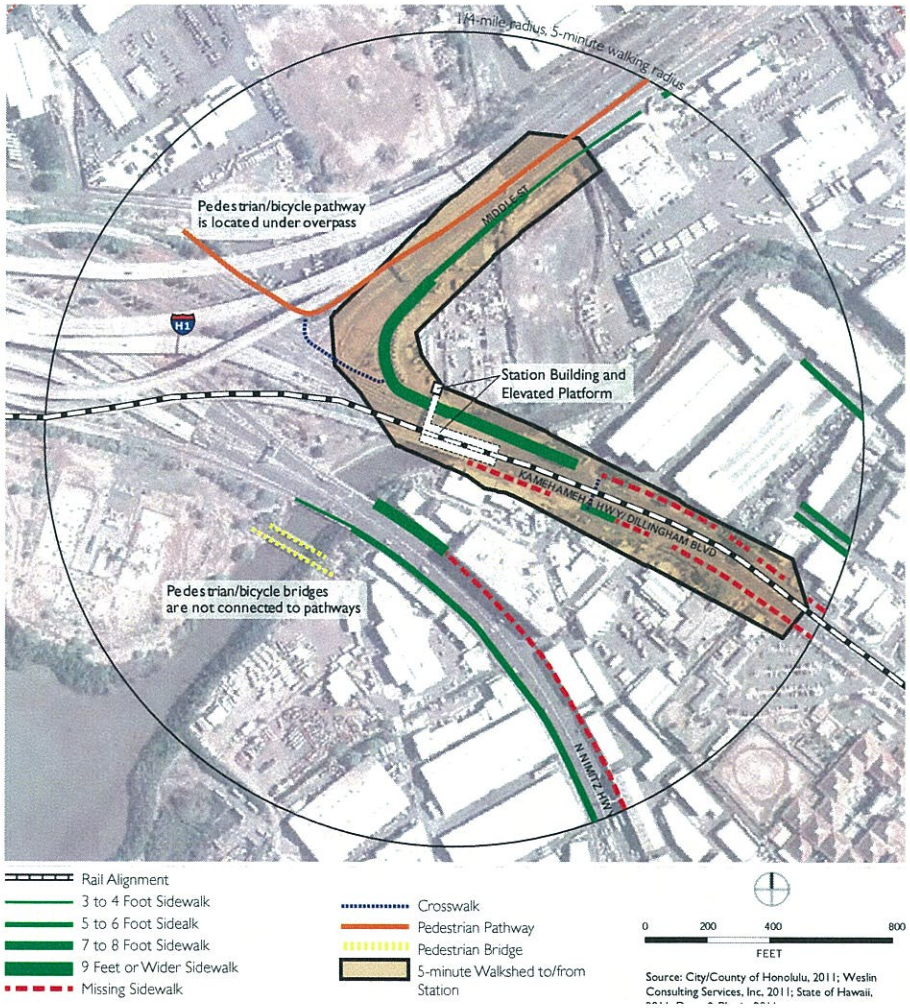
Middle Street Station Area

The Middle Street Transit Center station will be elevated above Kamehameha Highway where the roadway crosses Kalihi Stream. The station's elevated platforms and concourse level will include a pedestrian bridge crossing over the Ewa-bound lanes of Kamehameha Highway and to the center platform of the Middle Street Transit Center bus facility, which opened for service in 2012.

Pedestrian access to the future Middle Street station from the west is limited because of proximity to the highway interchange and ramp complex that gives priority to vehicular movement. However, this web of roadways also includes one of Oahu's best separated pedestrian/bicycle pathways, as shown in Figure 3-4. It is not well marked and suffers from a lack of maintenance, but its alignment from Radford Drive to Middle Street is a substantial facility. It provides access from the Mapunapuna area, with its concentration of employment destinations, to the station location by way of four of the five crosswalks within the Middle Street station area. Pedestrian access is limited from the east because Kamehameha Highway is the only option for pedestrians, and both sides lack sidewalks. Pedestrian access is also limited, or blocked altogether, from the south and north by large land parcels with large buildings and no public roads.

The fact that 46 percent of all curb length in the Middle Street Transit Center station area does not have sidewalks does not fully convey the inhospitability of the area to pedestrians. The more telling statistic is that the total amount of curb length in this area is less than one-third of what is found in the Kalihi station area. In other words, and as shown on Figure 3-4, pedestrians have few streets to walk on–and fewer destinations to walk between–regardless of whether they have sidewalks or not.

FIGURE 3-2:
MIDDLE STREET STATION LOCATION AND PEDESTRIAN CONDITIONS

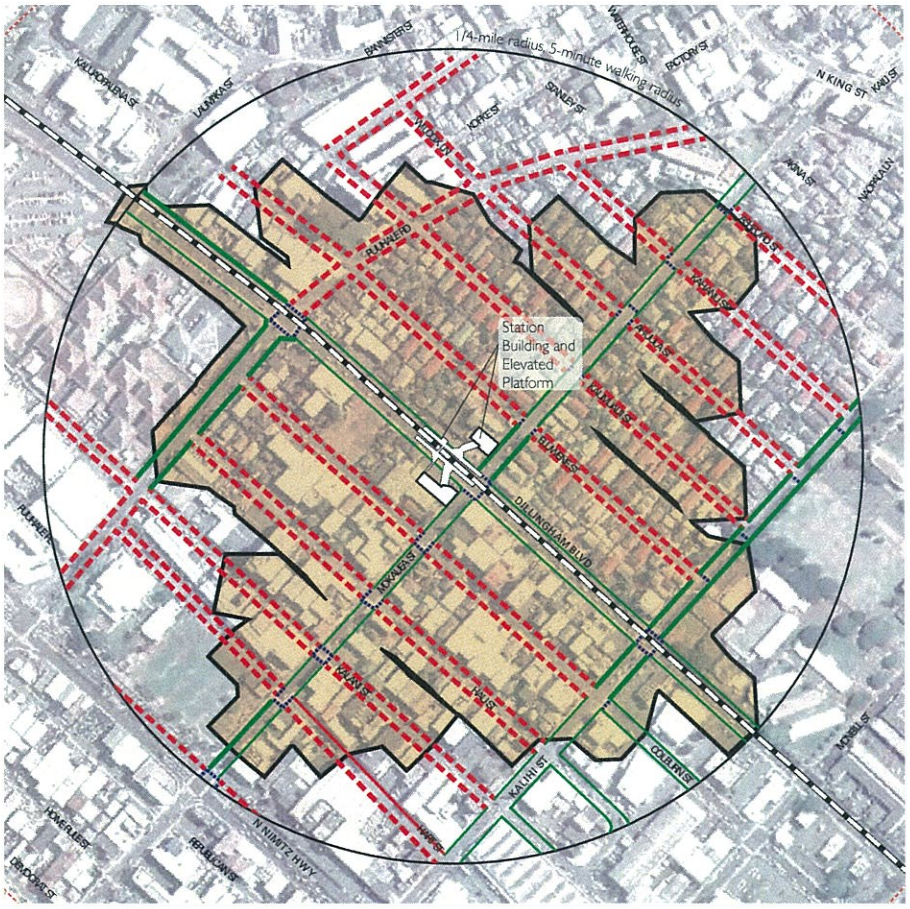


Kalihi Station Area

The Kalihi station will be elevated above Dillingham Boulevard on the ewa side of the intersection with Mokauea Street. Access to the elevated platform will be offered at two station entrances located on either side of Dillingham Boulevard. Bus stops will also be located on both sides of Dillingham Boulevard and on both sides of Mokauea Street. Today, eight bus routes serve this intersection, and eight bus routes are planned to serve the station in the future.

Approximately 69 percent of all curb length in the Kalihi station area lacks any sidewalk. This statistic may make it seem as though this area has the worst pedestrian environment of the three Kalihi station areas, but a close examination of Figure 3-3 shows that the streets immediately adjacent to the station location—Dillingham Boulevard and Mokauea Street—have sidewalks and crosswalks throughout the area. Though streets parallel to Dillingham Boulevard do not have sidewalks and are narrow, they do provide additional circulation options. This grid street network design contributes to light and slow vehicle traffic on these east-west residential streets, making for a more pedestrian-oriented environment than one might infer from the lack of sidewalks.

FIGURE 3-3:
KALIHI STATION LOCATION AND PEDESTRIAN CONDITIONS



Source: City/County of Honolulu, 2011; Weslin Consulting Services, Inc, 2011; State of Hawaii.

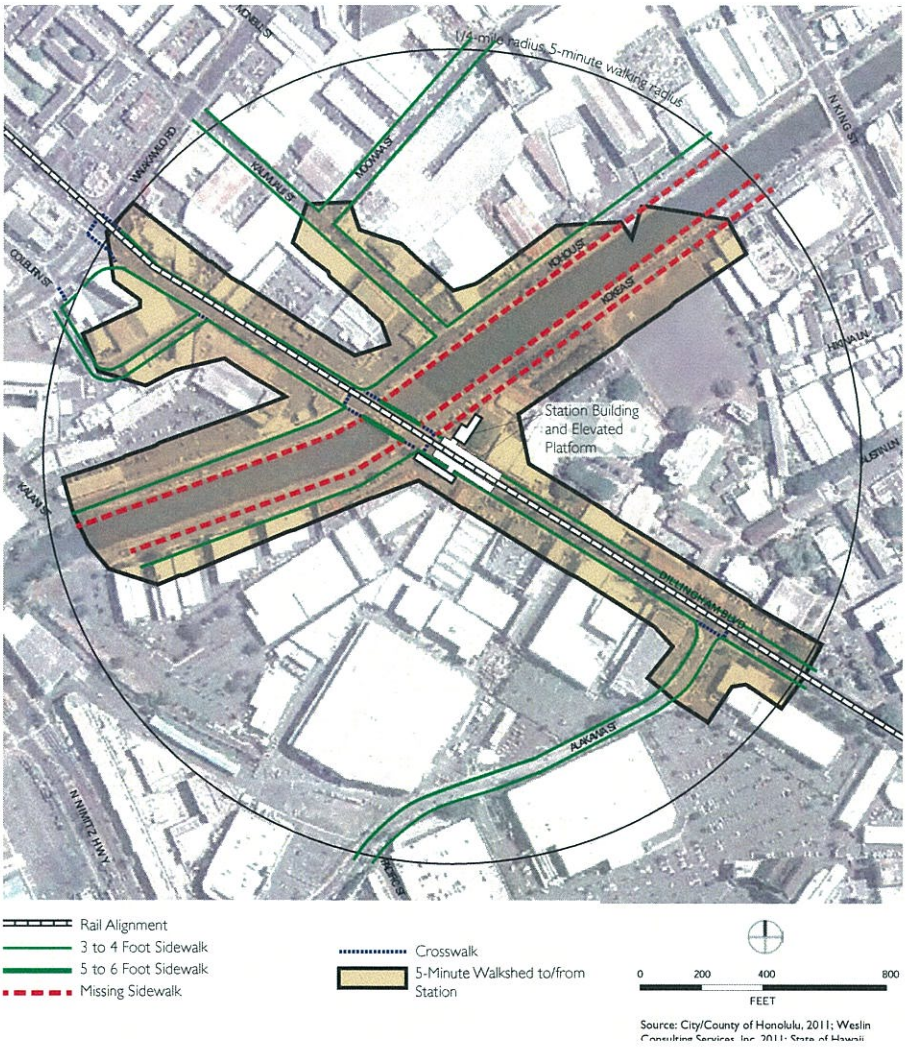
Kapalama Station Area

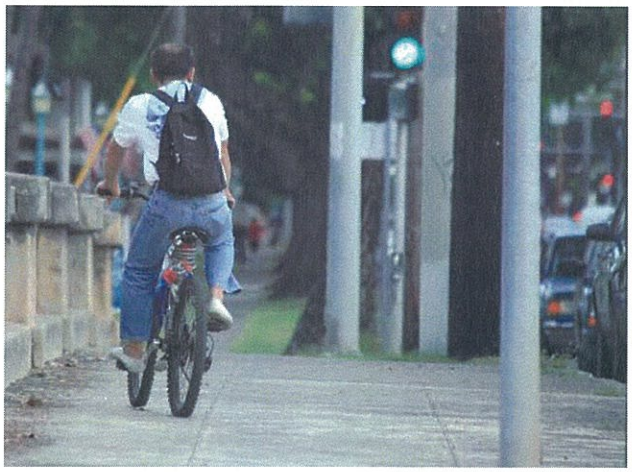
The Kapalama station will be elevated above Dillingham Boulevard on the diamond head side of the intersection with Kokea Street. In the near term, access to the elevated platform will be offered on the mauka side of Dillingham Boulevard. The station is being designed to allow a future station entrance on the makai side of the street as well. Bus stops will also be located on both sides of Dillingham Boulevard. Today, six bus routes serve this intersection, and three will serve the Kapalama station in the future (rail will replace some routes).

Walking conditions in the Kapalama station area are influenced substantially by the presence of Kapalama Canal. The only crossing of the stream for any transport mode within the ¼-mile area is Dillingham Boulevard. To access the station, pedestrians will have to use the sidewalks and crosswalks along Dillingham Boulevard. At five to six feet in width, these sidewalks are too narrow to adequately accommodate large volumes of pedestrians, especially since these sidewalks are already encumbered by utility poles. Only 26 percent of curb length in Kapalama lacks sidewalk—best amongst the three areas—as depicted in Figure 3-2. But, the missing sidewalks are in critical locations: along one side of Kohou and both sides of Kokea Streets adjacent to existing retail and educational land uses.

There are no bicycle facilities in the area, so bicyclists tend to use the narrow shoulders and sidewalks extensively to obtain safe passage. This is one of the factors that make the sidewalks unappealing for pedestrians. Other factors include numerous heavily-used driveway entrances and exits on the west side of the stream and vehicles parked on these driveways or on the sidewalk.

FIGURE 3-4:
KAPALAMA STATION LOCATION AND PEDESTRIAN CONDITIONS





Biking accounts for a small share of trips in the corridor due to concerns about safety. Developing a comprehensive network of bike lanes and facilities, such as bike parking and bus/rail access, can help to promote safe bicycling.

Bicycle Facilities

The Kalihi corridor has the potential to be a great location for recreational biking and commuting by bicycle given the flat terrain and good weather. However, bicycle use is limited in the area due to the lack of bicycle facilities and concerns about safety (i.e., conflicts with vehicles).

According to the community survey, approximately 84 percent of respondents rated safety while bicycling as fair or poor in Kalihi. Response were similar for the condition and availability of bicycle paths and lanes, and even worse for the availability of bike racks/storage. Respondents who live around Middle Street station generally rated bicycle convenience and safety lower than the respondents near the other two stations. Given these concerns, it is not surprising that bicycle ownership rates in Kalihi are quite low—just 29 percent of households have adult bikes, and only 34 percent of households with children have bikes for children.

The only existing bikeway facilities around the three immediate station areas are the terminal stretch of the Radford to Middle Street bicycle path and the bicycle lane along Waiakamilo Road. Dillingham Boulevard lacks dedicated bicycle facilities, parking lanes, or a shoulder in most locations since the road is used exclusively for traveling vehicles. As a result, bicyclists usually use sidewalks, where available, or side streets to travel between destinations, creating potential conflicts between bicyclists and pedestrians or vehicles.

Oahu Bike Plan

Policies and plans to build bicycle facilities have been codified in Bike Plan Hawaii, A State of Hawaii Master Plan, and adapted with some revisions in the Oahu Bike Plan: A Bicycle Master Plan. The Oahu Bike Plan defines existing and planned bicycle facilities.

The Oahu Bike Plan divides implementation between priority one (highest), two, and three projects. Projects within the ½-mile area that provide access to and from the stations include priority two and three projects only, as shown in Table 3-3. At each station, the plan also calls for bike storage (racks or lockers depending

on the number of boardings), "stair rails" to facilitate moving bicycles up and down stairs, and services such as attended parking and repair facilities at stations with high AM peak period boardings (e.g., >1,000). These recommendations and other bicycle improvement projects are described further in Section 3.2.

Transit Facilities

Existing Ridership

Kalihi enjoys a high level of bus transit ridership, especially for trips beginning and ending within the area, indicating a predisposition by existing residents to use transit. Public transportation on Oahu is currently composed of TheBus for fixed route operations and The Handi-Van for on-demand service for persons with disabilities. The rail project will complement these existing services with high-frequency east-west service. Bus routes will be adjusted once the rail is operational to bring people to and from the stations.

Kalihi is currently well-served by bus transit, especially the Kalihi Transit Center at Middle Street, through which over 20 bus routes pass. Unlike their perspectives on pedestrian and bicycle travel in the community, survey respondents were generally more satisfied about the conditions and safety of bus transit. Approximately two-thirds of respondents rated the overall ease of bus travel as good or higher; this finding is about the same for all three station areas. Safety while riding the bus and ease of locating bus stops were rated similarly high. In contrast, the condition of bus stops and safety while waiting for the bus were rated somewhat lower: only 47 percent of respondents rated these indicators as excellent or good. This suggests that the TOD Plan should recommend improved bus shelters, lighting, and overall safety around transit stops.

Rail-to-Bus Transit

Coordinating the stops, schedules, and fares of rail and bus transit will be essential to creating an integrated transit system and encouraging ridership. The bus and shuttle network will need to be redesigned to avoid service redundancies with the rail line. Schedules and

The Oahu Bike Plan calls for bicycle facilities to be integrated with bus and rail transit infrastructure to support bicycle safety and convenience.

TABLE 3-3: OAHU BIKE PLAN PROPOSED IMPROVEMENTS WITHIN THE 1/2-MILE AREA

STATION AREA	IMPROVEMENT
Kapalama	• Alakawa Street Bike Lane (project 2-102) • Kapalama Canal Bike Path Kohou Street ide - south section (project 2-118) • Kapalama Canal Bike Path Kokea Street side (project 2-119) • King Street (northern section) Bike Lane (project 2-123) • Dillingham Boulevard Bike Route (project 1-38)
Kalihi	• King Street (northern section) Bike Lane (project 2-123) • Dillingham Boulevard Bike Route (project 1-38) • Dillingham Boulevard (northern section) Bike Lane (project 2-107) • Mokauea Street Bike Lane (project 3-106)
Middle Street	• King Street (northern section) Bike Lane (project 2-123) • Dillingham Boulevard (northern section) Bike Lane (project 2-107) • Middle Street (southern section) Bike Lane (project 2-129) • Nimitz Highway Bike Lane (project 3-107)

Source: Oahu Bike Plan, August 2012

Kalihi already enjoys a high level of bus transit ridership but would benefit from bus stop and rail station area improvements to reduce waiting times and improve safety and aesthetics.

time-transfers will need to be coordinated to better support rail-to-bus transfers. In addition, improved bus shelters, signage, and other streetscape improvements are necessary to ensure safety around stops.

The Middle Street Transit Center will serve as the main bus-to-rail transfer point in Kalihi once rail is operational, bringing residents from neighborhoods not served by rail to this transfer point.

Vehicular Traffic

Level of service (LOS) measures operational conditions for roadways or intersections. It is traditionally used to measure roadway conditions and vehicle delay. Three intersections in the corridor currently (2012) operate at a level of service (LOS) of E or F, indicating severe traffic delays in either the a.m. or p.m. peak hours:

- Dillingham Boulevard and North King Street with LOS E in both the a.m. and p.m. peak hours;
- North King Street and Kalihi Street with LOS E in the p.m. peak hour; and
- North Nimitz Highway and Waiakamilo Road with LOS E in the a.m. peak hour.

Parking

Appropriate parking regulations can further broader community planning objectives, including infill development, support for transit and other modes, and development of walkable communities, and even enhance housing affordability by requiring less building area or property to be devoted to parking. While the TOD Plan aims to moderate the overall need for parking, it also recommends a number of forward-thinking parking regulations as well as strategies to help ensure an appropriate supply of parking.

Flexibility in parking configurations allows for efficient use of space and should be employed throughout the corridor, where possible. Demand-responsive pricing of public parking spaces can also help regulate parking supply. Additionally, to promote efficient use of land, surface parking lots should be discouraged, and reduced parking requirements should be permitted where spe-

cial conditions exist. Recommended parking standards by land use and additional regulations are detailed in Chapter 6: Implementation, Section 6.2.

While parking is an issue through much of the Kalihi corridor, it is a particularly acute problem in the Kalihi station area, where residential and business uses have limited parking since they preceded the City's current parking requirements. Dedicated off-street loading areas are often non-existent, so trucks block travel and/or parking areas. Residential and industrial areas are also mixed, resulting in commercial parking and loading activities impacting residential uses.

Parking in the Kalihi station area occurs on-street and off-street in lots associated with commercial uses. These streets are often privately owned, narrow, and poorly maintained. On-street parking along these streets is typically haphazard, especially where sidewalks are not present. There are no on-street metered parking spaces or regulations prohibiting long duration parking in residential areas. Some predominately residential areas have experienced an infiltration of commercial and retail operations which generates traffic and parking demands that are inconsistent with a safe and appealing residential environment. There are no off-street public parking lots or structures in the ½-mile area. Not surprisingly, survey respondents overwhelming ranked the amount of public parking as either fair (30 percent) or poor (51 percent).

The master plan for the Middle Street Transit Center has an area set aside for 700-1,000 parking stalls in a structured facility, but this will not be constructed in the current rail project phase. Neither the Kalihi nor Kapalama stations are anticipated to have public parking, though the private sector is not prohibited from developing parking. Honolulu Community College operates large surface lots for students, faculty and staff and is planning a parking structure along Kokea Street that may include some public parking.

Parking is constrained around the Kalihi station (top) and Honolulu Community College (middle), with on-street parking limited to the side streets. Parking is not permitted on Dillingham Boulevard (bottom).

3.2 Multi-Modal Circulation Improvements

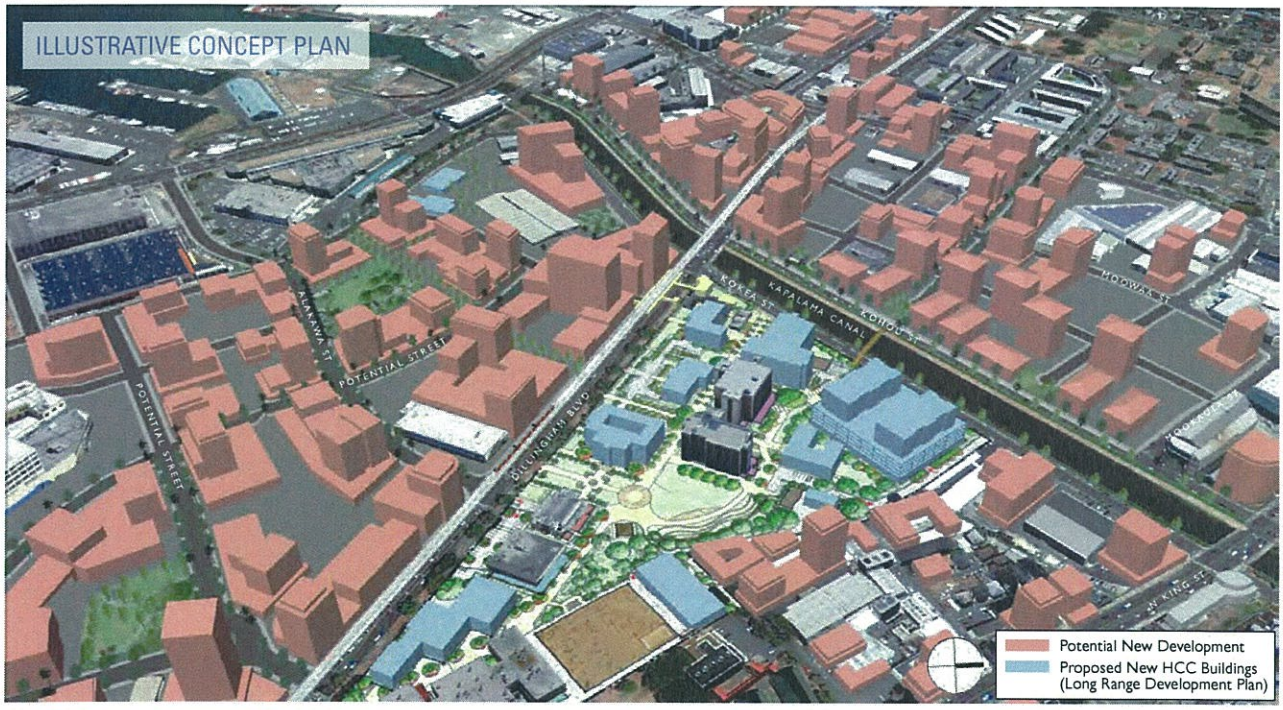
The Kalihi Neighborhood TOD Plan recommends creating an integrated and convenient multi-modal circulation network. Consistent with the City and County of Honolulu Complete Streets Ordinance, it aims to improve the street grid and address the pedestrian and bicycle network deficiencies described in Section 3.1, while enhancing bus transit and direct connections between rail and other modes. The Plan also recommends a coordinated parking strategy that accommodates vehicle parking, while still emphasizing transit and pedestrian movement. Figure 3-5: Multi-Modal Circulation Network (Circulation Diagram) summarizes the circulation improvements for the corridor, which are described in more detail in the text below.

Street Network

The foundation of the multi-modal circulation system is the network of local streets. They provide the neighborhood's basic transportation infrastructure, accommodating vehicles, buses, bicyclists, and pedestrians, as well as access to public and private property. The streets are also a major component of the public realm (as described in Chapter 4: Urban Design) where social interactions occur.

The TOD Plan identifies potential new streets and multi-use connections to create an interconnected street network that serves multiple transportation modes and improves access to the rail stations and existing and future development. New streets are primarily shown around the Kapalama station to provide access within the proposed mixed-use district and to Waiakamilo Road and the Kalihi station area. New street connections should also be developed as part of the Oahu Community Correctional Center site, should the facility redevelop with a mix of uses.

Although new streets may not follow these locations precisely, the intent of the illustrations in Figure 3-5 is to show how streets should connect to the stations and to other streets and to suggest the appropriate block size, with block lengths averaging approximately 350 feet.



View of Kapalama station area looking makai. A network of new streets around the planned Kapalama station would improve access between the station and existing and new destinations in this district.

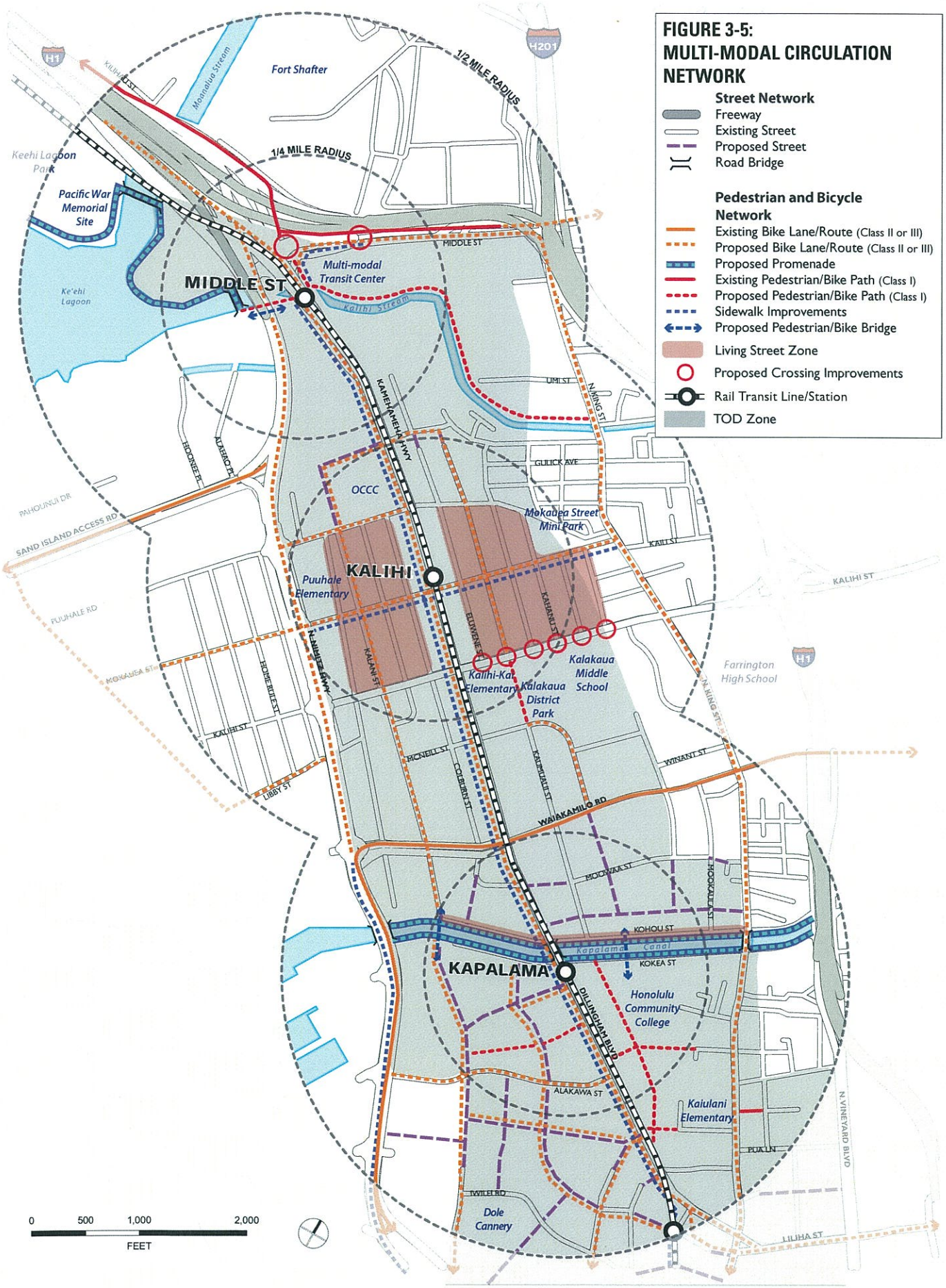
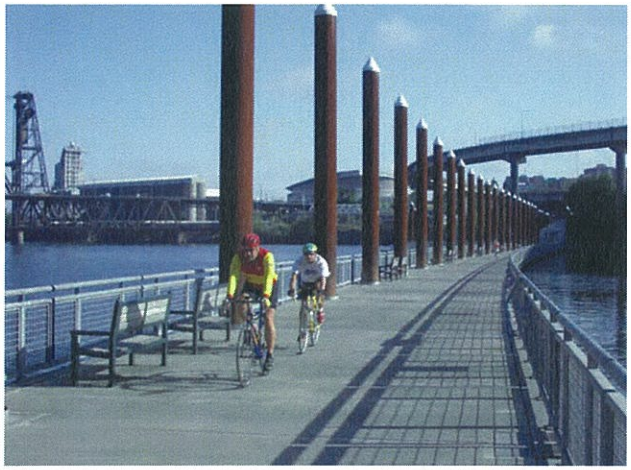


FIGURE 3-5: MULTI-MODAL CIRCULATION NETWORK

DYETT & BHATIA



DYETT & BHATIA

DYETT & BHATIA

Designing attractive, safe pedestrian and bicycle facilities that are separated from vehicular facilities, as shown in these mainland examples, will improve accessibility to the rail stations and boost transit ridership.

Pedestrian and Bicycle Facilities

The Circulation Diagram also identifies a range of improvements to pedestrian and bicycle facilities to improve mobility, accessibility, and safety. In order to improve safety, attractiveness of streets, and accessibility to the new transit stations, sidewalk improvements and new pedestrian and bike paths are shown within the station areas. These include sidewalk improvements (e.g., new/wider sidewalks), streetscape improvements (e.g., landscaping, street furniture, lighting), and façade improvements, as described in more detail in Chapter 4. Public promenades are proposed to provide more opportunities for active transportation, recreation, and stronger connections to the waterfront areas of Keehi Lagoon and Kapalama Canal. Lastly, several new bicycle paths and lanes are identified to improve safety and create a connected network for cyclists.

Promenades

Promenades are recommended along both sides of Kapalama Canal and along the Keehi Lagoon waterfront, serving as open space and recreation amenities and key parts of the circulation network. The Keehi Lagoon promenade would serve as a connection between Kalihi, Keehi Lagoon Park, the Lagoon Drive station, and a potential future park site, allowing non-vehicular modes to avoid the Middle Street area's highway on- and off-ramps to the extent possible.

The Kapalama Canal promenade would create a linear open space, providing a comfortable place for students to study and residents to linger, picnic, and enjoy the scenery, an opportunity for active recreation through jogging and biking paths, and a continuous mauka-makai route that is safe and well-lit. Kohou Street should be redesigned to be a shared street that accommodates all modes of travel at very low speeds with elements such as special pavers or bollards designating the pedestrian walkway, a striped parking aisle, and a narrowed street to calm vehicle traffic.

Bicycle Facilities

In addition to the promenades, pedestrian/bicycle paths are identified at key locations to improve access within the Kapalama station and Honolulu Community College area (as shown in the HCC Long Range Development Plan), as well as along Kalihi Stream and across Middle Street in the Middle Street station area to provide access to the waterfront parks.

Bicycle routes (Class III), lanes (Class II), and paths (Class I), based on the Oahu Bike Plan, will connect bicyclists to the rail stations, to destinations within Kalihi, and to the regional bike network, as shown in Figure 3-6. In addition to the Oahu Bike Plan projects, this diagram shows Kalani Street as a key bicycle connection between the Kalihi station area and the Kapalama/Iwilei district, where bicycle movement is prioritized and vehicle volumes and speeds should be kept low. In addition, new bicycle routes and lanes are applied on the new streets proposed in Kapalama and proposed to connect to the existing Middle Street bike path and destinations ewa of the station.

BICYCLE CLASSIFICATION (ADAPTED FROM THE OAHU BIKE PLAN)

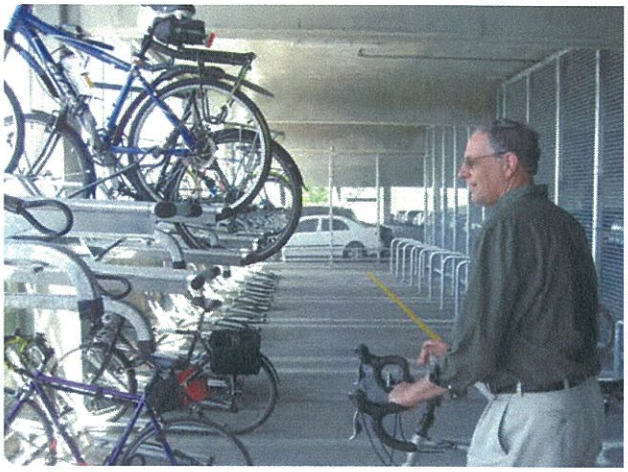
Bicycle Paths (Class I), referred to as shared use paths, are off-street grade-separated facilities at least 12-feet in width.

Bicycle Lanes (Class II) are on-street facilities delineated by wide white striping and pavement stencils indicating bike-use only. Lanes are typically five- to six-feet wide.

Bicycle Routes (Class III) are on-street facilities often shared with vehicle traffic. Posted street signs and pavement markings alert drivers that bicyclists may be present. Routes are typically implemented when there is not sufficient room for a bicycle lane in the roadway.

DYETT & BHATIA

DYETT & BHATIA



The TOD Plan proposes providing a comprehensive bicycle network, including on- and off-street bicycle routes and lanes, as shown in these mainland examples (top, middle). Bicycle parking at each of the stations and key destinations will improve the safety and convenience of bicycling (bottom).

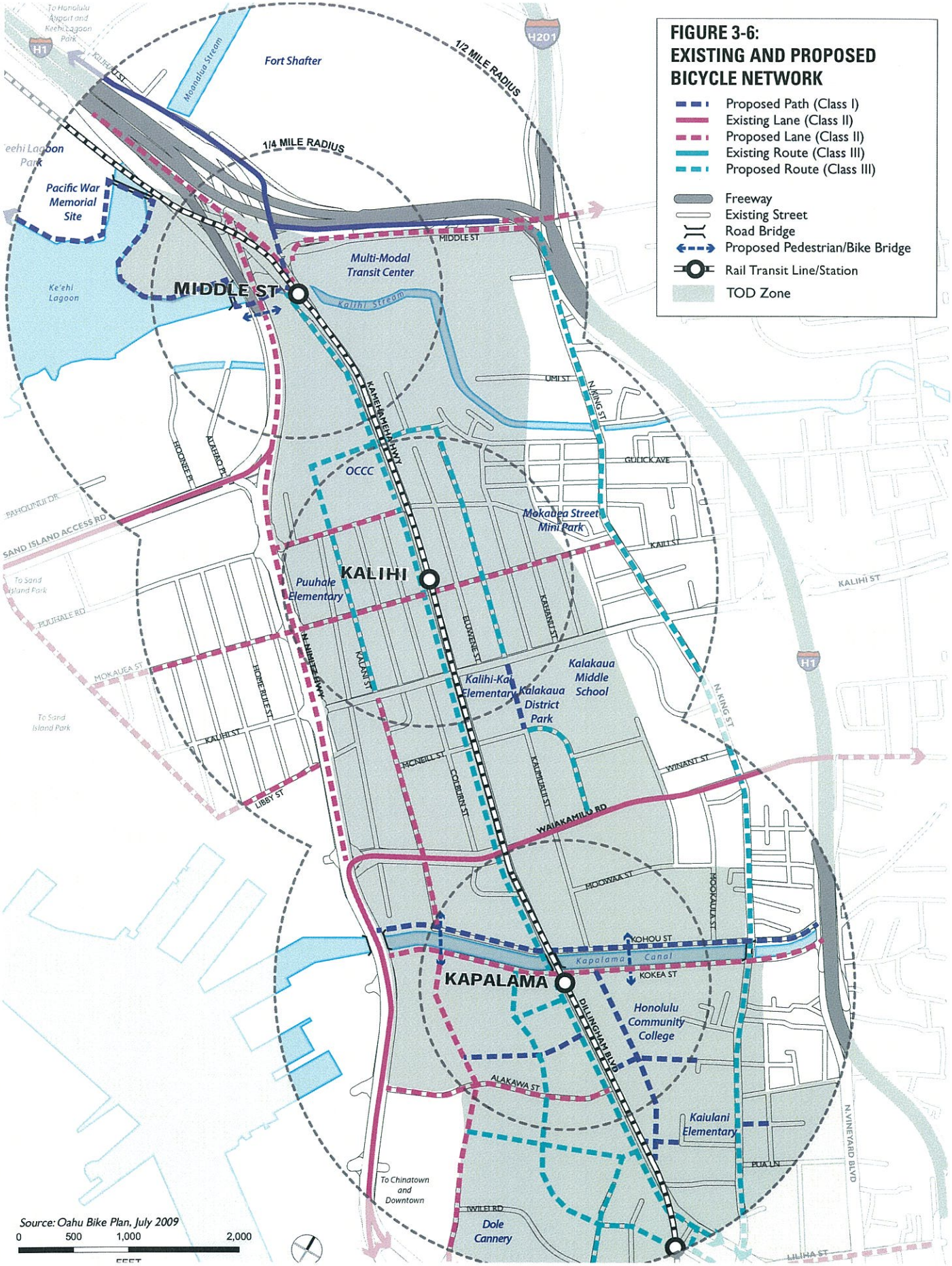


FIGURE 3-6:
EXISTING AND PROPOSED BICYCLE NETWORK
Proposed Path (Class I)
Existing Lane (Class II)
Proposed Lane (Class II)
Existing Route (Class III)
Proposed Route (Class III)
Freeway
Existing Street
Road Bridge
Proposed Pedestrian/Bike Bridge
Rail Transit Line/Station
TOD Zone
1/2 MILE RADIUS
1/4 MILE RADIUS
Fort Shafter
Moanalua Stream
Pacific War Memorial Site
Ke'ehi Lagoon
Multi-Modal Transit Center
Kalihi Stream
MIDDLE ST
KALIHI
KAPALAMA
OCCC
Mokauea Street Mini Park
Puuhale Elementary
Kalihi-Kai Elementary
Kalakaua District Park
Kalakaua Middle School
Honolulu Community College
Kaiulani Elementary
Dole Cannery
Kapalama Canal
To Chinatown and Downtown
SAND ISLAND ACCESS RD
KAMEHAMEHA HWY
N. NIMITZ HWY
DILLINGHAM BLVD
WAIAKAMILO RD
N. KING ST
KALIHI ST
MOKAUEA ST
PUUHALE RD
KOHOU ST
KOKEA ST
ALAKAWA ST
LILIHA ST
N. VINEYARD BLVD
Source: Oahu Bike Plan, July 2009
0 500 1,000 2,000
FEET

Bicycle facilities on the street network should be complemented by support facilities including signage, parking/storage at stations, bicycle retail stores, and enforcement. They should be located between parking lanes and the sidewalk, where possible. Employers can also assist in facilitating bicycle commuting by providing showers and locker rooms, in addition to secured bicycle storage.

Sidewalk and Crossing Improvements

Although safe and convenient pedestrian access is recommended on all streets, sidewalk improvements have been identified and prioritized on a few key streets, where deficiencies are most pronounced or where improvements can most improve access to rail transit. Actual sidewalk improvements depend on existing conditions and anticipated needs, but they may include installing sidewalks or striping where they are currently missing or increasing sidewalk width, and adding lighting, shade trees, street furniture or wayfinding signage, among other improvements. For example, along Dillingham Boulevard, sidewalks should be installed where missing and widened where they are currently inadequate, and additional street trees and pedestrian amenities should be added where feasible. Sidewalk improvements are also shown along Mokauea Street to improve conditions between Nimitz Highway and King Street. Crossing improvements are illustrated on Kalihi Street, consistent with the recommendation of the State Department of Transportation's Pedestrian Master Plan.

New pedestrian bridges are proposed to improve pedestrian circulation by increasing safety and reducing walking times. Two new pedestrian bridges are illustrated across Kapalama Canal: mauka of Dillingham Boulevard connecting to the Honolulu Community College campus, and extending Kalani Street from Kalihi to the Kapalama/Iwilei districts as a key bicycle and pedestrian connection. An additional pedestrian bridge (elevated) and pedestrian path are proposed across Nimitz Highway at Middle Street to provide access between the Middle Street station and the waterfront. Ideally, the pedestrian bridge would connect directly from the concourse level of the Middle Street station to provide a grade-separated pathway that continues to the existing and any planned bicycle and pedestrian paths.

DYETT & BHATIA

DYETT & BHATIA

DYETT & BHATIA

Pedestrian crossings can be improved in active pedestrian areas through measures such as signalized crosswalks, mid-block crossings designed with unique pavers/markings, installation of LED or audible crosswalks, and avoiding free-right turn lanes at intersections.

M. GARRITY

Examples of living streets (otherwise known as woonerfs, shared spaces, or home zones) can be found around the world.

Some streets are also proposed as "Green Streets" in Chapter 4: Urban Design; these would serve as connections between parks and open spaces and feature large shade-providing trees on both sides of the street.

Living Street Zones (Keala O Ke Ola)

Living Street Zones are shown in Figure 3-5 mauka and makai of the Kalihi station where circulation improvements are needed and desired but standard sidewalks and curbs are less feasible. Due to the nature of the uses (industrial, auto repair, commercial, single-family homes), small parcel sizes, abundance of curb cuts, narrowness of these streets, and desire to maintain parking and keep down the cost of improvements, "living streets" are identified for this area. (The Hawaiian term for this living street concept is Keala O Ke Ola.) Private streets will continue to be owned and maintained privately. However, some streets and sidewalks will be shared between the City and the private adjoining owner. For example, the Fort Street Mall Business Improvement District Association supplements services currently provided by the City within the District on City property.

Living street design aims to balance the needs of resident/employee parking, vehicle access, and pedestrian safety, as well as bicycle safety and access through traffic calming techniques. This is especially important on Kalani Street where a high-quality bike route, or "bike boulevard," (a street designed such that bikes have priority and vehicles speeds and volumes are low) is proposed. Adding striping along the boundary between the public right-of-way and private property would demarcate public and private space and encourage drivers to park within their properties, freeing up right-of-way for pedestrian and bicycles use. Landscaping improvements would be minimal and unobtrusive.

Living streets are based on the concept of giving all uses equal access to the public right-of-way and, therefore, must be designed to be compliant with the Americans with Disabilities Act (ADA).

TABLE 3-4: SUMMARY OF MAJOR MOBILITY IMPROVEMENTS

IMPROVEMENT	DESCRIPTION
New Street Network	System of vehicular rights-of-way that maximizes through streets; prioritizes access to transit stations; and enhances access to and within residential areas. Illustrated conceptually in Figure 3-5: Circulation Diagram.
Promenades	Pedestrian- and bicycle-only right-of-way that improves views; heightens enjoyment of Keehi Lagoon and Kapalama Canal recreation opportunities; and improves overall mobility and access in the corridor. (See Figure 3-5)
Sidewalk Improvements	Construction of sidewalks where missing to enhance safety and accessibility to rail transit along Dillingham Boulevard and key transit connections (See Figure 3-5)
Crossing Improvements	Enhancements to crosswalks to increase safety along Kalihi and Middle Streets. May include signalization, striping, and/or bulb-outs. (See Figure 3-5)
Living Street Zones	Zones designated to better accommodate all modes of travel efficiently around the planned Kalihi station (See Figure 3-5)
Connected Bicycle Routes, Lanes, and Paths	System of bicycle facilities that eases and ensures safety of movement to and within the corridor. Shown in Figure 3-6: Bicycle Network and described in the Oahu Bike Plan.
Coordinated Bus-Rail Transit	Coordinated multi-modal transit system that will require collaboration with Honolulu Authority for Rapid Transportation (HART), the Department of Transportation Services (DTS), and Oahu Transit Services (TheBus)

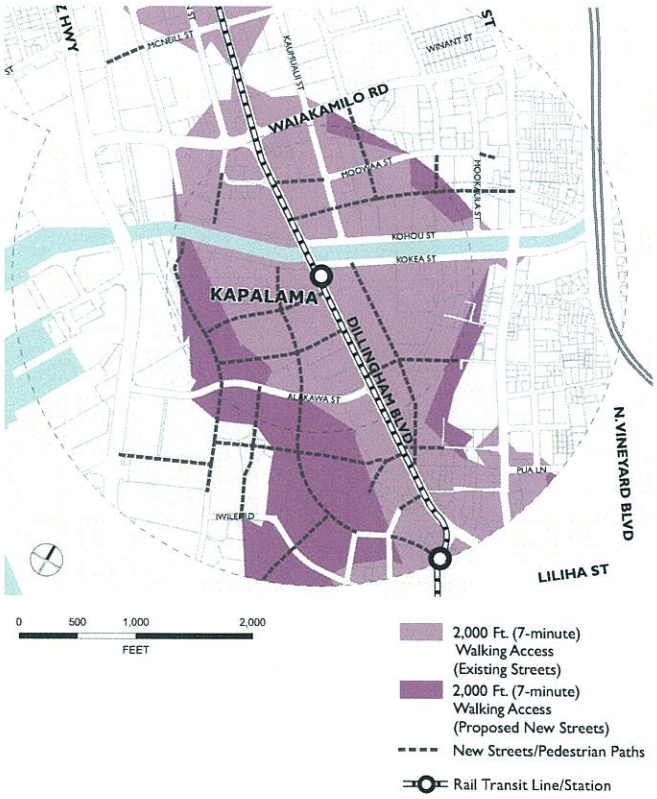
3.3 Projected Multi-Modal Transportation Conditions

The rail project will provide fast and reliable transit service, while TOD increases the number of homes, jobs, and destinations accessible by rail. Together, these factors are likely to shift how existing and new community members choose to travel to school, work, shopping, and other destinations, as they weigh speed, costs, and convenience. This section analyses the impact of the rail project and the improvements described above on future travel patterns.

Walking Access

The new proposed streets are primarily located around the Kapalama station, which currently has large blocks and limited walking access. This proposed street grid is anticipated to improve the overall walkability of this proposed mixed-use district and access to transit. Figure 3-7 illustrates the effect of the new street network—increasing the number of properties that may

FIGURE 3-7: WALKABILITY ANALYSIS



be accessed within a seven-minute walk of each station. Breaking up large parcels with new streets increases circulation options for all modes to access transit and destinations within the district. This increased accessibility is an essential component of fostering a walkable neighborhood and transit-oriented development, as it allows for direct linkages to the stations.

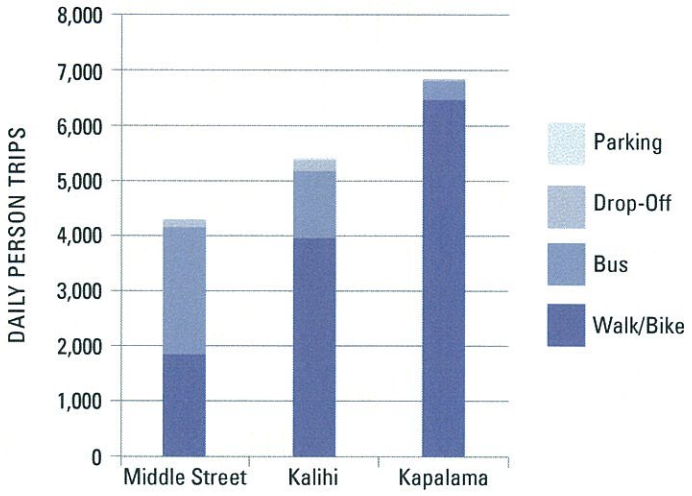
Rail Transit Ridership and Station Access Projections

The EIS for the rail project estimated that there will be a total of 116,330 daily boardings on the rail system by 2030. This is an average of 5,540 daily person boardings at each rail station, though the average for the three stations in Kalihi is substantially less at 2,890.

Notably, the projected ridership in the EIS did not include the potential increase in riders as a result of TOD. To rectify this, the planning team analyzed the effect of the proposed TOD uses and development pattern on rail transit ridership. Ridership would be expected to increase since TOD by its very nature seeks to support transit ridership by creating new origins and destinations—such as homes, jobs, and shopping—within safe and convenient walking distance to transit. Table 3-5 supports this hypothesis, projecting a near doubling in ridership (a 92% increase) for the three Kalihi stations with buildout of the TOD Plan. Most of this increase is attributed to new development around the Kapalama station (tripling of ridership) and the increase in transit usage by new residents, workers, and students accessing these new destinations.

TOD affects not just the number of transit riders, but also how they access the rail stations—whether on foot, or by car, bus, bicycle, scooter, or other mode. Chart 3-3 illustrates how rail transit riders are expected to access each station if the TOD Plan were to be implemented consistent with the land use program and buildout described in Chapter 2. At the Middle Street station, just over half of all transit riders are expected to arrive by bus, not surprising given its role as a transfer station and a bus transit hub. Access by walking and biking are together anticipated to account for 73 and 94 percent of trips at the Kalihi and Kapalama stations,

CHART 3-3:
PROJECTED STATION ACCESS RATES, BY MODE (WITH TOD PLAN BUILDOUT)



Source: Weslin Consulting Services, Inc., 2012.

respectively. Access by vehicle—both kiss-and-ride (drop-offs/pick-ups) and self parking is anticipated to be low for all stations. As described above, public parking is expected to be limited at each station (with the exception of Middle Street, which has a planned park-and-ride lot).

Vehicle Traffic

Summary of Vehicle Trips

A traffic analysis was completed to understand the potential traffic impacts associated with new development. Overall, future development anticipated under the TOD Plan does not contribute substantially to vehicle trip generation, especially when accounting for implementation of transportation demand management (TDM) measures, such as pedestrian, bicycle, and bus access improvements, and vanpool/carpool/ridesharing programs. The Institute of Transportation Engineers' (ITE) vehicle trip generation rates and reductions to account for transit service (2% to 20% for work trips and 2% to 10% for non-work trips), were applied to each land use classification described in Chapter 2 to assess anticipated vehicle trip generation.

TABLE 3-5: PROJECTED RAIL TRANSIT RIDERSHIP, BY STATION

	STATION			
	MIDDLE STREET	KALIHI	KAPALAMA	TOTAL
Initial EIS Estimate (No TOD Assumed)	2,800	3,600	2,200	**8,700**
TOD Plan Estimate (With TOD & Moderate-Level TDM[1])	4,300	5,400	6,900	**16,700**
PERCENT INCREASE	**54%**	**50%**	**209%**	**92%**

1. For the "moderate" commitment level of Transportation Demand Management, the emphasis is on a higher quality of pedestrian and bicycle linkages to stations and on absolute safety achieved by the elimination of conflicts with vehicle traffic. Details can be found in "Transportation Assessment: A Technical Memorandum Prepared for the Kalihi Neighborhood TOD Plan." Weslin Consulting Services, Inc, May 2012.

Source: Weslin Consulting Services, Inc., 2012; Honolulu High-Capacity Transit Corridor Project Final Environmental Impact Statement; by the United States Department of Transportation Federal Transit Administration and the City and County of Honolulu Department of Transportation Services, June 2010; Table 3-20.

New blocks resulting from an expanded street network in the Kapalama/Iwilei station areas. The expanded network builds on existing street segments to establish through streets; improve access to the stations; and create smaller block lengths in residential areas.

This analysis identified that each weekday there are approximately 244,000 vehicle trips generated within the ½-mile area, as shown in Table 3-6. As a result of build-out of the TOD Plan, the ½-mile area could expect 32,000 net new vehicle trips or a 13 percent increase in total daily trips. With the application of TDM measures, vehicle trips could be reduced by 5% to 21% over the future condition without TDM measures, depending on the level of implementation. A moderate level of TDM implementation is shown in the table below. Assuming this level of TDM, the projected level of future vehicle trips would be comparable to existing rates—just a one percent increase over existing conditions.

Comparative Analysis

As described and illustrated in Chapter 2, this plan establishes a focused Transit-Oriented Development Zone ("TOD Zone") encompassing the sites within a ½-mile of the stations that have the most potential to support transit ridership and take advantage of transit

TABLE 3-6: WEEKDAY VEHICLE TRIP ENDS IN THE KALIHI CORRIDOR (TRAFFIC ANALYSIS ZONES WITHIN THE 1/2-MILE AREA)

	NUMBER OF TRIPS[2]	% INCREASE OVER EXISTING
Existing Conditions	244,000	
Net Increase	32,000	
Total Future (With Rail Project & TOD, but no TDM Measures)	**276,000**	**13%**
Total Future (With Rail Project, TOD & Moderate-Level TDM Measures)[1]	**245,400**	**1%**

1. For the "moderate" commitment level, the emphasis is on a higher quality of pedestrian and bicycle linkages to stations and on absolute safety achieved by the elimination of conflicts with vehicle traffic. Details can be found in "Transportation Assessment: A Technical Memorandum Prepared for the Kalihi Neighborhood TOD Plan." Weslin Consulting Services, Inc, May 2012.
2. Three TAZs are in both the Kalihi and Downtown Neighborhood TOD areas and would be double counted if one were combining the two transportation assessments.

Source: Weslin Consulting Services, Inc., 2012.

proximity. Table 3-7 focuses on the projected change in vehicle trips for the TOD Zone and compares (A) existing conditions with three future (2030) conditions.

The outcome of this analysis isolates the contribution that the rail project and TOD and related TDM measures—such as pedestrian and bicycle improvements—may have on reducing vehicle trips. Column (B) describes future traffic conditions in the Kalihi area assuming normal growth rates and no rail project (i.e., No Build Alternative from the EIS). In this case, vehicle trip ends are expected to increase by 49 percent over existing conditions. Column (C) isolates the potential impact of rail on reducing vehicle trip ends, compared to Column (B), suggesting that though trips would still increase, they would increase at a much lower rate—just 19 percent.

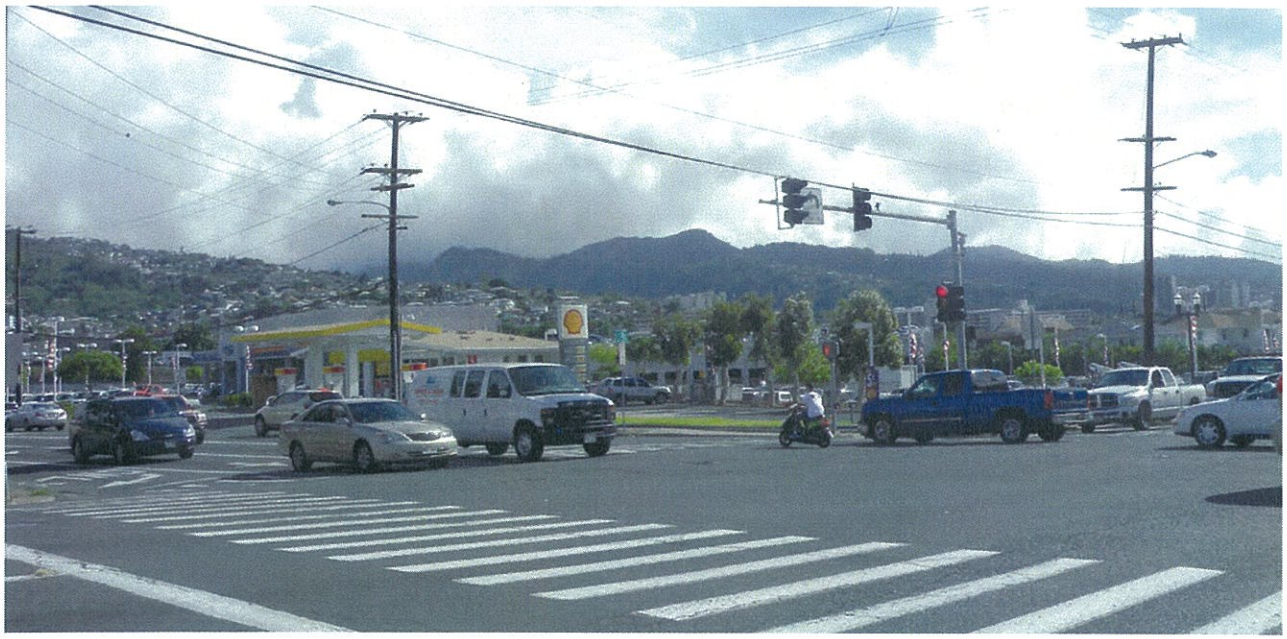
Lastly, Column (D) models the scenario articulated in this TOD Plan, where the TOD Plan and TDM measures complement the rail project by supporting transit ridership. In this scenario, local vehicle trips are only expected to increase by nine percent overall from existing conditions and to a lesser extent at Kapalama and Kalihi stations where the proposed land uses are most supportive of transit ridership.

TABLE 3-7: DAILY VEHICLE TRIP ENDS, BY STATION AND SCENARIO (TRAFFIC ANALYSIS ZONES WITHIN THE KALIHI TOD ZONE)

	(A) EXISTING	(B) 2030 FUTURE WITHOUT RAIL PROJECT OR TOD PLAN		(C) 2030 FUTURE WITH RAIL PROJECT (BUT, WITHOUT TOD OR TDM)		(D) 2030 FUTURE WITH RAIL PROJECT, TOD AND TDM	
STATION	VEHICLE TRIP ENDS	VEHICLE TRIP ENDS	CHANGE VS. EXISTING	VEHICLE TRIP ENDS	CHANGE VS. EXISTING	VEHICLE TRIP ENDS	CHANGE VS. EXISTING
Middle Street	29,500	39,400	34%	35,500	20%	32,900	12%
Kalihi	34,700	46,200	33%	38,700	11%	35,200	1%
Kapalama	85,600	137,100	60%	104,600	22%	95,200	11%
Kalihi TOD Zone[1]	**149,800**	**222,700**	**49%**	**178,800**	**19%**	**163,300**	**9%**

1. Total numbers may not sum precisely due to rounding.

Source: Transportation Assessment, Kalihi Neighborhood TOD Plan, Weslin Consulting Services, Inc., 2012, pages 36-49.



3.4 Goals and Policies

GOALS

MB-G1: Create an integrated multi-modal transportation system that fosters livable, walkable communities around the stations, and supports increased rail ridership.

MB-G2: Prioritize pedestrian, bicycle, and bus transit access to the rail stations through strategic improvements.

MB-G3: Design transportation infrastructure as an integrated component of the neighborhoods and overall public realm of streets, landscaping, plazas, and parks.

MB-G4: Prioritize pedestrian and bicycle safety, including for students going to and from local schools.

MB-G5: Accommodate existing and future on- and off-street parking demand through a coherent parking management strategy that includes support for alternative travel modes.

POLICIES

MB-P1: Implement the major mobility improvements described in Table 3-4 in coordination with developers, property owners, and transportation agencies.

MB-P2: Require large developments within the TOD Zone to prepare a Transportation Management Plan (TMP) to identify TDM strategies that minimize the number of vehicle trips being generated by the proposed development; and, subsequently if necessary, a Traffic Impact Analysis Report (TIAR), based upon the reduced number of vehicle trips and projected modal distribution of person trips identified in the TMP.

Street Network

MB-P3: Create a fine-grained network of streets and pedestrian routes to improve walking access and enable increased access to the stations and to new and existing destinations within the station areas.

- Develop new mauka-makai and ewa-diamond head streets in the Kapalama station area to increase walkability and more evenly distribute traffic in the new mixed-use district, generally in accordance with the overall pattern shown on Figure 3-5: Circulation Diagram. Provide flexibility with the actual street layout, while ensuring that block sizes are, on average, generally no larger than 350 feet in any direction.
- Improve mauka-makai connections through the Kalihi and Kapalama station areas through sidewalk and Green Street improvements (see Figure 3-5: Circulation Diagram and Open Space Diagram in Chapter 4), crossing improvements, and new pedestrian-only and street connections.

MB-P4: Accommodate and sign truck traffic on specific routes: Sand Island Access Road, Kalihi Street, and Nimitz Highway. Through truck traffic is discouraged within the rest of the ½-mile area.

MB-P5: Work with the State and City transportation departments and the Honolulu Authority for Rapid Transportation (HART) to mitigate potential traffic hot spots and delays, especially on Dillingham Boulevard where travel lanes and left-turn lanes are expected to be redesigned:

- Prioritize traffic studies and improvements at institutions such as Honolulu Community College and the Oahu Community Correctional Center, which has emergency and other transport vehicles entering and exiting the facility, but also for high-traffic turning locations, such as Alakawa Street.
- Educate motorists about construction activities and street design changes on Dillingham Boulevard and encourage use of alternative routes, such as Nimitz Highway, King Street, and H-1, for pass-through trips.

MB-P6: Enforce regular maintenance and cleaning of city streets and code enforcement related to parking and abandoned cars.

Station Access Design

MB-P7: Work with HART to design station entrance areas that are integrated with surroundings, create a welcoming environment, serve as a hub of activity, and enable self-policing:

- Ticket windows, restrooms and any other amenities should be clearly marked, well-lit, and face public streets.
- Rail stations and bus stops should be safe, clean, well-maintained, and patrolled to ensure the safety and security of passengers.
- Station entrances should minimize adverse effects to adjacent historic properties.
- Sidewalks near stations and station entrances shoud be improved as needed.
- Wayfinding signs should be visible and coherent and direct on- and off-boarding passengers to surrounding streets and major destinations, such as Aloha Tower, Dole Cannery, and the financial district.

MB-P8: Establish the Middle Street Transit Center as a true multi-modal transit hub:

- Coordinate bus schedules, routes, and fares to enable timed-transfers within short walking distance, particularly at the Middle Street Transit Center.
- Maintain and enhance pedestrian and bike connections between the Middle Street station and existing and future parks, including Keehi Lagoon Park and a new park proposed on the waterfront by providing pedestrian routes over Nimitz Highway to Sand Island Access Road.
- Continue to coordinate with the United States Army to enable a safe pedestrian connection across Middle Street between the entrance gate at Fort Shafter and the station to encourage rail ridership among enlisted military, spouses and children, contractors, retirees, and other users.

MB-P9: At Kapalama station, coordinate with Honolulu Community College to develop an integrated rail stop and transit station with basic services and amenities such as a café.

Pedestrian Facilities

(Also see policies on streetscape improvements and block size in Chapter 4)

MB-P10: Develop a fine-grained network of streets and pedestrian routes, as illustrated in Figure 3-5: Circulation Diagram. Provide incentives for private developers to develop streets in tandem with new transit-oriented development to ensure safe and direct pedestrian, bike, and vehicular connections.

MB-P11: Construct sidewalks where they are currently missing (except in Living Street Zones) to create continuous pedestrian walkways:

- Design new sidewalks to be at least eight feet wide.
- Prioritize sidewalk construction and improvements on both sides of Dillingham Boulevard and within ¼-mile of the stations.

MB-P12: Prioritize street crossing improvements at key intersections where children are present and where heavy pedestrian movement is anticipated across busy intersections, as shown in Figure 3-5.

- Improvements may include, but are not limited to: reducing the effective width of the crossing through pedestrian refuges or corner bulb-outs; installing wide striped crosswalks or ones with flashing and light-emitting diode (LED) beacons to ensure pedestrian safety; disallowing or removing free-right turn lanes, and/or other means of slowing traffic or alerting drivers to the presence of pedestrians.

MB-P13: Design Living Street Zones in the areas shown in Figure 3-5 as narrow streets that accommodate all travel modes safely by balancing the needs of resident/employee parking and vehicle, bicycle, and pedestrian movement:

- Encourage parking within property lines by striping the boundary between the public right-of-way and private property, freeing up right-of-way for pedestrians and bicycles.
- Encourage low-vehicle speeds through striping, signage, changes in street materials, and traffic calming devices.

- Design any landscaping improvements to be unobtrusive.
- Consider extending lighting from rooftops to reduce the need for utility poles.
- Prioritize improvements on Kalani Street, which should provide a continuous bike route from the Kalihi station area across Kapalama Canal to Iwilei and Downtown.

MB-P14: Prioritize pedestrian bridges over waterways and highways where pedestrian safety measures and accessibility improvements are needed, as shown in Figure 3-5:

- Two pedestrian/bicycle bridges should be developed mauka and makai of the Kapalama station to improve mobility across Kapalama Canal and between existing and future destinations.
- Provide pedestrian bridge access across Nimitz Highway to Sand Island Access Road, the waterfront, and over Middle Street.

MB-P15: Design a safe, well-lit promenade along both sides of Kapalama Canal to enable pedestrian and bicycle travel along the canal to the station and to points mauka of King Street:

- Explore using the canal for local transit, such as water taxis, and boating recreation.
- Narrow Kohou Street to slow vehicle traffic, and better accommodate all modes through a woonerf or shared street design, such as with special pavers, pedestrian walkways defined by bollards, and a striped parking aisle.

Bicycle Facilities

MB-P16: Design a cohesive bicycle network that provides safe and convenient routes between stations and major destinations, as shown on Figure 3-6: Bicycle Network.

- Design new bicycle lanes (Class II) to be at least five feet wide and buffered from vehicular traffic by parking lanes or striping, where possible.
- Designate Kalani Street as the prioritized bicycle facility through the Kalihi corridor. A shared bicycle route (Class III) should be designed through the Living Street Zones within the Kalihi station area, and Class II lanes should be pursued in other locations.

MB-P17: Use strategies defined in the Draft Oahu Bike Plan to support bicycle safety education and encourage a culture of bike riding among children and adults; to create mutual awareness between cyclists and motorists; and to encourage employers to support cycling through the provision of showers, bike racks/lockers, and other amenities/incentives.

MB-P18: Continue to coordinate with HART to support bicycle facilities at the stations:

- Racks and secure lockers should be provided at all stations for bicycles and other varieties of personal mobility devices (e.g., Segways and motor scooters).
- Implement a bike sharing program. Prioritize bike sharing "pods" or access locations, around each rail station to improve access to and from the stations.

Bus Transit

MB-P19: Continue to coordinate with HART and the Department of Transportation Services (TheBus) to create an integrated transit system. Assess schedule and route needs for community circulator or shuttle service (including on-demand services) to bring transit riders to rail stations from upland areas and to connect to key destinations (e.g., YMCA, health care).

Parking

MB-P20: Design safe, well-lit drop-off, loading, taxistand, and parking areas (at the Middle Street station):

- Locate areas to avoid pedestrian conflicts and limit large expanses of asphalt or surface parking.
- Create visibility from the public right-of-way and connect to any open space, plazas, or retail areas that are part of or adjacent to the stations.

MB-P21: Design loading zones to avoid conflicts with pedestrian and bicycle movement by limiting curb cuts, installing signs, and regulating hours of delivery.

MB-P22: Reduce the land area devoted to parking by supporting innovative technologies, such as parking lifts and automated parking.

MB-P23: Allow on-street parking on new streets, where feasible, to provide convenient parking for customers, to slow traffic, and to provide a buffer between moving vehicles and pedestrians on the sidewalk.

MB-P24: Manage on-street parking in the Kapalama and Kalihi station areas to ensure the viability of businesses;

- Explore the feasibility of parking permits for property owners and tenants and/or a parking benefit district to help fund development of a district parking structure.

MB-P25: Develop shared parking among uses within close proximity of the station with different peak parking demand.

MB-P26: Allow for flexibility in parking requirements within the TOD Zone in order to encourage transit use, lower construction costs on new projects, and encourage use of nonconforming properties.

4 URBAN DESIGN

The Kalihi Neighborhood TOD Plan sets the framework for vibrant and livable mixed-use districts centered around the area's three rail stations. The urban design of these areas is integral to this framework and will ultimately determine the character, feel, and livability of the area. Urban design addresses physical elements such as buildings, blocks, and streets, as well as the activities and pace of life that they accommodate. It also includes the location, orientation and design of open space, the pedestrian realm, and landscaping elements.

This chapter describes the desired character of the station areas in terms of urban design, public open space, and public improvements. Specific policies address elements such as site planning, building massing and articulation, streetscapes, and signage in an effort to encourage vibrancy, beauty, and accessibility as expressed in the community vision. Safety, crime, and homelessness, which are central issues identified by community members, are also addressed through policies related to community design.

Birds-eye view showing hypothetical buildout of the Kalihi station areas, looking diamond head. The Kapalama station area is transformed into a new mixed-use district, while new parks and a broader range of uses enliven the Kalihi and Middle Street station areas.

4.1 Station Area Character

The Middle Street, Kalihi, and Kapalama station areas each have a distinct character that the Plan seeks to build on and enhance to create true transit-oriented communities and destinations. Illustrative renderings are included that show how the urban qualities of the area could be enhanced and new development integrated into the community.

Middle Street Station Area

The Middle Street Transit Center station area functions as the entrance to Kalihi from the west and is characterized by a range of uses: the transit center, industrial and commercial uses, Keehi Lagoon Park on the waterfront, and the Oahu Community Correctional Center (OCCC). The station area has limited opportunities for development given the multiple freeway off-ramps and overpasses, Fort Shafter military base ewa of Middle Street, and flood risk. Still, primarily large lots surround the station area, and a greater mix of uses is envisioned in the long term, including redevelopment of the Oahu Community Correctional Center and the surrounding area into a new neighborhood.

The station will serve as an important multi-modal transit hub by providing convenient bus-to-rail connections for residents coming from neighborhoods not served by rail. Aesthetic and circulation improvements in the area will be essential to creating a public realm that is conducive to walking and biking and that supports transit ridership, as shown in Figure 4-1. The Plan also seeks to improve connections from the station area to Sand Island State Recreation Area and Keehi Lagoon Park through new pedestrian/bicycle paths, a pedestrian bridge, and a promenade.

Kalihi Station Area

Surrounding Kalihi station are a range of uses—residential mauka of Dillingham Boulevard and a patchwork of industrial, commercial, and residential makai. Small lots and a regular grid pattern of streets provide better access between uses compared with the street networks around Middle Street and Kapalama station areas. The vision for the Kalihi station area preserves the neighborhood's existing assets, while targeting sites for revitalization to improve safety and capitalize on rail access. Mauka of the station the Plan maintains the neighborhood's residential character, allowing residential development at slightly higher densities (low- and mid-rise apartments). Makai of the station, the mix of industrial and commercial uses is maintained. This provides for the continuation and upgrade of a variety of small businesses that exemplify Kalihi and ensures continued employment in the commercial and industrial sectors.

Along Dillingham Boulevard, the TOD Plan envisions a greater mix of uses to serve the neighborhood and transit users, and an improved streetscape to support pedestrian and bicycle travel, as shown in Figure 4-2. Although the street grid in this station area facilitates walking, side streets parallel to Dillingham Boulevard tend not to have curbs or sidewalks, and roadways are often obstructed by utility poles even where sidewalks do exist. As described in Chapter 3: Mobility, the Plan supports a "living street" concept for the side streets around Kalihi station. This concept seeks to accommodate all modes safely within a shared right-of-way without the financial burden of developing sidewalks, curbs and gutters.

Kapalama Station Area

The Kapalama station area is notable for the presence of Honolulu Community College, Kapalama Canal, several shopping centers, and warehouse and commercial uses that provide employment opportunities. Residential uses are currently limited. The Kapalama area is envisioned as the most transformed of the three station areas, becoming a high-intensity mixed-use urban district that capitalizes on its proximity to Downtown and Chinatown and adjacency to Honolulu Community College. Employment uses, including office and R&D facilities, would provide new job opportunities. High-density housing would accommodate a range of household types and income levels, creating a new neighborhood with a full range of facilities and services, including parks, retail stores, and existing schools.

This new district should be safe and walkable. New streets would form a network that better connects the area to the waterfront, the rail station, and to both Downtown and other parts of Kalihi. The HCC Long Range Development Plan already calls for improved mauka-makai connections through the area; new streets and an improved canal will further integrate both the main and Kokea Street campuses within the new district. The Plan reduces average block lengths to about 350 feet, with new streets and blocks built largely on existing rights-of-way and parcel boundaries.

Townhomes and low- to mid-rise residential buildings overlooking Kohou Street and Kapalama Canal would provide "eyes on the street," help activate the canal's edge, and reduce the perceived distance to the mixed-use corridor along King Street. At the same time, taller building masses situated along Kohou Street should be set back, in an effort to preserve views and a sense of openness along the canal. As shown in Figure 4-3, the banks of Kapalama Canal are envisioned as linear open spaces with seating, lighting, and pedestrian and bicycle promenades that create an important mauka-makai connection and provide views of the harbor and mountains.

Looking ewa along Puuhale Road. The Middle Street and Kalihi station areas are anticipated to intensify with new mixed-use development centered along the rail corridor. Improved connections to parks and the waterfront and enhanced streetscapes ensure that these districts become more livable as they grow.

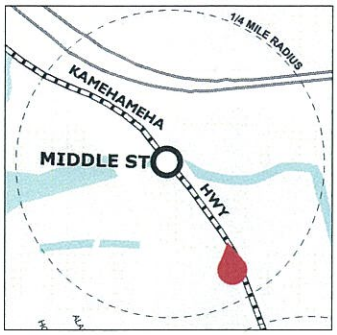


FIGURE 4-1:
ILLUSTRATIVE VIEW OF DILLINGHAM BOULEVARD LOOKING EWA TOWARD MIDDLE STREET STATION AREA

Existing.

Conceptual illustration of improvements on Dillingham Boulevard. Bike lanes, sidewalks, street trees and buildings that come up to the sidewalk improve safety and comfort for pedestrians and cyclists by reducing the perceived width of the street and creating dedicated facilities for walking and biking.

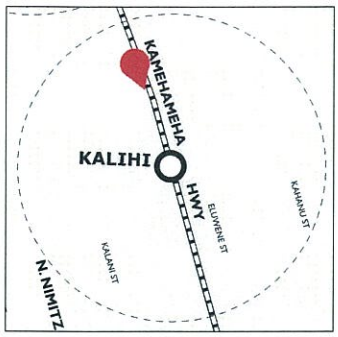


FIGURE 4-2:
ILLUSTRATIVE VIEW OF DILLINGHAM BOULEVARD LOOKING DIAMOND HEAD TOWARD KALIHI STATION AREA

Existing.

Conceptual illustration of streetscape improvements and land use changes along Dillingham Boulevard. OCCC is consolidated into one portion of the site, creating opportunities for new community uses. Landscaping, bike lanes and sidewalks create a truly multi-modal street.

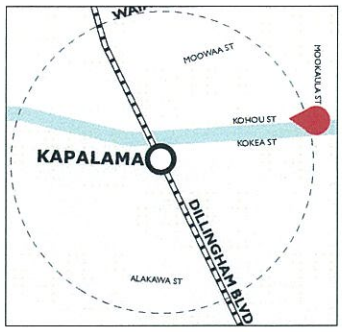
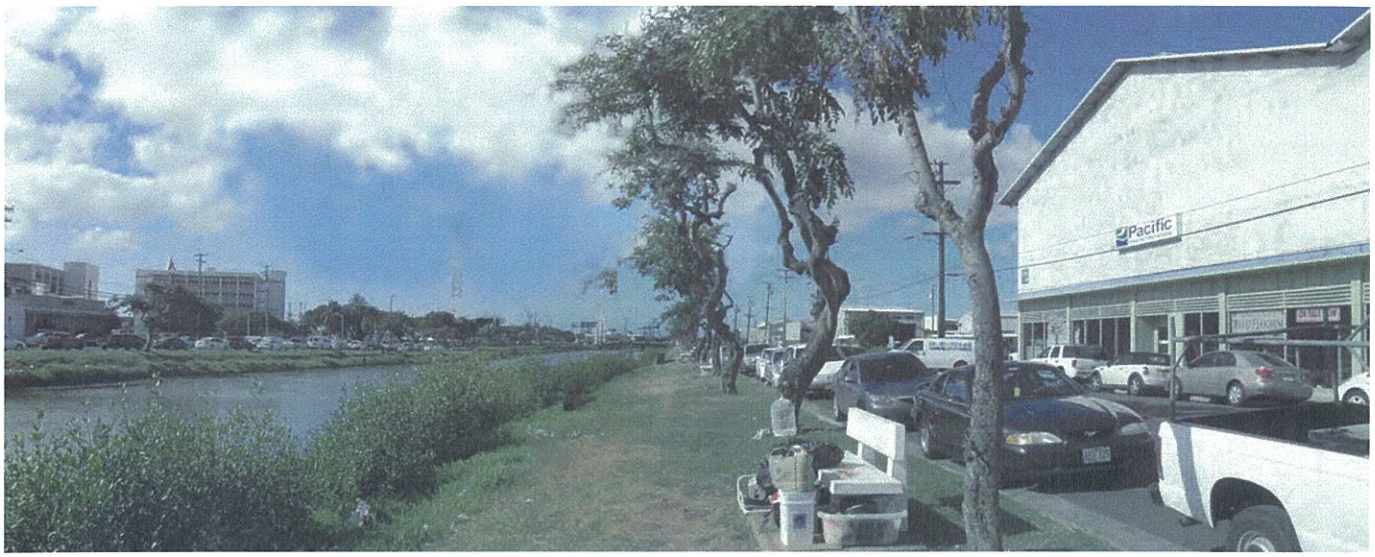


FIGURE 4-3:
ILLUSTRATIVE VIEW OF KAPALAMA CANAL LOOKING MAKAI FROM KOHOU STREET



Existing

Enhanced with paved pathways, landcsaping, and pedestrian amenities, the Kapalama Canal's edge becomes a linear open space that connects the new mixed-use district with the waterfront. New high-density housing along Kohou Street overlooks the canal.

4.2 Open Space and the Public Realm

A high-quality public realm—the space between buildings, including streets—makes an urban area livable by supporting walkability and pedestrian activity. Open spaces are a central component of the public realm and critical to supporting livability in high-density neighborhoods. This section outlines proposed open space locations and types, including parks and promenades. It also addresses other key elements of the public realm, including plazas and pathways, which will help to form a cohesive network of public space. The policies section describes best practices for comfortable, safe, and high-quality spaces.

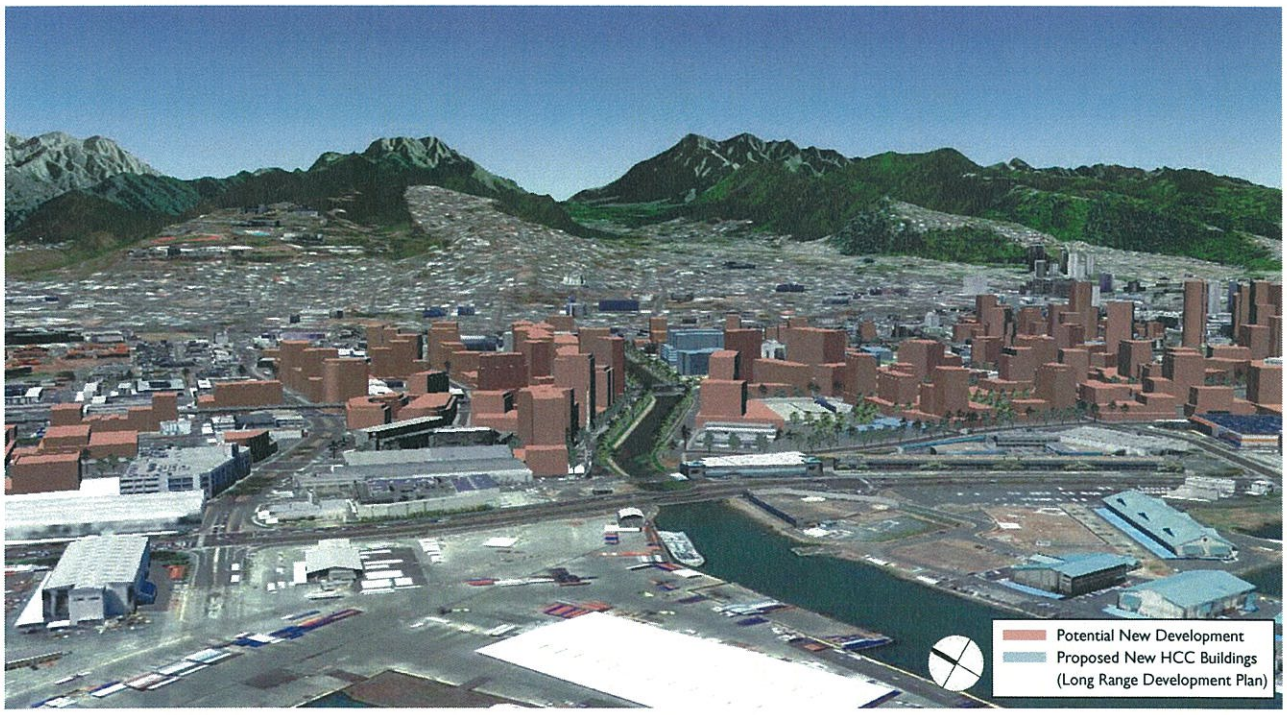
Public Realm

The public realm is an integral part of an urban area's character and helps to define the experience of all users, including those on foot, bicycles, and in vehicles. A well-defined and well-designed sidewalk supports active uses such as retail and community services by enhancing attractiveness and accessibility. The siting, orientation, and design of new development can also enhance the quality of the built environment, help create a pedestrian-scaled experience, and invite activity along the sidewalk. Figure 2-5: Active Ground-Floor Frontage and Pedestrian-Oriented Design, presented in Chapter 2, indicates the areas in which pedestrian-orientation is required of building design. Key aspects of pedestrian-orientation and the public realm are discussed below:

- **Sidewalk Improvements:** Sidewalk improvements should focus on creating wide and comfortable pedestrian spaces that allow people to comfortably walk and stop along Dillingham Boulevard and other locations (e.g., Middle Street) where pedestrian facilitates are lacking. New streets, pedestrian and bike paths, and bridges should serve to break up larger blocks around the Kapalama station and create a more navigable public realm.

Sidewalks near stations should be wide enough to accommodate the high levels of pedestrian activity anticipated with a clear pedestrian pathway free of obstacles, such as utility poles. Landscaping and street furniture can provide a safety buffer between pedestrian and vehicle traffic, and streets lined with active uses and windows help create vibrant districts, as shown in this San Francisco example (bottom).

- **Block Size:** Block length is a central factor in determining the walkablility of an area. Human-scaled block sizes shorten trip lengths, provide more opportunities for street crossing, and increase route choices. Increased connectivity is needed around the Kapalama station, which currently has large blocks.
- **Street Interface:** The relationship between the building and the street helps shape a district's identity and contributes to the overall pedestrian experience. A cohesive street frontage with well-designed building facades creates an attractive and identifiable character and encourage people to walk, shop, and dine in an area.
- **Streetscape and Façade Improvements:** Streetscape improvements along key streets should enhance the pedestrian and bicycle environment and provide identity and thematic continuity to districts. Streetscapes should have a well-defined palette of street trees, plantings, paving materials, and signage to create a cohesive identity for the public realm. Likewise, façade improvements can serve to provide identity along existing pedestrian and bike paths, as well as along major corridors.
- **Directional Signs:** Signage can help enhance a district's identity if it is carefully integrated into the public realm. Signage can also be used to indicate appropriate routes to transit and other community destinations, such as the waterfront or Honolulu Community College.
- **Site Planning:** Site design includes the overall orientation of buildings and open spaces and their interface with adjacent streets and development. Careful site planning can support walkability at the street level and result in a space that can be easily navigated. The strategic location of buildings and parking can enhance visual interest and increase pedestrian safety.
- **Parking Design:** Innovative siting and design of parking areas contribute to a safe and convenient pedestrian environment and an attractive street frontage. See Section 6.2 for more detail.
- **Building Massing:** Massing can be designed to ensure compatible scale, access to sunlight/shade, and a visually interesting skyline. Bulky buildings, on the other hand, can obstruct light and views and contribute to an unpleasant public realm.



Illustrative buildout of Kapalama looking mauka. New high-intensity development on smaller blocks within the Kapalama station area creates a vibrant mixed-use district. The promenade along the canal serves as the district's central mauka-makai connection and recreational open space.

Open Space

Existing Parks and Open Space

Open spaces and parks are currently limited around the Kalihi stations, as shown in Table 4-1 and Figure 4-4. Although Keehi Lagoon Park is a large park at 72 acres, it is not easily accessible from anywhere in the Kalihi corridor. The Mokauea Street Mini Park provides playground facilities, half-court basketball, and open space mauka of the Kalihi station. Kalakaua District Park between Kalihi-Kai Elementary and Kalakaua Middle School is used by the surrounding schools by day and available to the public (e.g., organized sports teams from throughout the city) during non-school hours. These two parks provide just over eight acres, which equates to only 0.8 acres of park per 1,000 residents, based on current average household size. The TOD Plan seeks to improve on this deficiency to improve the provision and safety of, and access to, open spaces.

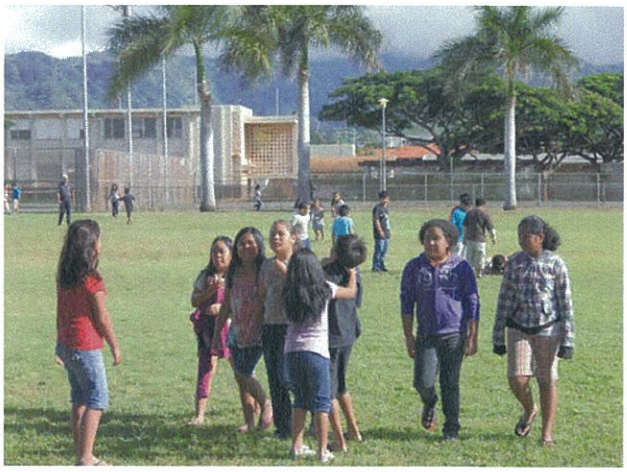
TABLE 4-1: EXISTING PARKS

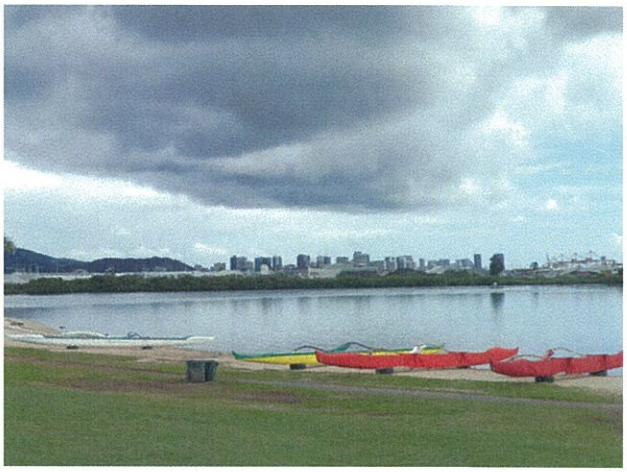
NAME	TYPE	ACRES
Kalakaua District Park	District Park	7.8
Keehi Lagoon Park	Beach Park	72.0
Mokauea Street Mini Park	Mini Park	0.3
TOTAL		**80.1**

Source: City and County of Honolulu, Department of Parks & Recreation and Department of Planning & Permitting, 2011

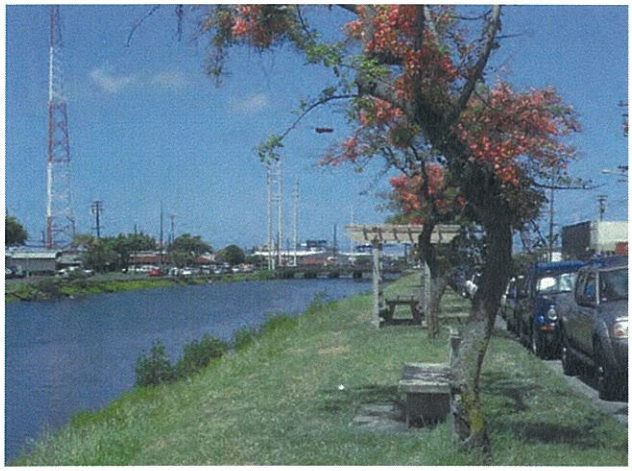
The City categorizes parks into several categories. The following types may be appropriate in the Kalihi corridor:

- Community Parks: typically up to 10 acres and serving a one-mile radius of residents, which may have a variety of amenities including ball fields and basketball courts;
- Beach Parks: typically at least five acres providing day-use access to picnic areas and beaches;
- Neighborhood Parks: typically about 4-6 acres and serving a ½-mile radius of residents;
- Mini Parks: small parks serving a ½-mile radius of residents, with benches, tables, landscaping, and perhaps a children's play area;
- Urban Parks: small plazas or parks with landscaping, typically produced as part of development projects for public and/or private use; and





Parks in the Kalihi corridor are essential components of the neighborhood's pride and identity, but they are not well distributed and are limited to the Mokauea Street Mini Park (top), Kalakaua District Park (middle), and Keehi Lagoon Park (bottom). The TOD Plan seeks to improve on the distribution of parks, particularly as the station areas develop.



Community gardens (top), small plazas (middle), and linear connections (bottom) provide essential opportunities for gathering and relaxation, as shown in these local examples. Park dedication requirements will help to develop open space coincident with new development.

- Linkages: the bikeways, pedestrian paths, and other connections between destinations, including the transit stations and open spaces.

Existing Standards and Policies

The City's Department of Parks and Recreation's Standards and Design Precepts for Future Park Development (2004) provides recommendations and standards for size, amenities, parking, and access by various park types (e.g., two acres of neighborhood parkland per 1,000 residents). It contains policies for promoting the joint use of facilities and park financing strategies through exactions, incentives, zoning, and streamlining the park dedication ordinance. It recognizes that parks are limited in the Kalihi corridor and recommends several strategies for expanding open space access, including sharing Palama Settlement facilities through a joint use agreement; developing a park on the peninsula in Keehi Lagoon; and developing a sports complex at Fort Shafter in agreement with the United States Army Pacific.

The City's Subdivision Ordinance specifies that park space provided by residential developments can either be accessible by the occupants of lots or units, by the public, or both. The requirement applies to land being subdivided into two or more lots and to the construction of multi-family developments. The regulation stipulates the land area required for parks for various residential designations and districts. For example, in special districts (e.g., Chinatown Special District), multi-family dwellings require parkland that totals 10 percent of the maximum permitted floor area or 110 square feet per unit (whichever is less). The same standard is applied to apartment buildings in mixed-use districts. In lieu fees may also be acceptable in meeting the park dedication requirement.

Open Space Framework

The Plan proposes several new parks and open spaces, and it recommends green connections between existing and future open spaces, including new public promenades along Keehi Lagoon and Kapalama Canal. Open spaces should be developed as the station areas intensify to provide amenities for residents and visitors, to encourage people to live in urban areas, and serve as an additional catalyst for new development.

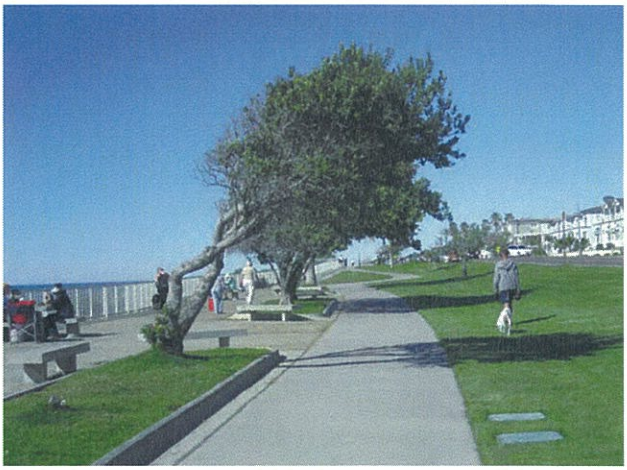
Figure 4-4 shows conceptual locations for new parks around all three stations, as well as improved access to regional parks (i.e., Sand Island Recreation Area and Keehi Lagoon Park) from the Middle Street station. Along Kapalama Canal, new promenades would enable passive activities and active recreation and create a continuous mauka-makai route for pedestrians and cyclists. Parks may be developed in a variety of forms depending on location and community needs, including small hardscaped plazas at well-traveled corners near the stations, linear landscaped streets that connect destinations, and at least one large community park to serve the growing population in Kapalama. Regardless of the park type, safety and accessibility are paramount.

Key improvements include:

- Two new large **Community Parks** (at least five acres total) serving the existing and new population in the Kapalama and Middle Street districts. A community park should include recreational opportunities, such as ball fields, picnic areas, seating, and potentially a community center that can support programs and services. Exact locations will need to be sited but have been shown conceptually along Alakawa Street and just north of OCCC–both within proposed high-density, mixed-use neighborhoods.
- A **Beach Park** on the peninsula in Keehi Lagoon, creating a regional park destination that is linked to Keehi Lagoon Park and the Middle Street station by new pedestrian/bicycle connections across the stream and Nimitz Highway. This park may allow for boat launching, beach access, and picnicking. The waterfront area along the south edge of Keehi Lagoon may ultimatlely be considered for improvement into beach park as well.
- Small **Urban Parks and Plazas** including public/private spaces developed as part of new development projects' open space requirements would provide space for rest and shade near transit stops and active pedestrian areas. At Kapalama station, this could be developed in partnership with Honolulu Community College. These may also be in the form of accessible rooftop open spaces and community gardens within new or redeveloped residential or commercial development, as long as designs demonstrate that security, safety, tenant privacy, and maintenance can be upheld. Actual locations will need to be identified by the City and private developers during the development process.
- **"Green Streets"** are proposed along several new streets in the Kapalama station area and on Alakawa, Kalani, Kalihi, Mokauea, and Kaumualii Streets. These streets connect existing and planned open spaces to create an open space network, improve walkability and livability, facilitate access to the promenades, and create mauka-makai connections that highlight views. Green Streets are characterized by a regular spacing of large shade-providing street trees on both sides of the street. Tree species should be consistent along the length of each Green Street.
- **Promenades** are identified along the waterfront in the Middle Street station area and along Kapalama Canal. These promenades serve as key features of the open space and circulation networks, providing an opportunity to walk, bike, and sit along the water, while also connecting destinations with the rail stations. The Kapalama Canal promenades create mauka-makai connections and view corridors from the piers on the makai side of Nimitz Highway to mauka of King Street (approximately two-thirds of a mile along both sides). The waterfront promenade in the Middle Street station area would be in the form of a trail, improving access to existing and proposed waterfront open spaces. Ultimately, it would extend from Keehi Lagoon Park to Keehi Marina.
- **Pedestrian access** from the Middle Street station platform to the trail makai of the station and a pedestrian bridge over North Nimitz Highway create a continuous path from the Middle Street Intermodal Center, through the rail station, and along the waterfront to Keehi Lagoon Park.

Together, this proposed network of open spaces provides guidance for how new development can improve recreational opportunities in Kalihi. The TOD Plan proposes over 37 acres of open space: 2.5 acres per 1,000 new residents, not including promenades and Green Streets. This potential increase in parks and open space could result in almost 45 total acres of parkland throughout the ½-mile area and improve the ratio of park acreage per 1,000 residents to 1.8.

Green Streets provide connections between open spaces and other activity centers and are distinguished by elements such as trees and plantings, wide sidewalks, pedestrian pathways, and public art.



DYETT & BHATIA

The promenades are envisioned as shared spaces for pedestrians, joggers, and bicycles to promote community health, link open spaces and the waterfront, and connect to rail stations and other destinations. Ala Wai Boulevard in Waikiki (left) and Carlsbad, CA (right) provide examples.

DYETT & BHATIA

DYETT & BHATIA

Open spaces do not need to be grassy areas to be successful and to provide "green" space. Hardscape areas can ease maintenance, while providing seating, shade, signage and event space, as shown by these examples from Mountain View, CA (left) and Walnut Creek, CA (right)..

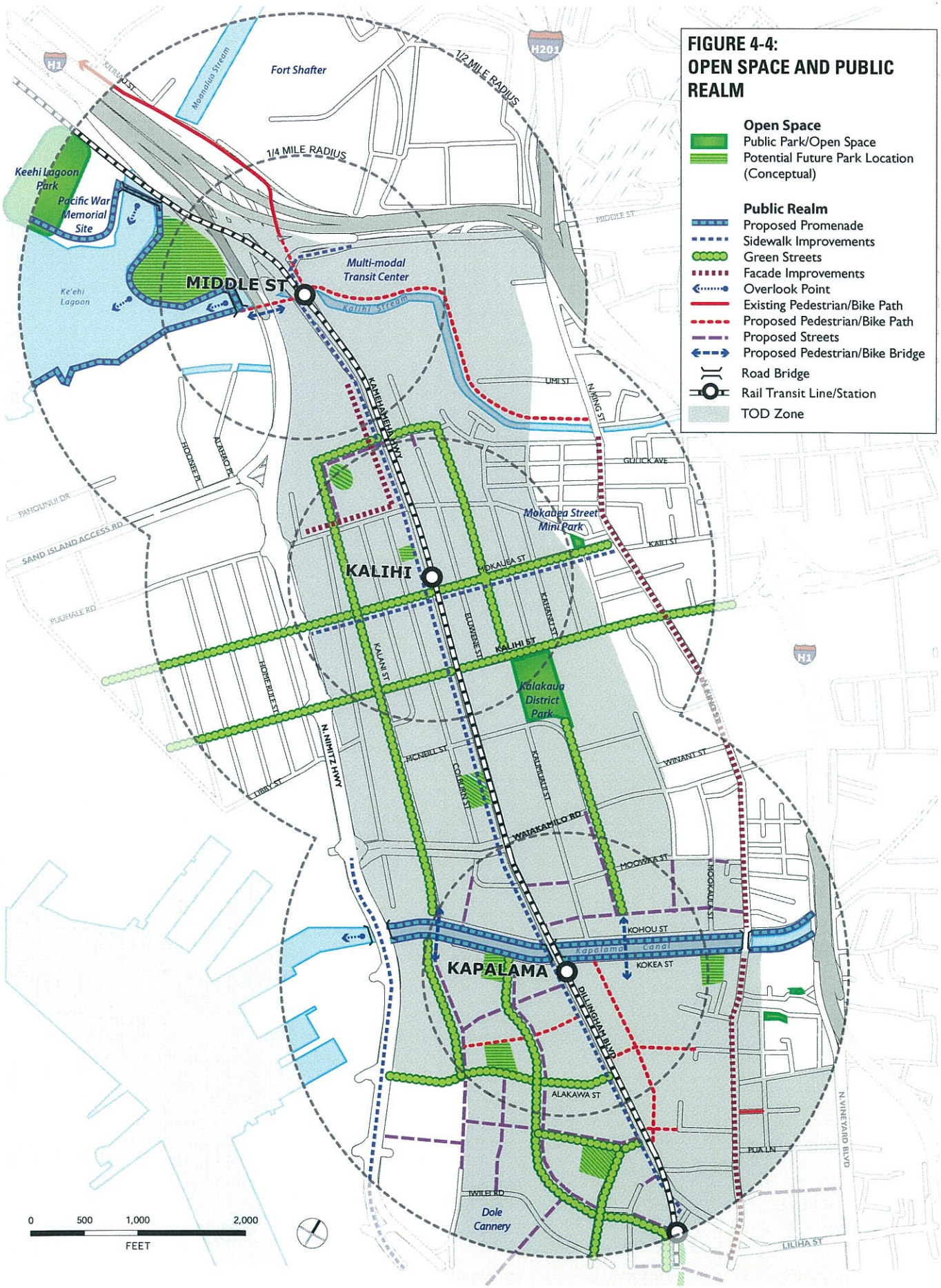


FIGURE 4-4:
OPEN SPACE AND PUBLIC REALM
Open Space
Public Park/Open Space
Potential Future Park Location (Conceptual)
Public Realm
Proposed Promenade
Sidewalk Improvements
Green Streets
Facade Improvements
Overlook Point
Existing Pedestrian/Bike Path
Proposed Pedestrian/Bike Path
Proposed Streets
Proposed Pedestrian/Bike Bridge
Road Bridge
Rail Transit Line/Station
TOD Zone
1/2 MILE RADIUS
1/4 MILE RADIUS
Fort Shafter
Moanalua Stream
Keehi Lagoon Park
Pacific War Memorial Site
Ke'ehi Lagoon
MIDDLE ST
Multi-modal Transit Center
Kalihi Stream
KALIHI
Mokauea Street Mini Park
Kalakaua District Park
KAPALAMA
Kapalama Canal
Dole Cannery
KAMEHAMEHA HWY
N. NIMITZ HWY
DILLINGHAM BLVD
N. VINEYARD BLVD
MIDDLE ST
UMI ST
N. King ST
GULICK AVE
KAILI ST
MOKAUEA ST
KALIHI ST
KAUMAKAPILI ST
WAIAKAMILO RD
MOOWAA ST
KOHOU ST
KOKEA ST
ALAKAWA ST
PUA LN
LILIHA ST
SAND ISLAND ACCESS RD
PUUHALE RD
PAHOUNUI DR
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FEET

4.3 Safety and Community Health

The physical environment influences community health in many ways, including access to housing, jobs, transit, and health services; the ability to walk and exercise in one's community; air quality and noise impacts from vehicles traveling on freeways and major streets; and the prevalence of crime and violence.

Safety

Community members have expressed concern about safety, crime, and homelessness in the Kalihi corridor, particularly how these issues affect community health, the safety and cleanliness of streets, the viability of rail, and potential development opportunities. The design of the public realm can help deter crime, lead to increased safety, and improve quality of life. Adding "eyes on the street" through housing with stoops or balconies and maximizing windows and transparency can also help create a greater sense of community and facilitate neighbor interaction.

Crime prevention through environmental design can help reduce actual and perceived crime problems. The policies below discuss maximizing visibility and natural surveillance and controlling access through differentiation between public and private space. Although these considerations are part of larger problems that the TOD Plan alone cannot solve, policies identified in this plan seek to integrate social services while improving the overall appearance and safety of the station areas.

Community Health

Honolulu's mild year-round climate, and the relatively flat topography of the Kalihi corridor make it an ideal place for true urban living—to walk to jobs and stores, take the train to a football game, or jog along the waterfront. The Plan seeks to promote active living by creating complete neighborhoods with a variety of commercial amenities to serve everyday needs, improving access to the train stations and between neighborhoods, and creating a livelier, engaging public realm that invites walking, biking, and lingering. Improving non-automobile travel is particularly important for the Kalihi neighborhood given the number of children, seniors, and low income families—groups that typically do not drive or own cars. Making recreation facilities more accessible—dispersing them throughout the community and making programs affordable to low-income residents—will also increase the likelihood that all residents will incorporate healthy activity into their daily lives.

Furthermore, sustainable development also contributes to the health and welfare of residents. The construction, operation, and demolition of buildings and landscapes should be accomplished sustainably, through natural resource conservation and energy efficiency, to ultimately increase economic vitality and improve the health of employees and residents.

Safety and security around the stations will depend in part on the design of the public realm. Walkways should have clear sightlines and good lighting, and stations must be well-maintained and visible from the public right-of-way.

4.4 Goals and Policies

GOALS

Station Area Character

UD-G1: Promote station area environments that are clean, safe, and attractive, and that have a range of amenities, such as personal services and cafés, that will attract transit users.

UD-G2: Improve linkages—for pedestrians, bicyclists and buses—between the stations and the surrounding areas.

Public Realm and Design

UD-G3: Create memorable and livable streets and streetscapes that promote neighborhood identity and enhance pedestrian comfort and safety.

UD-G4: Design high-quality architecture and site plans that are well-integrated with public streets and enhance the livability of the districts.

UD-G5: Establish an integrated framework for the public realm, including a unified street tree scheme, pedestrian amenities, and publicly-accessible private open spaces, to achieve the vibrant district expressed in the community vision.

Open Space

UD-G6: Provide an open space of at least one-quarter acre within a five-minute walking distance of all residential development within the TOD Zone.

UD-G7: Integrate parks and plazas throughout new development along pedestrian and bike paths to create a cohesive and connected open space network.

UD-G8: Design open spaces to be well-lit, visible from public streets, and thoughtfully programmed to encourage use during the day by families, seniors, and workers on break and in the evenings by professionals and recreational sports teams.

Safety and Community Health

UD-G9: Design high-quality open spaces and a public realm that is safe, accessible, and integrated into the existing community, balancing new high-density development.

UD-G10: Improve access to a variety of transportation modes and opportunities for physical activity that enhance health and support community members of all ages, lifestyles, incomes, and abilities.

POLICIES

Station Area Character

UD-P1: Support the development of stations as destinations in and of themselves by inviting private investment and integrating a variety of uses. Develop partnerships with local businesses to provide basic amenities at each station, such as public restrooms, cafés, personal services, banks, and day care centers.

UD-P2: Work with the Honolulu Authority for Rapid Transportation (HART) to implement technology that provides real time information about departure and arrival times of trains (e.g., through a cell phone application and information screens at street locations and nearby businesses), and provide wireless internet access in and around the stations.

UD-P3: Support connections to key transit stops from surrounding neighborhoods with visible and coherent directional signs, and street lights that complement the streetscape.

UD-P4: Design wayfinding and other signs with features, materials, and colors that are consistent with the scale and character of the district in which they are located.

- Locate directional signage at key locations to indicate routes to transit, the waterfront, promenades, and major destinations.

UD-P5: At Kapalama station, coordinate with Honolulu Community College to integrate station access into the campus through a plaza and supportive uses.

Public Realm and Design

STREETSCAPES, SIDEWALKS, AND THE STREET INTERFACE

(Also see Chapter 3 policies on living streets and street design)

UD-P6: Design sidewalks to include an unobstructed path for travel, separate from street landscaping and street furniture areas. Reserve the area closest to the curb for street trees, landscaping, street lights, bus stops, street signs, trash/recycle bins, bicycle parking, street furniture, and newspaper boxes.

UD-P7: Create walkable blocks of approximately 350 feet in length around the Kapalama station. Provide mid-block pedestrian connections on longer blocks that maintain sight lines from one end to another; install clear signage that acknowledges that the space is for public use.

UD-P8: Scale development along pedestrian-oriented retail streets and pedestrian connections with fine-grained, highly articulated facades, changes in materials, ample fenestration, and visible entryways. Equip pedestrian paths with shade trees, seating, kiosks, lighting and other amenities.

UD-P9: Retain historic curb stones wherever they currently exist, and restore them in areas where they were used historically.

UD-P10: Implement low-impact design and stormwater management best practices and maximize porous surfaces in the design of development sites, streets, and streetscapes, especially around the Middle Street station where flood risk is highest.

UD-P11: Maintain pedestrian safety and the health of trees by planting street trees with non-agressive root systems and allowing adequate tree planting area to avoid uplift of pavement.

UD-P12: On Bannister Street, Gulick Avenue, Kopke Street, and the intersecting streets, where streets are narrow and in disrepair and sidewalks are missing, prioritize safety for all modes. Where possible, clearly mark parking and walking aisles, and improve parking and code enforcement.

UD-P13: Maintain a continuous street wall along public streets. Articulate building facades with three-dimensional elements that create a visual play of light and shadow, including balconies, recesses, reveals, and brackets:

- Maximize transparency of ground floor non-residential uses through large windows and architectural features.
- On blocks where active street frontage is required, limit the length of blank walls to 20 feet. Where active frontages are allowed, limit the length of blank walls to 60 feet. Use murals, public art, living walls, and landscaping where windows and articulation are not feasible.
- Provide awnings and overhangs over the sidewalk to enhance pedestrian comfort.
- Orient public entrances to face a public street or open space and ensure that they are visible and accessible from the street.
- Encourage façade improvements along King Street to boost the economic viability of independent stores. Develop a façade improvement program to assist business owners with improvements that enhance the pedestrian quality of key corridors.

SITE PLANNING AND BUILDING MASSING

All Stations

UD-P14: Locate buildings close to the sidewalk in order to define the public realm and provide active uses next to the sidewalk. Buildings may be set back to allow for outdoor dining, plazas, or other active public spaces.

UD-P15: Maximize physical and visual access to the waterfront.

UD-P16: Employ passive cooling methods in building design. This may include natural ventilation; ground-level, roof-level, and terrace-level shading structures; evaporative cooling; and high thermal mass of building materials.

UD-P17: In areas where building height regulations transition, step back upper levels of building to transition to adjacent lower building heights.

UD-P18: Design parking areas that contribute to a safe, convenient pedestrian realm, a sustainable built environment, and an active street frontage:

- Locate parking to the side or rear of buildings, in structures wrapped with active uses at the ground level, or behind decorative architectural elements.
- Limit curb cuts and driveway entrances to reduce conflicts with pedestrians. Locate driveway entrances on side streets and access drives whenever possible.
- Provide direct pedestrian connections between buildings, parking areas, public sidewalks, and transit. Design walkways to be adequate in width and differentiated from parking and driveway areas.
- Design loading areas to be off the public right-of-way and screened from the sidewalk.
- Provide secure bicycle parking near building entrances and exits.

UD-P19: Where industrial or warehouse uses abut residential buildings, provide transitions and buffers from noise and unsightly uses. Buffers may involve decorative screening or natural landscape materials such as trees, shrubs, vines, or livings walls (e.g., concrete wall with creeping vines).

Middle Street Station Area

UD-P20: On large parcels, establish site plans for mixed-use development that integrate pedestrian pathways, connections to parks, Green Streets, and access to Kamehameha Highway.

UD-P21: Define a street wall along Dillingham Boulevard by reducing setbacks and bringing buildings to the sidewalk edge, thus reducing the perceived width of the roadway and creating a more pedestrian-oriented street.

UD-P22: When a parking structure is visible from the public right of way, employ decorative architectural elements or wrap active uses at the ground level. Avoid large, contiguously paved parking lots. Instead disperse parking throughout the project into smaller parking areas.

Kalihi Station Area

UD-P23: Ensure that new buildings and entries orient toward Dillingham Boulevard and Puuhale Road for maximum visibility and access.

UD-P24: Within existing residential neighborhoods, encourage new development that provides ample sidewalks, inviting street edge treatment, and adequate street lighting while maintaining privacy to adjacent residential properties.

UD-P25: Along Mokauea Street and Kalihi Street (Green Streets), provide a safe walking environment at all times by encouraging developments with street-oriented entries and windows and pedestrian lighting.

Kapalama Station Area

UD-P26: Encourage building variation and articulation through changes in building height and massing. Design towers to be slender and stagger them to minimize shadows and protect waterfront views. Along Kohou Street, set towers back from the canal to preserve views.

UD-P27: For new developments along Kapalama Canal, encourage windows, entryways, and stoops that face the canal, and locate active ground-level uses facing the canal where feasible.

Open Space

UD-P28: Develop at least one large park (of at least five acres) within a ½-mile of Kapalama/Iwilei stations. A large park should provide recreational facilities such as community centers, basketball courts, ball fields, children's play areas, picnic areas, and restrooms.

UD-P29: In the Kapalama station area, where space may be limited, provide open space in the form of plazas and accessible rooftop gardens. Provide active uses along or

within these spaces, as well as amenities such as seating, shade, and landscaping. Clearly indicate access to rooftop gardens through signage that is visible from the public street.

UD-P30: Require a minimum dimension of eight feet for all open spaces (publicly accessible as well as private).

UD-P31: Provide a diverse range of amenities in park spaces, including benches, trees, lighting, drinking fountains, and trash receptacles. Provide a mix of landscaped and hardscape areas that provide opportunities for resting and shade, outdoor eating, and other activities.

UD-P32: Design promenades to create a sense of continuity and cohesiveness, with opportunities for walking and biking along the waterfront, lingering at overlook points, and visiting multiple destinations:

- The promenades should display a unified urban design scheme, with amenities such as benches, art, landscaping, lighting, banners, textured paving, and spaces for vendors and public functions.
- Kapalama Canal: Provide continuous pedestrian walkways on both sides of the canal. Design Kohou Street as a slow vehicle street, with design elements such as special pavers, pedestrian areas defined by bollards, and a clearly marked parking aisle. Locate any open spaces and plazas adjacent to the promenade, and design them to provide a transition between private and public space.
- Keehi Lagoon: Design the promenade along Keehi Lagoon to encourage the exploration of recreation and park areas through signage and kiosks, facilitating pedestrian and bicycle access between Middle Street station and Keehi Lagoon Park. Ensure that design is compatible with flood risk projections. Establish a clearly-marked path from the Middle Street Intermodal Center to Keehi Lagoon Park. Transitions to pedestrian bridges and waterfront trails should be inviting and seamless.

UD-P33: Emphasize visibility and access to open spaces abutting streets or promenades by providing seating and shade along open space edges.

UD-P34: Where possible, orient private open spaces, such as courtyards, balconies, and building entrances toward open spaces to provide a transition between private and public activities and to increase safety.

UD-P35: Maximize the efficiency of open spaces through joint usage and alternating time-of-day uses. Joint (co-located) uses may include schools and rooftop gardens; parks and child care facilities; and subterranean or tuck-under parking below new parks and plazas.

Safety and Community Health

UD-P36: Engage merchants, the Police Department, mental health and social service providers, and other stakeholders in defining critical issues and actions.

UD-P37: Ensure that community members can access communication services such as emergency phone kiosks during emergencies.

UD-P38: Provide safe and durable 24-hour public toilets with clear signage, and provide for their ongoing maintenance, security, and frequent cleaning.

UD-P39: Provide adequate cleaning and maintenance of sidewalks and street furniture to support and attract pedestrian activity.

UD-P40: Ensure that buildings are oriented to streets and open spaces, and enhance community safety through a variety of design techniques:

- Orient windows and balconies towards public streets, open spaces, and parking areas.
- Ensure that building entrances and parking areas are well lit and that clear visibility can be maintained from inside the building to the street and sidewalk.
- Maintain low-growing landscaping to provide good visibility to neighboring areas and enhance the sense of place.

- Design and locate lighting to illuminate buildings and walkways so that they are visible from afar. Incorporate decorative and pedestrian-scaled lighting.
- Emphasize sight lines and access to public spaces, parks, the waterfront, and promenades via pedestrian connections, landscaping and signage.
- Involve residents in neighborhood improvement efforts, including issues concerning safety, neighborhood character, planning, and revitalization.

UD-P41: Develop a program of community and recreational activities and events to activate key parks, with an emphasis on evening and weekend activities.

- Work with interested community members and organizations to plan and develop an exercise circuit that takes advantage of existing parks, and other pedestrian infrastructure. The course should be clearly marked, and contain simple stations and diagrams for self-guided training.

UD-P42: Support clean fuel vehicles in order to reduce energy use, energy costs, air pollution and greenhouse gas emissions by residents, businesses, and city government activities.

UD-P43: Continue to pursue Safe Routes to School funding and infrastructure development opportunities to improve students' opportunities for safe walking and bicycling to and from schools and to improve the overall health and well-being of children.

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5 PUBLIC FACILITIES, SERVICES, AND INFRASTRUCTURE

This chapter outlines strategies to maintain and improve the public and quasi-public facilities, services, and infrastructure that are essential parts of a livable and sustainable community. Public facilities and services, including affordable housing, social services, police and fire service, schools, and other institutions, contribute to the identity and social equity of the community, while infrastructure improvements—including sewer, water supply, and drainage—ensure that growth and development are responsibly managed and accommodated. Streets, sidewalks, parks and open space are addressed separately in Chapters 3 and 4.

The Kalihi Neighborhood TOD Plan supports the development of public facilities and services in concert with residential and commercial development to ensure a livable and sustainable future.

Educational institutions serve as important community centers, especially in the Kapalama and Kalihi station areas, where several schools are located.

5.1 Public/Quasi-Public Facilities and Services

Police and Fire Facilities

The Honolulu Police and Fire Departments manage public safety in the city. However, there are no police stations within the Kalihi ½ -mile planning area. There are two fire stations in the ½-mile planning area: at North King and Kalihi Streets and at Waiakamilo Road and Nimitz Highway, as shown on Figure 5-1.

As growth and development occur in the corridor, fire and police capacity will have to be evaluated to ensure that station locations and staffing levels are adequate to maintain acceptable levels of service.

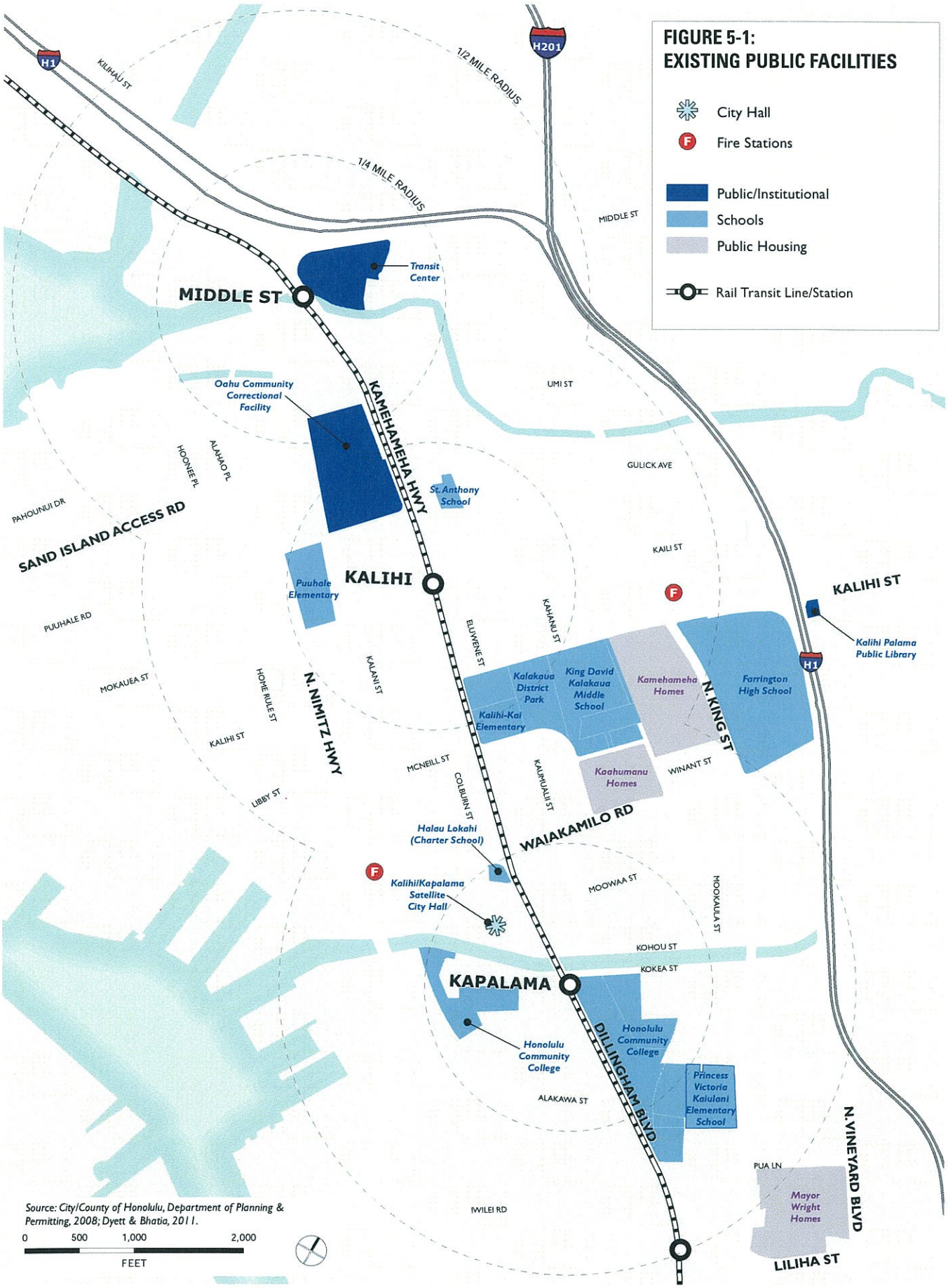
Education and Library Services

Education and youth development are primarily undertaken by local K-12 schools in the corridor, as well as Honolulu Community College. These institutions primarily serve students and their families, but they also serve as centers of community activity for all Kalihi residents.

K-12 Schools

There are several schools in the ½-mile area, serving as both educational institutions and community gathering places, as described in Table 5-1 and shown in Figure 5-1. In general, elementary school students living in the Kalihi corridor attend either Puuhale or Kalihi-Kai, depending on whether they live makai or mauka of Dillingham Boulevard, respectively. Kalakaua Middle School serves students in Kalihi on a site adjacent to Kalihi-Kai Elementary and Kalakaua District Park. Farrington High School lies just beyond the ½-mile area and, with a larger catchment area, requires that students travel somewhat longer distances to school whether on foot, by bicycle, by transit, or by car.

In recent years, the DOE has developed a school impact-fee program to collect fees in high-growth areas to help mitigate the costs of constructing and rehabilitating schools. To calculate this fee, the department determines student generation rates based on the type



Source: City/County of Honolulu, Department of Planning & Permitting, 2008; Dyett & Bhatia, 2011.

TABLE 5-1: CHARACTERISTICS OF SCHOOLS IN THE KALIHI CORRIDOR

	GRADES	STUDENT ENROLLMENT	ECONOMICALLY DISADVANTAGED
Puuhale Elementary	Pre-school and K-5	262	82%
Kalihi-Kai Elementary	Pre-school and K-5	627	77%
Princess Victoria Kaiulani Elementary	Pre-school and K-5	421	89%
King David Kalakaua Middle	6-8	1,040	74%
Farrington High School	9-12	2,374	67%
Halau Lokahi (charter)	K-12	239	
St. Anthony School (private)	K-8	92	
TOTAL		**5,055**	

Source: Hawai'i Public Schools, Enrollment Report 2013-2014 and School Status and Improvements Report 2012-2013 (public); GreatSchools.net (charter and private).

of new housing (for example, multi-family affordable housing is expected to generate more students than resort-oriented condos). At this time, no district in urban Honolulu has been identified as an impact fee area. Still, as described in Chapter 2: Land Use, the Kalihi Neighborhood TOD Plan area could accommodate approximately 6,000 new housing units in the ½-mile area over the next 20 years, which will generate new students. The City will need to coordinate with the DOE regarding anticipated new residential development to ensure that the capacity of public schools meets the needs of the future student population.

Higher Education

Honolulu Community College's main campus occupies over 20 acres along Dillingham Boulevard and Kokea Street, directly adjacent to the Kapalama station location, establishing it as a prime TOD location with a captive pool—students, staff, and professors—of potential transit users. An auxiliary site is located on Kokea Street, one block makai of the main campus. Honolulu Community College is part of the University of Hawaii (UH) system, providing career and technical education, as well as direct transfer to UH or other colleges with complete four-year baccalaureate degree programs. Many of the College's programs have ties with local industries, such as aeronautics, automotive technology, carpentry, commercial aviation, communication arts, and industrial education.

HCC has recently undertaken a master planning effort to redevelop its campus. This Long Range Development Plan acknowledges the potential benefits of the college's location adjacent to rail transit and seeks connections to and integration with the Kapalama station. The plan includes new instructional facilities; pedestrian connections through campus and a pedestrian-only mall leading to the rail station; a student union to provide more recreation and activity space for students; and a parking garage that may include ground-floor commercial uses and housing above the parking decks. New buildings, between two and six stories tall, would increase the overall density of the campus. Sustainability principles, including energy efficiency and native landscaping, are key tenets of the plan.

Public Libraries

Although there are no public libraries in the immediate ½-mile area, the Hawaii State Public Library System does have a branch, the Kalihi-Palama Public Library, on Kalihi Street just mauka of the H-1 freeway. The library can be accessed from Kalihi Street which bridges across H-1. A pedestrian bridge from Farrington High School provides pedestrian access to Kalihi Street, avoiding conflict with the freeway on-ramp.

Affordable Housing and Social Services

Affordable housing and social services for homeless, youth, seniors, and low-income persons are necessary components to achieving the high quality of life expressed in the community's vision for all residents, regardless of age, income or disability.

Income-Restricted Housing

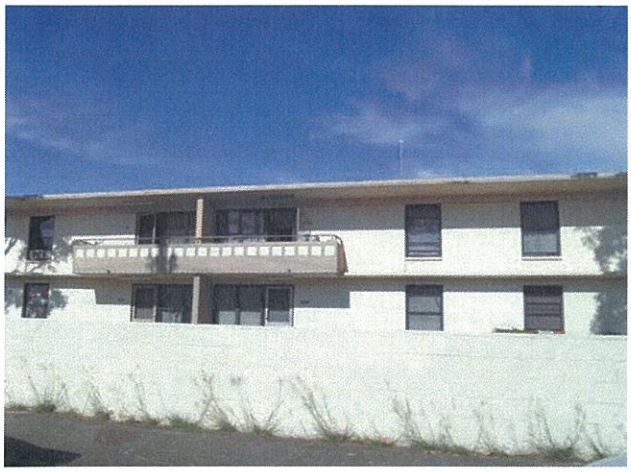
There are two income-restricted housing developments within the ½-mile area, providing approximately 375 public housing units: Kaahumanu Homes and Kamehameha Homes. In addition, Mayor Wright Homes is located just beyond the ½-mile area (and is discussed in the Downtown Neighborhood TOD Plan). Many more income-restricted housing developments are located in Kalihi Valley and closer to the Iwilei station. While subsidized housing is somewhat limited, market-rate housing in the corridor is still often relatively affordable for residents due to the older age of the housing stock, crowded conditions, units in disrepair, and low rent.

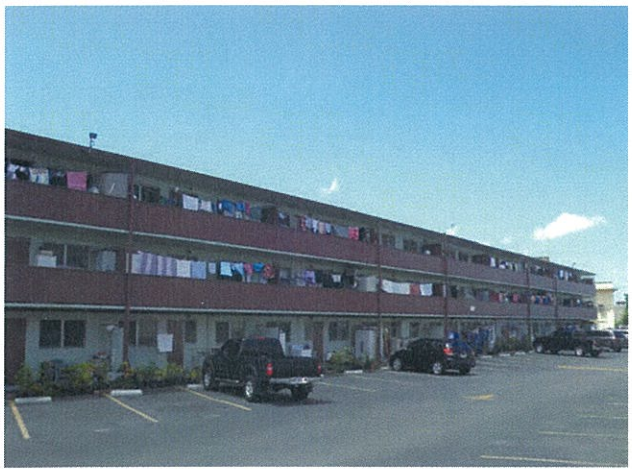
Social Services

There are a variety of social service providers in the Kalihi corridor including, but not limited to:

- Helping Hands Hawaii serves over 3,000 clients per year at its location makai of the Kalihi station. They provide services for low-income residents with mental health problems living in transitional housing; financial services for persons with language barriers; donations for families (clothing, food, furniture, bus passes); behavioral support; and school supplies for kids.
- The Susannah Wesley Community Center, located mauka of the Kalihi station area, provides a range of services to youth, adults, and seniors, with an objective to provide comprehensive services that promote the self-sufficiency of each individual and family.
- Kalihi-Palama Health Center on North King Street is a full service outpatient health center offering behavioral, dental, and family health services, in addition to women's health, homeless, education, Women, Infants & Children's Nutrition (WIC), and other services.
- Honolulu Community Action Program, located within Kamehameha Homes, delivers need-based

The Honolulu Community College Long Range Development Plan calls for expanded educational, training, and social spaces, and it embraces the Kapalama rail station.





There is limited subsidized affordable housing (top) within the ½-mile area, but much of the housing is still relatively affordable due to the aging housing stock and crowded conditions (middle, bottom).

human services to economically challenged individuals and families through a variety of services designed to alleviate the social, emotional and economic stress often associated with poverty.

- The Hawaii Foodbank is the only nonprofit agency in the state of Hawaii that collects, warehouses, and distributes mass quantities of both perishable and non-perishable food to 250 member agencies by providing services in collecting, sorting, salvaging and distributing food. They are located on Kilihau Street, ewa of H-1 and the Middle Street station.

Future Needs

Based on discussions with residents, developers, property managers, and other stakeholders, community members and affordable housing providers lament that the demand for affordable housing far exceeds the supply, especially given the high cost of housing and the lack of rental housing being produced in Honolulu. Additional housing options are needed for a range of income levels, including: temporary shelters and permanent housing solutions for homeless individuals and families; family and senior low-income housing; moderate-income housing; and market-rate rental housing.

Supporting the non-profit providers described above and continuing to collocate affordable housing and social services can make strides in improving people's health and general welfare. The types of uses appropriate for TOD, such as housing, inexpensive eateries, and basic services such as pharmacies and grocery stores, as well as the availability of jobs, can support the needs and desires of all residents, regardless of income. Moreover, affordable housing within walking distance of transit provides access to high-quality, low-cost transportation and job opportunities throughout the rail corridor.

The design and maintenance of affordable housing and homeless and other services are important for instilling pride in tenants and users. For example, the men's and women's homeless service centers (which include shelter programs) that the Institute for Human Services operates in Iwilei provide an oasis-like presence in industrial areas with edible garden landscaping and urban agriculture training programs doing double duty as workforce development and transformative urban landscapes.

5.2 Infrastructure

This section provides an overview of the wastewater, water supply, and drainage implications of TOD in the Kalihi ½-mile planning area.

Wastewater

The City and County of Honolulu Department of Environmental Services provides sewer service in the Kalihi corridor. Wastewater treatment and transmission capacity is constrained in certain areas thoughout the city and a potential hindrance to development since property owners and developers—particularly the first applicants in a constrained area—may need to make costly improvements (e.g., to trunk lines and pumps) to satisfy projected capacity.

Corridor Analysis

Estimates of existing and potential future wastewater generation as a result of implementation of the TOD Plan are shown in Table 5-2. Although the TOD Plan does not exceed projections already anticipated under current zoning, there are some areas where the proposed growth might not be accommodated under existing conditions given constraints and capacity limits on the current system. Existing sewer infrastructure is in need of upgrades to the collection, as well as transmission, systems to support TOD and other development.

To ameliorate current deficiencies, the Department of Environmental Services (ENV) is undertaking a number of actions. It is updating its Sewer I/I Assessment and the InfoWorks flow model to provide a more current evaluation of existing conditions, projected needs, and necessary improvements. Ongoing Capital Improvement Program (CIP) projects are being done in order to comply with the U.S. Department of Environmental Protection's mandated Consent Decree, which will also provide TOD capacity. Finally, ENV is also working to implement its Sand Island Wastewater Treatment Plan (WWTP) Facilities Plan; this facility serves all of urban Honolulu, and upgrades are crucial in order for long-term TOD to move forward.

Station-Level Analysis

The projected needs for new development in the corridor are described by station below and shown in Table 5-2. All sewage generated will be treated at the Sand Island WWTP.

- The Middle Street station area has existing sewer infrastructure that connects to a 54-inch interceptor that ultimately connects to the Hart Street Pump Station. The projected increase for the Middle Street station area is minor, bordering on insignificant. Net increase in average daily wastewater generation is estimated to be 0.03 MGD. The increased population will generate wastewater flows of approximately 95 equivalent single-family residences (ESDU) and generate $0.6 million in Wastewater System Facility Charges (2013/14 rate) for wastewater system expansion through the Plan's buildout.
- The Kalihi station area has existing sewer infrastructure that connects to the Hart Street Pump station. The Kalihi station area net increase in average daily wastewater generation is projected to be 0.24 MGD. The increased population will generate wastewater flows approximately equal to 750 ESDU and generate $4.7 million in Wastewater System Facility Charges as the area approaches buildout over a 20-year period.
- The Kapalama Station area has existing sewer infrastructure that connects to the Hart Street Pump Station. The Kapalama station area net increase in average daily wastewater generation is projected to be the largest of all three stations, at 1.2 MGD. The increased population will generate wastewater flows approximately equal to 3,730 ESDU and generate $23.3 million in Wastewater System Facility Charges.

Implementation

Updated analysis and physical upgrade efforts are underway to the Sand Island WWTP and Collection System to guide implementation of sewer-related improvements.

At the time TOD projects start moving forward with the entitlement process, one of three developer conditions will exist (based on existing funding rules/mechanisms):

1. Adequate Sewer Condition;
2. Inadequate Sewer Condition with City-Initiated Project with Budget and Schedule: The TOD project would have to schedule Certificates of Occupancy to coincide with the completion of the relief sewer project(s) affecting the TOD project; or
3. Inadequate Sewer Condition with no Budgeted Funding or Schedule: The TOD project would have to commit to replacing the inadequate sewers prior to the issuance of any Certificate of Occupancy. The TOD project would be able to get reimbursement for sewer improvement work up to the level matching the project's Wastewater Facility Charge. Subsequent TOD projects (or other projects) would get the benefit of the improvement and not have to share in the sewer upgrade costs.

Lastly, when constructing street, sidewalk and other surface improvements, the designer/contractor should be aware of the City's underground sewer facilities and ensure clearances are met.

TABLE 5-2: WASTEWATER DEMAND RESULTING FROM TOD PLAN BUILDOUT

STATION AREA	WASTEWATER GENERATION MGD[1] (COMMERCIAL/ INDUSTRIAL)	WASTEWATER GENERATION[2] (DWELLING UNITS)	TOTAL WASTEWATER GENERATION (MGD)
Middle Street			
Existing Uses	0.09	0.02	0.11
Future with TOD Plan	0.11	0.03	0.14
Net Increase			*0.03*
Kalihi			
Existing Uses	0.23	0.43	0.65
Future with TOD Plan	0.27	0.62	0.89
Net Increase			*0.24*
Kapalama			
Existing Uses	0.50	0.38	0.88
Future with TOD Plan	0.57	1.52	2.09
Net Increase			*1.21*
TOTAL			
Existing Uses	**0.82**	**0.82**	**1.64**
Future with TOD Plan	**0.95**	**2.17**	**3.12**
Net Increase			***1.48***

1. Based on 1 person per 150 Sq. Ft. and 25 gpcd (gallons per capita per day)
2. Based on 2.8 persons per unit and 80 gpcd

Source: Bills Engineering, 2012.

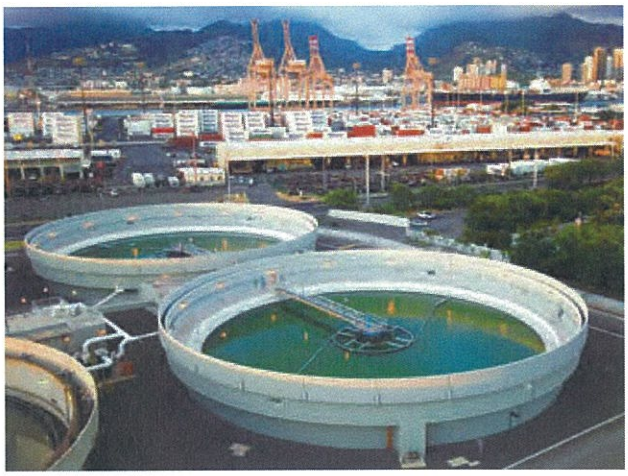
Water Supply

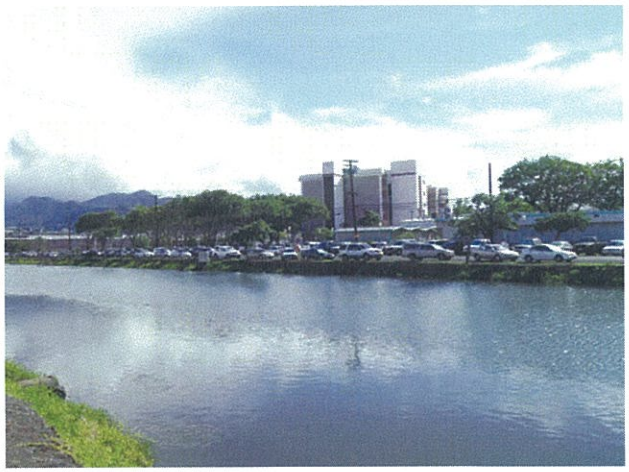
The Board of Water Supply (BWS) provides water service to the Kalihi ½-mile area. The water system contains three components: source, storage and transmission. Water conservation measures, increased water rates, and leak repairs have resulted in a decrease in water demand and improved efficiency over the last 20 years despite an increase in population. Although additional water supply and storage opportunities may be needed to accommodate future growth (resulting from the TOD Plan, as well as other development and population growth outside Kalihi), it is possible that additional supply may not be needed if present conservation and reduced consumption trends continue. Thus, water availability is not seen as a constraint to buildout of the TOD Plan.

Corridor Analysis

The commercial and residential development projections for the TOD Plan fall below the maximum floor area ratios (FAR) allowed by the current zoning for the areas, so TOD will not produce population growth beyond that previously used for regional water utility master planning purposes. Estimates of existing water demands, proposed water demands, and net increases are shown in Table 5-3 within ½-mile of the three Kalihi stations.

The predominant existing land uses and proposed TOD land uses for all three station areas require a fire flow of 2,000 gallons per minute (gpm). The station areas currently contain pipe sizes (mainly 12-inch) that are capable of accommodating this fire-flow requirement. Therefore, it is anticipated that the backbone transmission system is generally adequate to support the projected development. Existing streets within the ½-mile area, in general, have water lines with adequate sizes. It is anticipated that additional source and storage will be provided by existing BWS wells and reservoirs.





Improvements to infrastructure systems must be made in tandem with new development. While some improvements must be coordinated at the regional level, others—such as stormwater management—may be undertaken at the project level. The bioswale pictured (bottom) is located in Portland, OR.

Station-Level Analysis

One of the infrastructure implications of any new development is that additional source and storage components must be provided. The Kapalama station area has the largest projected increase in water usage for the three station areas. The additional source requirement is estimated to be 2.1 MGD and must match the maximum day flow (average daily flow x 1.5) of 3.1 MGD. The Kalihi station area has a very modest projected increase: the additional source requirement is estimated to be 0.37 MGD and must match the maximum day flow of 0.56 MGD. The Middle Street station has a very modest to insignificant projected increase: additional source requirement is estimated to be 0.03 MGD and must match the maximum day flow of 0.05 MGD.

The BWS assesses Water System Facility Charges (WSFC) for all new development requiring water service. The charges are assessed to allow the Board to develop new source, storage and transmission elements to serve new development. The increased water usage converted to equivalent multi-family dwelling units will generate approximately $28.5 million in WSFC for replenishment of the BWS water system at Kapalama station, $5 million at the Kalihi station, and $0.4 million at the Middle Street station as the area approaches buildout. The Board would generally replenish source and storage components and apply the revenues to those components. TOD projects would be responsible for localized distribution system upgrades and additions (8-inch and 12-inch lines), if required.

Implementation

BWS source, storage and major off-site regional transmission requirements for TOD projects will be paid for by individual projects by means of payment of the applicable portion of the Board's Water Service Facility Charges. The Board will in turn use fees to upgrade its facilities on a regional basis.

TABLE 5-3: WATER DEMAND RESULTING FROM TOD PLAN BUILDOUT

STATION	WATER REQUIREMENT MGD[1] (COMMERCIAL/INDUSTRIAL)	WATER REQUIREMENT[2] (DWELLING UNITS)	TOTAL WATER[3] REQUIREMENT (MGD)
Middle Street			
Existing Uses	0.05	0.03	0.08
Future with TOD Plan	0.07	0.05	0.11
Net Increase			*0.03*
Kalihi			
Existing Uses	0.14	0.76	0.90
Future with TOD Plan	0.16	1.10	1.27
Net Increase			*0.37*
Kapalama			
Existing Uses	0.30	0.68	0.98
Future with TOD Plan	0.34	2.72	3.06
Net Increase			*2.08*
TOTAL			
Existing Uses	**0.49**	**1.47**	**1.96**
Future with TOD Plan	**0.57**	**3.87**	**4.44**
Net Increase			***2.48***

1. Based on 100 gallons per 1,000 Sq. Ft.
2. Based on 400 gallons per Dwelling Unit. This assumption represents a conservative estimate that may overstate the amount of water consumption for the TOD areas in the absence of detailed projections of housing types.
3. Total numbers may not sum precisely due to rounding.

Source: Bills Engineering, 2012.

Individual TOD projects with new roadway and water system infrastructure will be required to submit a Water Master Plan (WMP). Projects will also be required to include, as a part of project construction, localized water distribution and transmission system upgrades, as determined by BWS, when individual TOD projects are identified. These distribution system and transmission system upgrades will be primarily aimed at increasing pipe sizes serving the individual projects with connection(s) to the existing BWS system to provide the required fire flow.

The BWS does not anticipate undertaking any BWS-sponsored pipe system improvement projects at the "local" level to upgrade fire protection in advance of projects coming on-line since the backbone transmission systems in the area appear adequate.

Drainage

The City and County of Honolulu Department of Planning and Permitting Civil Engineering Branch is responsible for reviewing plans for compliance with the City's drainage rules and standards. The "Rules Relating to Storm Drainage Standards" (January 2000, as amended), which articulate these requirements, have two components:

1. Drainage system sizing for proper conveyance of stormwater: This includes hydrologic and hydraulic studies to ensure that drainage systems are adequate to accommodate storms with 10-year, 50-year, and 100-year recurrence intervals.
2. Stormwater quality related to the Federal Clean Water Act and the City's MS4 National Pollutant Discharge Elimination System (NPDES) Permit: In general, applicable development and redevelopment projects must address stormwater quality through the use of low impact development (LID) site design strategies, source control of best management practices (BMPs), post-construction BMPs, LID treatment control BMPs, and other post-construction treatment control BMPs. Applicable development and redevelopment projects include ones that disturb at least one acre of land (and are not required to obtain a separate industrial NPDES permit from the State Department of Health), as well as certain projects (retail gasoline outlets, automotive repair shops, restaurants, and parking lots) with at least 10,000 square feet of total impervious area.

Corridor Analysis

With respect to the hydraulic capacity analysis section of the rules, the Kalihi corridor should not be significantly affected. For all practical purposes the three stations are in almost completely urbanized settings dominated by hard surfaces, and existing drainage systems are already in place to convey stormwater. TOD redevelopment is actually an opportunity to soften the amount of hardscape. This, in turn, would allow a small amount of stormwater runoff to infiltrate into landscape planter areas and reduce the sheet flow in the City drainage systems.

As described in Chapter 2: Land Use, in relation to potential constraints to development, there is flooding potential in much of the Middle Street station area. There is also street flooding during periods of heavy rainfall around the Kalihi station. Therefore, drainage is particularly important for these station areas.

Implementation

In June of 2013, the City and County of Honolulu implemented rule changes that emphasize "Low Impact Development" (LID)-based stormwater drainage regulations and standards, including post-construction BMPs.

Individual TOD projects will likely require the submittal of a drainage report. Each project shall comply with the City and County's prevailing stormwater quality requirements and the adopted LID requirements. Localized improvements borne at the expense of the developer should be anticipated within all Kalihi areas.

5.3 Goals and Policies

GOALS

Public Facilities and Services

POLICE AND FIRE FACILITIES

PF-G1: Provide public facilities—including police and fire services—commensurate with the needs of existing and future community members.

EDUCATION AND LIBRARY SERVICES

PF-G2: Support efforts to provide high-quality public and private educational opportunities for all segments of the community.

AFFORDABLE HOUSING AND SOCIAL SERVICES

PF-G3: Contribute to the achievement of the City's affordable housing development production goals, as expressed by the Consolidated Plan, Mayor's Office of Housing, and other affordable housing planning documents and initiatives.

PF-G4: Foster adequate provision of social and health services, such as housing and reintegration services for homeless; youth activities; and senior programs.

PF-G5: Support maintenance of existing, and development of new, affordable housing units and associated services for low- and very-low income households.

PF-G6: Encourage mixed-income housing and distribute affordable housing throughout the planning area. Mitigate the potential for gentrification and avoid displacing low- and moderate-income residents.

Infrastructure

PF-G7: Facilitate the development of infrastructure—including sewer, water, drainage, and high-speed broadband internet systems—that is designed and timed to be consistent with project capacity requirements and development occupancy.

PF-G8: Promote conservation in order to reduce the load on existing and planned infrastructure capacity and to preserve environmental resources.

POLICIES

Public Facilities and Services

POLICE AND FIRE FACILITIES

PF-P1: Coordinate with the Police and Fire Departments to maintain sufficient personnel and facilities to ensure acceptable levels of service.

EDUCATION AND LIBRARY SERVICES

PF-P2: Coordinate with the Department of Education to monitor housing, population, and enrollment trends as development projects emerge; determine potential need for school impact-fee district; and evaluate effects of projected school enrollment on future school facility needs.

PF-P3: Promote the health, safety, and welfare of youth in Kalihi by expanding recreational and other youth-oriented services.

- Work in partnership with community organizations and institutions such as the local K-12 schools and Honolulu Community College to provide counseling, career planning, job training/placement, healthful activities, and other beneficial services for teens and young adults.
- Support initiatives where teens and young adults can contribute to the community through internships and civic activities.
- Encourage new retailers to participate in job training programs.

AFFORDABLE HOUSING AND SOCIAL SERVICES

PF-P4: Within ¼-mile of the stations, invest public affordable housing funds and encourage affordable housing development through implementation and expansion of the City's inclusionary housing rule, incentives for TOD housing, and participation in the Housing Choices Voucher and Section 8 programs.

PF-P5: Work with the Department of Transportation and Department of Community Services to ensure the safety of homeless persons and prevent them from sleeping along the Radford to Middle Street bike path under the H-1 viaduct. The path should be adequately lit and signed.

Homeless persons should be encouraged into safer shelters.

PF-P6: Encourage housing and social service providers to serve seniors with recreational opportunities and programs that encourage their health, safety, and welfare.

PF-P7: Strengthen and pursue relationships with community stakeholders groups, including public agencies, community organizations, businesses, and property owners. Connect with established business organizations and support new organizations for communities that lack community-based nonprofits.

PF-P8: Support development of permanent affordable housing services, especially for homeless individuals and families:

- Encourage the provision of appropriate supportive services for tenants at all functional levels.
- Encourage the creation of single-room occupancy (SRO) or efficiency units that can meet the housing needs of individuals, seniors, immigrants, formerly homeless, students, and single parents with a child.
- Review development standards, which currently permit group living facilities as a conditionally permitted use in most residential and mixed-use districts, to identify obstacles to the creation of SROs or efficiency units, and consider whether such obstacles should be removed or altered.
- In order to meet the needs of extremely low-income individuals and households, identify sites and long-term funding to support the development and ongoing provision of services for new affordable housing.

PF-P9: Maintain and enhance prompt access to social services for residents and transient populations. Coordinate with the Department of Community Services to understand existing and future social service needs and opportunities, both citywide and in the Kalihi planning area.

Infrastructure

PF-P10: Prepare a comprehensive infrastructure master plan for the Kapalama station area. This plan should include details on water, wastewater, and drainage systems layout, as well as more precise alignment of new streets, and a financing plan that ensures that improvements will be realized and will not become a constraint to development.

PF-P11: The City should parner with the private sector to provide high-speed broadband internet service in the station areas to facilitate high-tech economic development.

PF-P12: Require development and redevelopment projects to comply with best practices for low impact development-based stormwater management.

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6 IMPLEMENTATION

This chapter summarizes major improvements from the preceding chapters and describes key actions for their implementation, including the general responsibilities of various public agencies, phasing and timing of improvements, next steps for developing detailed infrastructure and public facilities plans, and financing mechanisms to enable development consistent with the TOD Plan.

Section 6.1 summarizes key policies/improvements and responsibilities. A primary public sector implementation tool for the land use proposals in the plan will be administration of the TOD Special District in the Land Use Ordinance; recommendations for the Special District are discussed in Section 6.2. Section 6.3 describes appropriate phasing of improvements and potential catalyst development projects to ensure that adequate public facilities are in place to support rail access and TOD. Lastly, financing strategies are described in Section 6.4. Public improvements may be prioritized through the Capital Improvement Program, subdivision permit requirements, impact fees, and the collective initiative of project applicants where district-level improvements are necessary.

The opening of the new Middle Street Transit Center bus facility marks a step toward implementation of the Kalihi Neighborhood TOD Plan by enabling convenient connection between bus and rail.

RESPONSIBLE AGENCIES

Implementing the Kalihi Neighborhood TOD Plan will involve various City departments and decision-makers, in addition to private developers and nonprofit service providers. The City also will need to consult with State and federal agencies about proposals that affect their respective areas of jurisdiction. The principal responsibilities for plan implementation are briefly summarized below. To assist with coordination, City agency heads meet weekly to discuss the implementation of TOD.

City Council

The Honolulu City Council is the lawmaking body of the City and County of Honolulu. It sets citywide policies relating to government programs and services, including parks and recreation, zoning, affordable and special-needs housing, and public transportation. The Council also initiates new municipal programs or improvements to existing programs and services, adopts measures to balance the budget including setting the annual real property tax rate, and sets development fees.

Planning Commission

The Planning Commission is a nine-member board responsible for reviewing changes to the General Plan, development plans, and the Land Use Ordinance. The Planning Commission has the charge to recommend approval or approval with changes, and advise the City Council on many critical actions related to the TOD Plan, including implementation through the Land Use Ordinance.

Kalihi-Palama Neighborhood Board

The City's Neighborhood Board system is the mechanism through which citizens and communities communicate their needs and desires. Activities include study and review of capital improvement projects and major zoning concerns. The boundaries of the Kalihi-Palama Neighborhood Board extend through the majority of the ½-mile area from Middle Street to River Street in Chinatown, and from North School Street to Honolulu Harbor, including Sand Island.

Department of Planning & Permitting

The Department of Planning and Permitting (DPP) is responsible for processing applications for land use approvals, zoning and land use permits, construction and building permits, and engineering and subdivision permits (including for new streets), as well as developing long-term goals and policies that address the physical, social, economic, and environmental concerns of Honolulu's communities. DPP will have primary responsibility for implementing the vision of the TOD Plan.

Department of Transportation Services

The Department of Transportation Services (DTS) consists of several divisions. The Traffic Engineering Division provides for the safe and efficient operation of streets and intersections. The Transportation Planning Division performs citywide transportation planning required by the federal transportation-funding program and determines the City's transportation projects eligible for federal highway and transit funds.

The Public Transit Division oversees the contractor operating the City's public transit system and will be responsible for coordination with the Honolulu Authority for Rapid Transportation (HART). The Department also constructs and operates bus transit centers and installs and maintains bus stops and shelters. DTS will be involved with the redesign of existing streets, crossings, and streetscapes.

Department of Environmental Services

The Department of Environmental Services (ENV) manages the City's wastewater, stormwater and solid waste disposal operations and facilities. Given the wastewater capacity constraints anticipated, planning by and coor-

dination with ENV will be essential to ensure adequate sewer capacity to enable TOD. To that end, ENV is currently updating facility plans and implementing near-term system upgrades.

Department of Design and Construction

The Department of Design and Construction (DDC) is the central agency responsible for the planning, design, and construction management of much of the City's Capital Improvement Program. Working in conjunction with other City departments, DDC administers the planning, development, and implementation of capital improvements for most City agencies. These include development of infrastructure and facilities for many of the subjects addressed by the TOD Plan: wastewater, roads and drainage, parks, fire, police, and emergency service facilities. Additionally, DDC performs land acquisition in support of City agencies.

Department of Parks and Recreation

The Department of Parks and Recreation manages, maintains, and operates all parks and recreational facilities of the City; develops and implements programs for cultural and recreational activities; and beautifies the public streets of the city. Although acquisition of new publicly-owned parkland may occur through the DDC, the Department of Park and Recreation would be responsible for operations and programming.

Department of Community Services

The Department of Community Services (DCS) implements programs to assist seniors, low-income households, and homeless persons. DCS provides rental assistance to eligible low-income families and works in partnership with the private for-profit and nonprofit sectors and other government agencies to address affordable and special needs housing, as well as shelter and supportive services for people in need.

The DCS's WorkHawaii Division, which provides direct services to both businesses and job seekers, is overseen by the Oahu Workforce Investment Board through a partnership with the Mayor. In addition, the Mayor's Office of Housing addresses homelessness, through plans and programs relating to affordable housing, senior housing and special needs housing.

Honolulu Authority for Rapid Transportation (HART)

In November 2010, Honolulu voters approved a charter amendment to create a semi-autonomous public transit authority to oversee the planning, construction and operation of the rail system, including the design of the rail stations. HART has a 10-member volunteer Board of Directors that includes three members appointed by the Mayor, three members selected by the Honolulu City Council, the City and State transportation directors, the DPP Director, and a community member.

Board of Water Supply

A semi-autonomous agency, the Board of Water Supply (BWS) manages Oahu's municipal water resources and distribution system, including demand and supply projections for future customers. BWS also provides education and programs in conservation, water recycling, and other best practices.

Department of Facility Maintenance

The Honolulu Department of Facility Maintenance is in charge of maintaining city roads, traffic signs, streetlights, bridges and streams, buildings, and facilities for parks. The department is made up of three divisions: the Division of Road Maintenance, the Public Building and Electrical Maintenance Division, and the Division of Automotive Equipment Service.

6.1 Summary of Improvements and Responsibilities

Table 6-1 summarizes the programs and improvements described in the preceding chapters. The matrix identifies a course of action, assigns agencies responsible for implementation, and determines a general timeframe for development and completion.

TABLE 6-1: IMPLEMENTATION ACTIONS AND RESPONSIBILITIES

IMPROVEMENT/ REGULATION	ACTION	RESPONSIBLE AGENCIES	TIMEFRAME
LAND USE PLANNING AND ZONING (CHAPTER 2: LAND USE)			
Codify TOD Plan Land Use & Development Policies	Amend the Land Use Ordinance and Zoning Map to bring zoning into conformance with the land use designations and building density and height maximums in the Plan. Prepare and adopt the TOD Special District in the Land Use Ordinance to regulate: land uses; active frontage requirements; maximum density and heights; and other development standards.	• DPP • City Council	Within 1 year of adoption of the TOD Plan
Communicate with Business and Property Owners to Facilitate Redevelopment and "Catalyst" Projects	Communicate with small and large property owners about redevelopment and zoning changes: • Encourage Honolulu Community College and Kamehameha Schools to support the community vision of the Kalihi TOD Plan; • Communicate with the Department of Public Safety about the future of Oahu Community Correctional Center and the feasibility of a land swap or site redesign.	• DPP	Ongoing
Amend Primary Urban Center Development Plan	Amend the Primary Urban Center Development Plan to bring it into conformance with the community vision and land use designations expressed in the Plan.	• DPP	At next scheduled PUCDP update
PARKS AND RECREATION (CHAPTER 2: LAND USE AND CHAPTER 4: URBAN DESIGN)			
Identify Park Locations and Funding	Identify park locations and funding mechanisms as part of a Kalihi Infrastructure Facilities and Financing Plan. Open space types include: • Community parks (at least five acres each) in Kapalama and Iwilei station areas; • Beach park on the Middle Street station area waterfront; • Urban parks and plazas at the stations and associated with new development; • Green Streets connecting existing and future open spaces; and • Promenades designed with community input and in coordination with adjacent property owners, including Honolulu Community College and Kamehameha Schools. In addition to identifying park locations, the infrastructure plan should include: • Mechanisms for acquisition or dedication (e.g., through incentives, land swaps, and easements); • A needs assessment; • Capital and maintenance costs and proposed revenues; • Revision of park impact fees to provide a nexus with the needs assessment; and • Modification of the exiting open space bonus program, as appropriate.	• DPR • DPP • DDC • DTS	Develop plan within 3 years of adoption of the TOD Plan
STREETS AND CIRCULATION (CHAPTER 3: MOBILITY)			
Create a Cohesive Street Network Plan	Identify locations for new streets, as illustrated conceptually in the Circulation Diagram (Figure 3-4), and a financing strategy as part of a Kalihi Infrastructure Facilities and Financing Plan to implement: • New street connections and pedestrian bridges in Kapalama and Middle Street station areas, consistent with the intention and character of the street network defined in the Circulation Diagram. • Block lengths no longer than 350 feet that should generally follow parcel boundaries so that land and the cost of new streets can be shared among property owners.	• DPP • DTS • DDC	Develop plan within 3 years of adoption of the TOD Plan

IMPROVEMENT/ REGULATION	ACTION	RESPONSIBLE AGENCIES	TIMEFRAME
Improve Sidewalks, Crossings, and Streets where Missing or Inadequate	Develop a streetscape and sidewalk deficiency program as part of the Infrastructure Facilities and Financing Plan to design and implement improvements in the Circulation Diagram (Figure 3-4), including: • Sidewalk improvements to increase safety and accessibility to rail transit along Dillingham Boulevard and key transit connection streets; • Crossing improvements to enhance safety along Kalihi and Middle Streets; and • Living Street Zones designated to better accommodate all modes of travel efficiently around the Kalihi station.	• DTS • DDC	Develop plan within 3 years of adoption of the TOD Plan. Complete construction to coincide with the beginning of rail operations.
Amend Oahu Bike Plan and Construct Bicycle Network	Update Oahu Bike Plan to reflect additional bicycle facilities (e.g., on Kalani and Kaumuali Streets) as shown in Figure 3-5: Bicycle Network.	• DTS	Plan ongoing. Complete construction to coincide with the beginning of rail operations.
Manage Parking Supply	Develop a coordinated strategy to manage on- and off-street parking efficiently: • Educate property owners around the Kalihi station about the ability to form a benefit district to finance parking-related activities, including acquisition of land for parking facilities, construction of parking garages, and funding of operating costs. • Consider establishing a residential/employee permit parking zone to prioritize curb space for local residents and/or businesses around the Kalihi station area.	• DTS	Ongoing
AFFORDABLE HOUSING (CHAPTER 5: PUBLIC FACILITIES, SERVICES, AND INFRASTRUCTURE)			
Codify Affordable Housing Policies	Prepare and adopt a policy to codify an inclusionary housing requirement.	• DPP • DCS • City Council	Within 1 year of adoption of the TOD Plan
Identify Funding for Affordable Housing Development	Target public and private financial resources for the preservation and production of affordable housing in the TOD Zone. Utilize the existing HUD reporting requirements to identify sources.	• DPP • DCS • Mayor's Office of Housing	Ongoing
INFRASTRUCTURE (CHAPTER 5: PUBLIC FACILITIES, SERVICES, AND INFRASTRUCTURE)			
Maintain Funding for Water System	Reassess Water System Facility Charges as needed.	• BWS	Ongoing
Address Wastewater Capacity	Continue to monitor system capacity and implement necessary treatment and collection system upgrades.	• ENV • DDC	Ongoing
Fund Wastewater Infrastructure Improvements	Define a financing strategy in a Kalihi Infrastructure Facilities and Financing Plan. Reassess Wastewater System Facility Charges as needed.	• ENV • DPP	Within 3 years of adoption of the TOD Plan
Maintain Best Practices for Drainage	Implement Low Impact Development (LID) strategies and standards. Continue to require drainage reports for individual projects where appropriate.	• ENV • DPP, Civil Engineering Branch • Hawaii State Department of Health	Ongoing

6.2 Zoning and Land Use

The City's zoning and land use regulations will translate plan policies into specific use regulations, development standards, and performance criteria that will govern development on individual properties. The TOD Plan establishes the policy framework, while the Land Use Ordinance (LUO) prescribes standards, rules, and procedures for development. The Zoning Map will provide more detail than the Land Use Diagram (Figure 2-4).

The City must work to remove regulatory barriers and set up incentives to acheive the type of high-quality TOD desired by the community.

Zoning Districts

The land use designations proposed for Kalihi are illustrated and described in Chapter 2: Land Use (see Table 2-3 and Figure 2-4). Following adoption of the TOD Plan, the LUO and Zoning Map will be updated to reflect the land use designations described herein. The land use designations are generally comparable to the City's existing zoning districts, as specified in Table 6-2. However, as described in Chapter 2, building heights, FAR values, and residential densities are regulated independent of the zoning district regulations (unlike in most areas outside of the TOD Zone).

TOD Zone

The following recommendations will be codified in the TOD Special District.

District Boundaries

As described in Chapter 2: Land Use, the TOD Zone establishes the area where TOD Special District regulations apply. The TOD Zone encompasses sites that have the most potential to support transit ridership, take advantage of transit proximity, and redevelop in the next 20 years. Sites within the TOD Zone can generally be accessed from a station on foot in fewer than ten minutes. (Sites outside this boundary may also redevelop as a result of rail, but likely over a longer time frame.)

Applicability

The regulations applicable to the TOD Zone shall be in addition to the underlying (base) zoning district and, if applicable, other special district regulations, and they may supplement and/or modify the underlying regulations. If any regulation pertaining to a TOD Zone conflicts with any underlying zoning district, the regulation applicable to the TOD Zone shall take precedence.

Building Height and Building Intensity

Maximum building intensity and building height limitations are illustrated and described in Chapter 2: Land Use (see Figure 2-6 and 2-7, respectively).

Building intensity and height maximums are independent of land use designations to enable flexibility and intensification closest to the transit stations and tapering down of heights and massing toward the waterfront and away from the station. The tallest heights and highest intensities are anticipated around Kapalama station, while lower heights and intensities are anticipated in the Kalihi station area to ensure compatibility with the existing neighborhood. Proposed building heights that meet the criteria for notification described in CFR Part 77 must be coordinated with the FAA before project approval.

Land Use

The station areas should contain a mix of complementary uses that enables the community vision of "a livable urban community with a range of uses, reflecting the area's central location, rich cultural heritage, and transit access." Complementary land uses are those that offer goods and services at different times of the day and week and provide a balance of employment, residential, and recreational uses in close proximity to one another.

Specific uses that are inconsistent with the vision for transit-oriented development, such as auto-oriented drive-through establishments, should be prohibited in certain areas. Restricting such uses will improve pedestrian safety and comfort by limiting uses that prioritize automobile use and require substantial curb cuts. Industrial and harbor activities that continue should still

be designed to support pedestrian, bicycle, and transit rider mobility and safety.

TOD Special District regulations should specifically address existing nonconforming uses in a way that encourages property investment, upkeep and upgrades. Within the TOD Special District, permitted and prohibited uses in each land use designation illustrated and described in Chapter 2: Land Use (see Table 2-3 and Figure 2-4) are generally proposed to be consistent with the comparable base zoning district, but with a few exceptions, as defined in Table 6-2.

Parking

Appropriate parking regulations are essential in making the most efficient use of land and in meeting broader community planning objectives. Parking requirements are specified for each land use designation in Table 6-2.

In the areas closest to the rail stations, particularly around Kapalama station, high densities and exceptional public transit provide the right conditions for reductions in parking requirements. Moreover, given the small parcel size and small business nature within much of Kalihi, reductions and exemptions should be permitted in the TOD Zone where warranted and consistent with the following recommendations:

- **Expand the use of parking reductions.** Allow for reductions in parking where special conditions exist—such as the nature of the proposed operation, proximity to the rail station, or the characteristics of persons residing, working, or visiting there—or where elements are provided that would reduce parking demand (e.g., transportation demand management measures such as free transit passes and bike sharing). Parking reductions should continue to be provided for mixed-use developments with varying peak parking demands for individual uses.
- **Exempt small retail or office establishments from parking requirements.** Provide an across-the-board exemption from the off-street parking requirement for retail or office businesses under a certain size (e.g., 1,500 square feet of floor area). This will be particularly important to protecting the viability of small-lot small businesses around the Kalihi station.
- **Establish a framework for in-lieu fees.** Establish a framework and nexus for the payment of a fee in-lieu of providing parking on-site to develop public parking areas.
- **Allow alternative parking configurations that provide for the efficient use of space.** Allow on-street parking spaces on public and private streets to count toward required on-site parking for non-residential uses and residential guest parking. Additionally, allow motorcycle/scooter/other personal non-vehicular transportation parking to substitute for a portion of required automobile parking.
- **Require bicycle parking.** Consistent with the Oahu Bike Plan, bicycle parking (short- and long-term, as appropriate) should be required at popular destinations, including transit hubs, government buildings, community centers, parks, schools, and shopping centers. It is recommended that development in all land use designations provide bicycle parking areas holding the equivalent of ten percent of the required auto parking.
- **Exemption for Redevelopment within the Industrial Mixed Use and Medium Density Residential Land Use Designations.** Where a use with a legal nonconforming parking deficiency located in the Industrial Mixed Use and Medium Density Residential Land Use Designations is replaced with a use and development consistent with all other applicable standards, the non-conforming parking may remain as is. This will help encourage redevelopment and renovation of existing properties in disrepair that could not otherwise meet parking standards.

Yards

Yards in the TOD Zone should contribute to an active, pedestrian-oriented mixed-use environment. Yards should be sensitive to adjoining residential uses, while also supportive of active ground floor uses. As described below, minimum yard standards allow for public and common open space, while maximum yard standards ensure that visibility and accessibility of active uses are prioritized.

TABLE 6-2: ZONING, LAND USE & PARKING REQUIREMENTS

LAND USE DESIGNATION	COMPARABLE ZONING DISTRICT(S)	EXCEPTIONS TO PERMITTED USES (FROM COMPARABLE ZONING DISTRICT)	PARKING REQUIREMENTS
Medium Density Residential	• Medium Density Apartment Mixed Use (AMX-2) where ground-floor commercial uses are permitted or required—see Figure 2-5	None	• Dwellings, multi-family – 0-1 per dwelling unit, depending on size • All other uses – consistent with existing regulations for uses permitted in base zoning district (AMX-2)
High Density Residential	• High Density Apartment Mixed Use (AMX-3) where ground-floor commercial uses are permitted or required—see Figure 2-5	Duplexes and detached dwellings are not allowed.	• Commercial parking lots and garages should be located at least 300 feet from a station. • Dwellings, multi-family – 0-1 per dwelling unit, depending on size • All other uses – consistent with existing regulations for uses permitted in base zoning district (AMX-3)
Urban Mixed Use-Medium	• Community Business Mixed Use (BMX-3)	Duplexes, detached dwellings, automobile service stations, and car washes are not allowed.	• All uses – consistent with existing regulations for uses permitted in base zoning district (BMX-4) • Commercial parking lots and garages should be located at least 300 feet from a station.
Urban Mixed Use-High	• Community Business Mixed Use (BMX-3). However, Urban Mixed Use High typically corresponds to more building intensity and higher building height compared to Urban Mixed Use-Medium.	Duplexes, detached dwellings, automobile service stations, and car washes are not allowed.	• All uses – consistent with existing regulations for uses permitted in base zoning district (BMX-4) • Commercial parking lots and garages should be located at least 300 feet from a station.
Industrial Mixed Use	• Industrial Mixed Use (IMX-1)	None	• Commerce & Business uses – consistent with existing regulations for uses permitted in base zoning district (BMX-4) • Hotels – 1 space per 4 units • All other uses – consistent with existing regulations for uses permitted in base zoning district (IMX-1)
Public/ Quasi-Public	• Generally permitted within any of the City's zoning districts.	None	• All uses – consistent with existing regulations for uses permitted in base zoning district
Public Park	• General Preservation (P-2)	None	• All uses – consistent with existing regulations for uses permitted in base zoning district (P-2)

- **Establish minimum yard requirements.** Where sidewalks are narrow and high pedestrian volumes are anticipated, require minimum front yards so that the yard can become an effective extension of the public sidewalk area.
- **Establish maximum street frontage setback requirements.** To encourage the development of a street wall, front yards should be no greater than 200 percent of the required minimum, in areas where active ground floor frontage is required.
- **Establish requirements for front yards of active uses to include pedestrian amenities.** Retail, restaurants, and other uses along designated active streets should offer pedestrian amenities such as outdoor dining, pedestrian seating areas, paved pathways, entry walks, and landscaping.
- **Encourage parking in the side or rear.** Buildings should be placed as close as possible to the street, or a public plaza or open space provided along the street, in compliance with the required setback, with parking located either in a garage, behind a building, or on the interior or rear of the site.
- **Incorporate buffers for yards adjacent to residential uses.** When a side or rear yard adjoins a residential district, landscaping buffers five feet in width should be incorporated into the required minimum yards.

Publicly Accessible Open Space

The Kalihi TOD Plan proposes a connected network of open space throughout the planning area. This network, diagrammed in Figure 4-4: Open Space and Public Realm, includes parks, plazas, and green connections.

In addition, privately-owned publicly accessible open spaces within planned developments are an integral part of the open space network. All publicly accessible open spaces should be designed to be visible from the public right-of-way, accessible, and safe. Standards for open space and landscaping within the TOD Zone should be consistent with the recommendations below:

- **Establish minimum open space requirements.** Instead of the parks and playgrounds requirements pursuant to Section 22-7.5 of the Subdivision Ordinance, new residential, office, or mixed-use development should be required to dedicate a percentage of the developable area to publicly-accessible open space.
- **Exemptions.** Sites less than 20,000 square feet in area should be exempt from the open space requirement.
- **Allow for open space requirements to be met through on- or off-site dedication and/or payment of in-lieu fees.** The required open space for any residential, mixed-use, or office development may be met with dedication or developer contribution to the City's Park Dedication Fund. If land is dedicated, it should be in a visible location accessible to the broader community. If an in-lieu fee is paid, the contribution should be applied to the design and construction of a community park within the same station area or a station area adjacent to that of the proposed development.
- **Allow a Range of Open Space Types to Meet Needs Need and Requirement.** Open space may include all public, semi-public, or common open space areas with a minimum dimension of eight feet on any side, whether at the ground, podium, or roof level. Open space could also be provided off-site, in the form of pocket parks, trails, public plazas, or other configuration consistent with City goals and policies. For example, development sites along Kapalama Canal could contribute to the waterfront promenade.
- **Require developments to contribute to and/or enhance the "Green Street" network.** For sites located along a "Green Street," as identified in Figure 4-4, any on-site open space should be located adjacent to the right-of-way. In addition, the open space should include features that complement the Green Street scheme (i.e., signage, pedestrian amenities, additional landscaping).
- **Encourage a balance of active and passive recreational uses.** Taken together, the small parks and large community parks located within a station area should offer an array of recreational uses, including active sports and athletic opportunities, as well as passive areas for relaxation and contemplation. Require programming of open space appropriate to the district's needs.

Architectural Elements

Built form within the TOD Zone is expected to contribute to an active and vibrant pedestrian experience. The architectural elements of all buildings should enhance the pedestrian experience, but pedestrian-oriented design is particularly important in the areas closest to rail transit which will host the highest rates of pedestrian travel. Figure 2-5 illustrates where Pedestrian-Oriented Design is required; the guidelines below should be adhered to in these areas:

- **Require buildings to be oriented to the pedestrian realm**. Building facades should be parallel to the right-of-way and should open directly onto the sidewalk or onto a pedestrian walkway within the front yard.
- **Require articulated entries for residential uses.** Facades of residential uses should incorporate porches, stoops, porticoes, bay windows, and/or other architectural features that provide a sense of entryway and visual interest from the public realm.
- **Encourage articulated building massing and facades**. Encourage developments that provide varied front yard depths within a narrow range; recessed or otherwise articulated entries; a variety of colors, materials and/or textures; varied roof forms; and building fenestration that communicates overall building organization.
- **Require transparency of active uses**. Facades of buildings with active uses should have a high degree of transparency with storefront windows and/or glass doors. Blank walls should be limited to 40 feet within the TOD Zone and 20 feet along an active ground-floor frontage, per Figure 2-5.

Historic Preservation

Preservation and rehabilitation of historic buildings and structures should be promoted within the TOD Zone. Incentives may include streamlined permitting, tax credits or reductions, additional use allowances, transfer of development rights, and the removal of regulatory constraints to preservation.

Affordable Housing

Maintaining and producing affordable housing in the Kalihi corridor is a central component of the community's vision for TOD. The TOD Plan recommends an affordable housing policy as follows for residential or residential mixed-use projects with ten or more units where there is no zone change:

- A percentage of the total number of dwelling units should be sold or rented to low and moderate-income households.
  - Family-friendly housing with higher bedroom counts is encouraged through a weighted calculation. The actual final percentage depends on the mix of unit types—units with two or more bedrooms are given more weight than studio and one-bedroom units and SROs.
  - Units should be affordable to households earning at or below 80 percent of area median income (AMI) and households earning between 80 and 120 percent of AMI.
  - Emphasis should be placed on the production of rental housing units rather than for-sale units.
- In-lieu fees may be paid and banked in an Affordable Housing Fund to satisfy the affordable housing requirement. These funds should be used to develop affordable housing within the Kalihi corridor to the extent feasible.
- Incentives should be provided to offer relief from parking, park dedication and other requirements in order to ensure project feasibility.

Community Benefits Bonus

Entitlement bonuses up to the maximum allowed height or FAR may be granted in exchange for the provision of additional community benefits (public open space, streetscape improvements, affordable housing, etc.) beyond what is required.

6.3 Phasing

The TOD Plan seeks to maintain a high quality of life and adequate public facilities as rail is constructed and new development ensues in the Kalihi corridor. Establishing a clear direction for infrastructure and public facilities planning is essential to ensuring that new development can proceed without constraints and that the timing and costs of improvements are logical and feasible.

The phasing of public improvements and TOD projects will be based on development cost, market factors, available financing, and infrastructure improvements. A potential sequencing of improvements is described below:

1. The TOD Special District zoning will be adopted following adoption of the Kalihi Neighborhood TOD Plan. A Kalihi Infrastructure Facilities and Financing Plan should be prepared to definitively lay out the future street network, identify park locations, and document any necessary utility upgrades. In addition, essential wastewater capacity planning should be completed and improvements prioritized to ensure that development can proceed in subsequent phases. As the rail line is being constructed on Dillingham Boulevard and utilities are placed underground, there could be opportunities to coordinate sidewalk and streetscape improvements.

   Some redevelopment projects may initiate in the short term, such as vacant or for-lease sites with limited or no environmental hazards or infrastructure constraints. The master plans underway by Honolulu Community College and Kamehameha Schools could be "catalyst" projects, helping to fund and construct critical public facilities and bring new activities, residents, students, and services to support rail ridership and enhance the Kalihi neighborhood.

   In addition, the City should encourage home and business improvements among smaller property owners, mauka and makai of Kalihi station, who may have non-conforming uses or properties in disrepair. This could be achieved through a short-term amnesty program to bring properties up to code without necessitating off-site improvements unrelated to fire and life safety.

2. The first major public construction phase will likely be marked by the construction and opening of the three Kalihi rail stations, anticipated by 2019. In this second phase—which could occur concurrently with the first phase—critical street network improvements should be implemented, consistent with the Kalihi Infrastructure Facilities and Financing Plan.

   Priority projects, such as installing crosswalks, lighting, and new street segments will ensure that stations can be safely and convenient accessed. This will be most important around Kapalama and Middle Street stations which currently lack adequate sidewalks and access routes.

3. In the third phase, as the rail system matures and infrastructure and public amenities have been installed, the next phase of city building will ensue. Once the initial projects are developed and new neighborhoods begin to emerge, other properties and developers will take an interest in redevelopment in Kalihi and Kapalama. Moreover, the possibility of redevelopment or consolidation of Oahu Community Correctional Center and development in the Middle Street area around the transit center could spur a new residential and mixed-use district on the ewa end of the corridor.

6.4 Financing Strategies

There are a variety of mechanisms available to the City for collecting funds and implementing public capital improvements. Selection of the appropriate mechanism depends on the nature of the improvement. For example, development impact fees place the burden on developers (and ultimately the occupant of the home or business being constructed); whereas assessment districts place the financial burden on existing and future property owners; and funding through the Capital Improvement Program (CIP) distributes the burden citywide. The City must determine who benefits most from the improvements in order to determine appropriate funding streams. In some cases, the City will need to contribute land, money, or other resources to make high-quality TOD projects happen

A matrix of potential funding strategies for the major improvements in the Kalihi TOD Plan are highlighted in Table 6-3 and explained in more detail in the following sidebar.

TABLE 6-3: POTENTIAL FINANCING STRATEGIES FOR MAJOR IMPROVEMENTS AND CAPITAL PROJECTS

PROJECT COMPONENTS	IMPACT FEES/OTHER FEES	PUBLIC/PRIVATE PARTNERSHIPS AND DEVELOPER CONTRIBUTIONS[1]	SPECIAL FUNDING DISTRICTS	CIP	TAX INCREMENT FINANCING	GRANTS & LOANS
LAND USE PLANNING AND ZONING (CHAPTER 2: LAND USE)						
Catalyst Project Development		√ Incentives may include forgiveness of real property tax for a certain number of years (e.g., 5-10 years)	√			
PARKS AND RECREATION (CHAPTER 2: LAND USE AND CHAPTER 4: URBAN DESIGN)						
Park Acquisition and Development (including promenades)	√ Park Dedication Fund, user fees	√ Incentives: density bonus, land swaps	√	√	√	√
STREETS AND CIRCULATION (CHAPTER 3: MOBILITY)						
New Streets	√	√	√	√	√	√
Sidewalks, Crossings, and Streetscape Improvements	√	√	√	√	√	√ (e.g., federal grants)
Parking Improvements (e.g., Centralized Facilities, Shuttles)	√ Parking Permit Fees	√	√		√	
AFFORDABLE HOUSING (CHAPTER 5: PUBLIC FACILITIES, SERVICES, AND INFRASTRUCTURE)						
Affordable Housing Development	√ Affordable Housing Fund	√		√		√ (e.g., HUD)
INFRASTRUCTURE (CHAPTER 5: PUBLIC FACILITIES, SERVICES, AND INFRASTRUCTURE)						
Water System Operations	√ Water System Facility Charges	√	√		√	
Wastewater Infrastructure Improvements	√ Wastewater System Facility Charges	√	√		√	

1 Includes possible land dedications

CAPITAL IMPROVEMENTS FINANCING STRATEGIES

Capital Improvement Program

The CIP is the discretionary infrastructure funding plan for the City. It includes a list of public works projects that the City intends to design and construct in upcoming years. As a capital program, the CIP represents one-time expenditures, as opposed to ongoing funding for operations and maintenance expenses. The City Council reviews and adjusts the CIP to reflect changes in priority, funding availability and need, and the general economy. DDC has the lead role in carrying out the capital improvements. CIP projects are primarily funded by bond financing.

Impact Fees (like Developer Contributions) and Other Fees

The City collects impact fees on development projects for certain capital improvements. These funds are levied for wastewater services, water, and parks and recreation facilities. Hawaii has enacted impact fee legislation that, by virtue of broad authorizing language, would permit the use of impact fees for transit access and TOD. For example, the City of San Francisco has a transit impact development fee to cover the estimated costs incurred by the transit agency to meet demand for public transit resulting from new development. Revenues may be used for capital costs, route expansions, operations, maintenance, among other needs.

The Ewa Highway Impact Fee Program (ROH Chapter 33A) provides another precedent, establishing an impact fee collected on each building permit for residential or non-residential construction to provide additional funding resources for roadway and traffic improvements only in the Ewa region.

Additional fees could be collected for a variety of services; storm drain and street improvements; police and fire facilities; and general City facilities. However, it is important that impact fees be appropriately set to mitigate development impacts, while not overburdening project applicants. The City should streamline fees and permit costs on new development within the planning area and consider lowering fees, if appropriate, to provide an incentive for development.

Special Funding Districts

Individuals and businesses can cooperate to create special districts in which they tax themselves or contribute fees in order to fund specific benefits, such as landscaping, infrastructure improvements, and parking facilities.

Assessment Districts

The Revised Ordinances of Honolulu (ROH) (Chapter 14, Article 23 to 29) allow for the establishment of assessment districts for a variety of purposes including: sewer, storm drain, and water system construction; street lighting and sidewalk construction; acquisition of property for pedestrian malls and off-street parking facilities; and parks and other public facilities. The City may issue and sell bonds to provide the funds for such improvements. However, this tool has not been often used in Honolulu; the most recent assessment district was adopted decades ago.

Improvement Districts

The ROH (Chapter 36) also allows for the establishment of improvement districts (often called Business Improvement Districts or BIDs) to provide for and finance additional maintenance, security or other services required for the enjoyment and protection of the public and the promotion and enhancement of a neighborhood or district. Special improvement district bonds are issued to finance the cost of supplemental improvements or to reimburse

the cost previously paid. Costs could include payment for additional security, landscaping, sanitation services, promotional and advertising activities, marketing for businesses, decorations and lighting for seasonal and holiday purposes. For example, the Waikiki Business Improvement District funds streetscape maintenance and hospitality programs through an assessment on all non-residential properties.

A BID may be established to provide and finance, to the extent permitted by law, supplemental physical improvements located within the city or the district which will promote business activity including construction of lighting, security systems, pedestrian overpasses, sidewalks and pedestrian malls, parking facilities, plazas, and streetscape improvements (e.g., benches, bus stop shelters, kiosks, signage) as well as narrowing/closing existing streets, rehabilitation or removal of structures, and relocation of utilities. Currently, there are two BIDs in the city: Waikiki and Fort Street Mall.

Parking District and In-Lieu Fee

Through the assessment or improvement districts described above, property owners may form a district to finance parking-related activities, including acquisition of land for parking facilities, construction of parking lots and garages, and operating costs, and to issue bonds to fund similar activities. The majority of affected property owners—such as those around the Kalihi station where parking is limited for workers and customers—would have to vote to assess their properties in order to establish such a district.

Another possible approach to funding is imposition of an in-lieu fee, whereby developers pay a fee instead of providing on-site parking, thereby reducing the cost of development and potentially increasing the efficient use of development sites. The City could, in turn, develop a shared parking structure.

Community Facilities Districts

The ROH (Chapter 34) also allow for the establishment of community facilities districts (CFDs) to finance the acquisition, planning, design, construction, installation, improvement, or rehabilitation of any real property or structure. This could include street improvements, (e.g., sidewalks, bikeways, and pedestrian malls); public parking facilities; park, recreation, and open-space facilities; water, wastewater, storm drainage, sewage removal or treatment, solid waste disposal, and recycling or resource recovery systems or facilities; and transit or transportation systems.

A CFD may be initiated by the City Council or by petition signed by the owners of at least 25 percent of the land in the proposed district (unrelated to the value of the property) and is funded through a special tax.

CFDs have been used sparingly in Hawaii; the first one was established to help finance a 1,200-unit workforce housing development, Kamakoa at Waikoloa, on Hawaii Island.

Tax Increment Financing

Tax increment financing offers a financial tool that could allow the City to designate target areas for special investment in order to stimulate development.

Tax increment financing allows the City to issue bonds against the future property tax revenue expected to be generated in order to finance public investment. The City obtains the additional "increment" of property tax growth, which typically increases as the public improvements are put in place and initial investments are made from the public and private sectors. Funds may be used to pay for affordable housing, parks, schools, utility upgrades, and other public facilities. Hawaii has adopted enabling legislation, but the City has not yet utilized this tool.

For example, a recent study in Honolulu projected that a vacant lot that currently pays nearly $300,000 per year in property taxes would pay $8 million per year as a high-density TOD project. The $7.7 difference (or increment) represents the expected property tax gain that the City can bond against and a funding source with which the City can pay off the bond debt.

Public-Private and Joint Partnerships

The City can facilitate public-private partnerships wherein private developers contribute to public improvements in return for assistance with land assembly, financing, and the benefit of transit over time. While the cost and responsibility for construction may be assigned to the property owners, this burden could be shared between multiple properties and/or reimbursed over time. The City should consider the use of tax credits and other financing tools to allow investment in public infrastructure and increase the financial feasibility of TOD, but only to the extent that private development cannot support itself.

Property Tax Incentives

The City can expand the menu of real property tax incentives including property tax deferment, abatement, and tax holidays. It can also adjust the current program that allows limited Real Property Tax Exemptions for production of new affordable housing. This could include a time limit on TOD-related exemptions (and maximum amount available), with exemptions/credits issued on a first-come, first-served basis for qualified projects to signify urgency (as was done with the prior 7-year exemptions in Waikiki).

Development Agreements

Development agreements (regulated in ROH Chapter 33) are a typical way that public-private partnerships are codified. Developers enter into a contract with the City voluntarily, providing a flexible and case-by-case method to negotiate the project and community benefits. Development agreements are particularly appropriate for phased projects that will be built out over a period of years during which applicable regulations may be subject to change. In this way, these agreements can have the advantage of providing more certainty for developers in the approval process, but the process may be time-consuming for staff and decision-makers and lack transparency for community members.

Developer Contributions

Developer contributions are payments made in addition to normal impact fees as part of the development approval process for specific projects; these most often apply to larger developments with significant associated impacts. Contributions fund infrastructure and improvements such as dedications of right-of-way for streets and utilities, and the provision of open space, parks or landscape improvements beyond minimum project requirements. Where developers provide public parks as part of their developments, they could be exempted from, or given credit against park dedication fees at the discretion of the City.

Grants and Loans

A sampling of federal and state grants and loans that may be appropriate in the Kalihi corridor are described below.

Community Development Block Grant

The Community Development Block Grant (CDBG) program is a long-running U.S. Department of Housing and Urban Development (HUD) initiative to fund local community development activities such as affordable housing, anti-poverty programs, and infrastructure development. Some or all of the City's annual allotment of CDBG funds from the federal government could be capitalized into a Section 108

loan to increase the immediate ability to fund improvements. HUD's Section 108 Loan Guarantee Program provides communities with a source of financing for economic development, housing rehabilitation, public facilities, and large-scale physical development projects.

CDBG funds may be challenging to use for public improvements since the grants are competitive and the City may have competing priorities. The Department of Community Services and Department of Budget and Fiscal Services prepare the request to HUD through the Consolidated Plan process every five years.

HART Funding

The Honolulu Authority for Rapid Transportation will administer, through a Historic Preservation Committee, $2 million in funds for exterior improvements to historic properties within the rail project's area of potential effects.

Federal Transportation Funding

Federal transportation funds are available through a variety of programs and legislation. The City already takes advantage of federal funds, such as Safe Routes to School infrastructure grants to improve pedestrian safety, the American Recovery and Reinvestment Act of 2009, as well as funding for the rail system itself. To qualify for funding, improvements must be identified in the appropriate transportation documents such as the Oahu MPO Regional Transportation Plan, the Oahu MPO Transportation Improvement Program and/or the City's Capital Improvement Program.

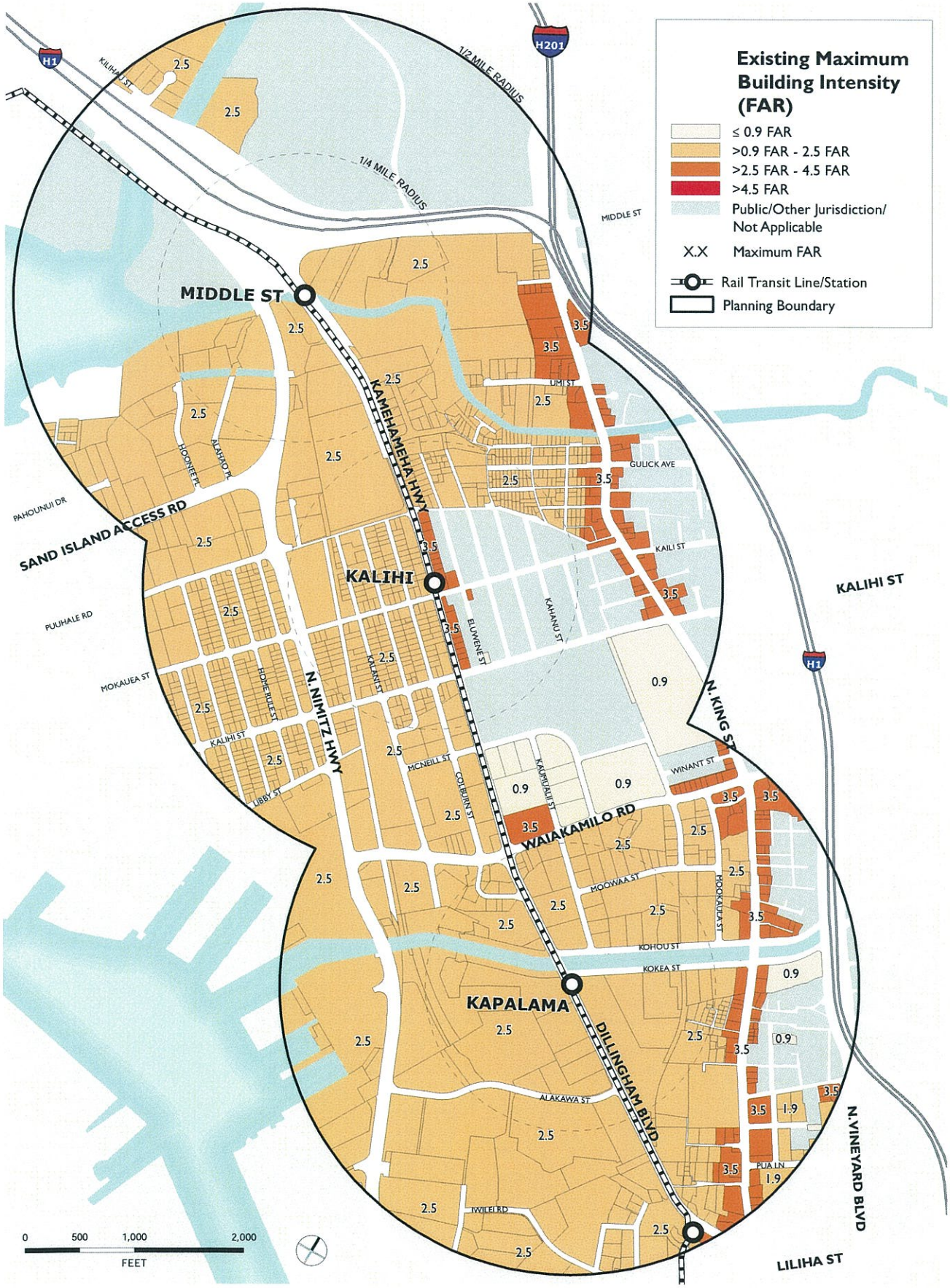
In June 2012, the new federal surface transportation bill was signed into law: "Moving Ahead for Progress in the 21st Century Act" (MAP–21). The 27-month law provides $105 billion in funding for essential highway and public transportation programs, most of which are in the form of formula-based allocations that direct money automatically to states and metropolitan areas. (Approximately 80 percent of funds are allocated to highways/roads and 20 percent to transit.)

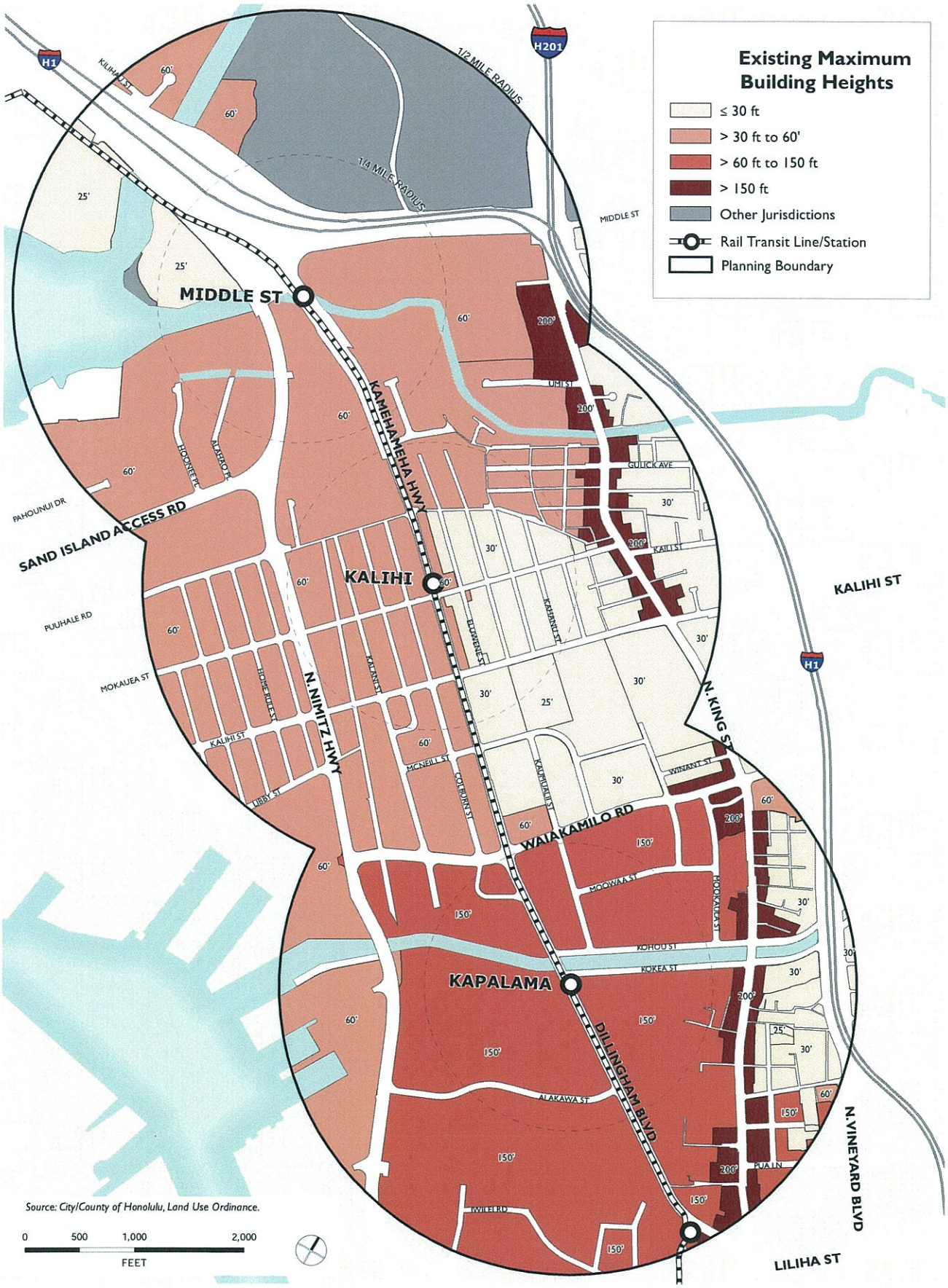
Funds do exist for projects that support TOD through the "Transportation Alternatives" program, which could provide finding for a variety of improvements including bike and pedestrian facilities, traffic calming, lighting and other safety infrastructure. Hawaii was allocated approximately $7 million over two years for this program.

Brownfields Cleanup Revolving Loan Fund

The Hawaii State Office of Planning offers low and interest-free loans to clean up brownfield (contaminated) properties. The applicant prepares a report documenting the contamination found and an analysis of cleanup options and cost estimates, with recommendations as to the preferred response action. The cleanup action must be completed within 12 months of the date activities begin on site.

A APPENDIX


Existing Maximum Building Intensity (FAR)
≤ 0.9 FAR
>0.9 FAR - 2.5 FAR
>2.5 FAR - 4.5 FAR
>4.5 FAR
Public/Other Jurisdiction/ Not Applicable
X.X Maximum FAR
Rail Transit Line/Station
Planning Boundary
1/2 MILE RADIUS
1/4 MILE RADIUS
MIDDLE ST
KALIHI
KAPALAMA
KAMEHAMEHA HWY
N. NIMITZ HWY
SAND ISLAND ACCESS RD
WAIAKAMILO RD
DILLINGHAM BLVD
N. KING ST
KALIHI ST
N. VINEYARD BLVD
LILIHA ST
H1
H201
0 500 1,000 2,000
FEET


Existing Maximum Building Heights
≤ 30 ft
> 30 ft to 60'
> 60 ft to 150 ft
> 150 ft
Other Jurisdictions
Rail Transit Line/Station
Planning Boundary
1/2 MILE RADIUS
1/4 MILE RADIUS
MIDDLE ST
KALIHI
KAPALAMA
LILIHA ST
KALIHI ST
N. KING ST
N. VINEYARD BLVD
DILLINGHAM BLVD
WAIAKAMILO RD
KAMEHAMEHA HWY
N. NIMITZ HWY
SAND ISLAND ACCESS RD
PAHOUNUI DR
PUUHALE RD
MOKAUEA ST
H1
H201
Source: City/County of Honolulu, Land Use Ordinance.
0 500 1,000 2,000
FEET

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B APPENDIX

ORGANIZATIONS REPRESENTED ON PROJECT ADVISORY COMMITTEE
AFFILIATION
AARP
Action Realty Corporation
City & County of Honolulu Department of Community Services
City & County of Honolulu Department of Transportation Services
CORE Realty
First Hawaiian Bank
Helping Hands Hawaii
Honolulu Authority for Rapid Transportation
Honolulu City Council
Honolulu Community College
Kalihi Business Association
Kalihi-Palama Neighborhood Board #15
Kamehameha Schools
Marukai Wholesale Mart
Oahu Transit Services
Palama Settlement
State of Hawaii Department of Business, Economic Development & Tourism, Office of Planning
State of Hawaii Department of Hawaiian Homelands, Land Management Division
State of Hawaii Department of Land and Natural Resources, Land Division
State of Hawaii Department of Transportation, Harbors Division
State of Hawaii Hawaii Public Housing Authority
Susannah Wesley Community Center

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