

AIEA - PEARL CITY NEIGHBORHOOD TRANSIT-ORIENTED DEVELOPMENT PLAN



EXISTING CONDITIONS REPORT

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EXISTING CONDITIONS REPORT

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I. INTRODUCTION

I.1 PROJECT OVERVIEW

The people of Oahu are about to make an important investment in their future by funding a fixed guideway system connecting Aiea - Pearl City with the City of Kapolei to the west and with the Primary Urban Center to the east. This system will provide a viable alternative to the private automobile while promoting the opportunity to create new compact walkable neighborhoods and improving existing neighborhoods through infill development. In order to capitalize on this tremendous opportunity and financial investment, development around future transit stations needs to be **focused, balanced and well-planned**. The Aiea - Pearl City Neighborhood Transit Oriented Development (TOD) Plan will be the third in a series of focused community-driven planning efforts led by the Honolulu Department of Planning and Permitting for future station areas along the transit line. The Plan focuses on the areas within 1/2 mile of the proposed transit stations.

I.2 LOCATION AND CONTEXT (SEE EXHIBIT A)

Aiea and Pearl City are located mauka of Pearl Harbor between the fast-growing Ewa region and the Primary Urban Center. Aiea and Pearl City are strategically located near the center of the proposed transit corridor, along Interstate H-1 and within close proximity to the Honolulu International Airport. The Aiea - Pearl City Neighborhood TOD Plan focuses on three proposed transit stations: **Leeward Community College Station, Pearl Highlands Station and Pearlridge Station**.

The **Leeward Community College Station** is the westernmost station being studied. This station will encompass and **serve the campus** and provide students with alternative transportation options to and from school.

The **Pearl Highlands Station** is situated along Kamehameha Highway, north of the intersection of H-1 and H-2, and is envisioned to be a major **Park 'N Ride** location for the fixed guideway system.

Pearlridge Station is the most urban of the 3 stations being studied. The major attraction for the Pearlridge Station is the existing **Pearlridge Center**, which is the largest indoor, super-regional shopping center in Hawaii. Pearlridge Center also includes a monorail system that transports customers between Uptown and Downtown Pearlridge and overlooks historic Pearl Harbor and the Arizona Memorial. The next station in the diamondhead direction will be Aloha Stadium, another regional attraction.

1.3 PROJECT SCHEDULE AND COMMUNITY PARTICIPATION

The Aiea - Pearl City Neighborhood TOD Plan is focussed around a series of **four community workshops**. Beginning in June 2009, the planning process will include identification of issues and opportunities, the creation of draft station area alternatives, refinements of the alternatives and creation of preferred station area plans. The City's planning team will then make recommendations on phasing, implementation, and revisions to development standards for the area around three stations.

Successful transit-oriented development depends on **participation and broad-based support** from government, residents, businesses, community organizations, landowners, developers and the financial sector. Good TOD projects come after careful listening of all concerns and needs by all parties that result in a common set of goals.

An **Advisory Committee**, comprised of individuals from a broad range of interests and affiliations, has been created to serve as an advisory body and sounding board to the City's planning team. The Committee will also network with the larger Aiea - Pearl City community in order to encourage attendance and participation at the community workshops.



The Aiea / Pearl City Neighborhood TOD Plan is focussed around a series of four community workshops.



Successful TODs depend on participation from all stakeholders including government, residents, business and community organizations, landowners and developers and the financial sector.



1.4 WHAT IS TOD AND SMART GROWTH?

Transit-oriented developments (TODs) are **compact, mixed-use developments** situated at and around transit stops. TODs focus a mix of land uses, such as residential, office, retail, civic uses and entertainment within easy walking and biking distance from a transit station (generally 1/4 mile to 1/2 mile, 5-10 minutes walking). This mix of uses, combined with thoughtfully designed community spaces, plazas and parks, form a vibrant village-like neighborhood where people can live, work and play. Transit-oriented developments provide an opportunity to encourage transit ridership, while discouraging sprawl, improving air quality and helping to foster a sense of community for Honolulu residents.

“Smart growth recognizes connections between development and quality of life. It leverages new growth to improve the community. The features that distinguish smart growth in a community vary from place to place. New smart growth is more [inter-connected] town-centered, is transit and pedestrian oriented, and has a greater mix of housing, commercial and retail uses. It also preserves open space and many other environmental amenities. Successful communities do tend to have one thing in common—a vision of where they want to go and of what things they value in their community—and their plans for development reflect these values.”

- Smart Growth Network

“Calthorpes book, The Next American Metropolis, began to articulate the urban design principles associated with TOD:

- *Organize growth on a regional level to be compact and transit-supportive.*
- *Place commercial, housing, jobs parks, and civic uses within walking distance of transit stops.*
- *Create pedestrian-friendly street networks that directly connect local destinations.*
- *Provide a mix of housing types, densities, and costs.*
- *Preserve sensitive habitat, riparian zones, and high-quality open space.*
- *Make public spaces the focus of building orientation and neighborhood activity.*
- *Encourage infill and redevelopment along transit corridors within existing neighborhoods.”*

- The New Transit Town



TODs contain a mixture of uses along with thoughtfully designed community spaces, plazas and parks which form a vibrant village-like neighborhood.



Successful communities (such as this neighborhood in Vancouver, BC) do tend to have one thing in common - a vision of where they want to go and of what things they value in their community - development plans reflect these values

2. ONGOING AND PREVIOUS STUDIES

2.1 PRIMARY URBAN CENTER DEVELOPMENT PLAN (SEE EXHIBITS B)

According to the Primary Urban Center Development Plan, Leeward Community College Station is located outside of the Urban Community Boundary. Within the 1/4 mile of the station is the **community college campus**, a large **surface parking lot** and **open space and agricultural** uses. Located just within the 1/2 mile boundary from the station is the Pearl Harbor Historic Trail and some Military land uses.

Pearl Highlands Station is located mauka of Leeward Community College. The Urban Community Boundary (UCB) bisects this station area, with half being inside the boundary and half being outside of the boundary. Within the 1/4 mile of the station, inside the UCB, there are **commercial uses** on both sides of Kamehameha Highway. Also included in the 1/4 mile area, mauka of Kamehameha Highway, are some **low and medium to high density residential** areas. Makai of Kamehameha Highway, within the 1/4 and 1/2 mile radius are **urban gardens** (preservation area) and some low density housing with small commercial uses near Waimano Home Road. Mauka of Kamehameha Highway, within the 1/2 mile station radius, uses include low and medium to high residential, shopping complexes, industrial uses, an elementary school and a park.

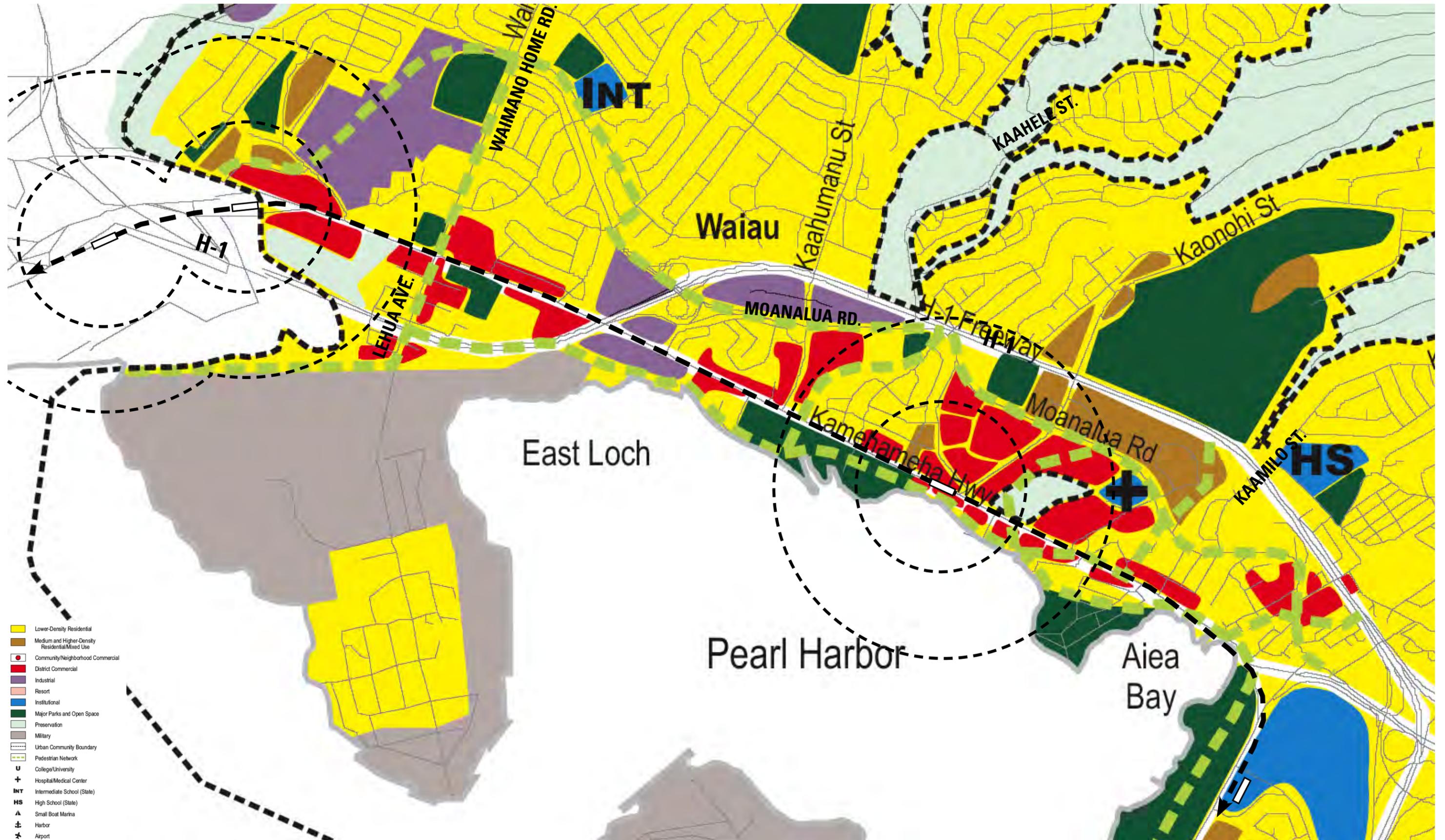
Pearlridge Station is located just mauka of Pearl Harbor with waterfront opportunities. Included in the 1/4 mile radius is **mostly designated as commercial uses** with some **low density and medium to high density residential**. Also included makai of Kamehameha Highway is a **waterfront park**. Within the 1/2 mile station radius uses include more commercial, a **hospital**, low density and medium to high density residential, and a few areas of **parks and open space**. An area of preservation, known as **Sumida Farms**, includes watercress fields surrounded by commercial development (Pearlridge Center) just mauka of Kamehameha Highway.



The Primary Urban Center Development Plan Identifies the Pearlridge Station Area as District Commercial



Transportation Improvements Including Transit, Pedestrian and Auto Improvements are Recommended in the Pearlridge Station Area



EXISTING CONDITIONS REPORT | EXHIBIT B: PRIMARY URBAN CENTER DEVELOPMENT PLAN - LAND USE

2.2 CENTRAL OAHU SUSTAINABLE COMMUNITIES PLAN

The Central Oahu Sustainable Communities Plan (SCP), adopted in 2002 and currently being updated, consists of policies, principles and guidelines intended to guide land use and infrastructure decision to the year 2025. The Plan’s vision and implementing policies support sustaining Central Oahu’s unique character, lifestyle, and economic opportunities by focusing future residential development on master planned suburban communities within an **Urban Community Boundary** and on **redevelopment around transit nodes** along the proposed mass transit system.

Some of the Plan’s initiatives that relate to Aiea-Pearl City are the OR&L historic right-of-way and transportation development. The OR&L historic right-of-way is envisioned to travel from Aiea to Nanakuli and serve as a cultural icon of Central Oahu. A multi-use trail is proposed to run along the entire length of the trail to provide for pedestrian and biking recreation as well as views and access to the shoreline.

Transportation issues are a primary concern for Aiea-Pearl City area. Central Oahu experiences **congestion and bottlenecks**, especially where H-2 joins H-1 (near the Leeward Community College and Pearl Highlands proposed transit stations). Traffic volume on H-2 at Kipapa is projected to increase by almost 40% by 2020 and H-1 is projected to increase by 10%. Transportation Development Priorities suggest that projected demand for peak-hour transportation in Central Oahu should be met by increased use of transit. The Plan states that “Central Oahu will be developed with a transportation system which provides easy access to transit, uses traffic calming design, and encourages people to walk and bike, reducing the need for the use of the automobile”.

The Sustainable Communities Plan states that new development within Central Oahu is proposed to be centered around “nodes”. At least **85% of new residential** housing units should be **within 1/4 mile of a transit stop**, all **commercial development** of more than 1,000 SF and employment sites with more than 10 employees should be **within 1/8 mile of a transit stop**, and **ALL new development** should be **within 1/2 mile of a transit stop**, unless topographically impractical. Sharing facilities, such as schools doubling as community centers and schools and parks being co-located is preferred.



The Sustainable Communities Plan Identifies Transportation Issues as a Primary Concern Near the Pearl Highlands Station.



Leeward Community College is identified as a Major Resource in the Sustainable Communities Plan

2.3 AIEA / PEARL CITY LIVABLE COMMUNITIES PLAN (SEE EXHIBIT C & D)

The Aiea-Pearl City Livable Communities Plan, completed in 2004, is a community-driven Special Area Plan that focuses on transportation, community design and implementation to set the path for the future in these communities. As the first line of the Plan states: “this Plan is intended to improve traffic-congested roadways, provide a more pedestrian-friendly environment, and **revitalize the livability and character of the neighborhoods**”.

Many key components are highlighted in the Vision Plan. **Shoreline connections**, both physically and visually, are desired, especially including a pedestrian-bicycle over/underpass across Kamehameha Highway. **Town Districts** for Aiea and Pearl City are important for establishing the desired feeling of “community”. **Urban trails** are proposed to better utilize the streams and drainageways that run from mauka residential areas to the shoreline. **Landscape improvements** and beautification of Kamehameha Highway and other major intersections and streets will help with traffic calming, pedestrian-friendliness and a sense of community. Expanded **open space and views** to Pearl Harbor shoreline is desired, as well as expanding the use of the historic OR&L right-of-way that will eventually provide recreational opportunities all along Pearl Harbor connecting many different communities.

Pearlridge Center, near the Pearlridge transit stop, is an area identified as the Pearl Harbor Regional Town Center and is proposed to include higher density commercial and residential mixed-use developments. In general, higher densities are proposed mauka of Kamehameha Highway, while lower densities and building heights are desired makai of Kamehameha Highway to preserve views of the Harbor.

Both the Aiea and Pearl City communities have identified specific areas as “Town Districts”. They can be seen in the attached graphic as the bold, outlined white areas. Both communities wish to recapture and enhance the **small town character**, create a more **pedestrian-oriented atmosphere** and create more **open space around Pearl Harbor**.

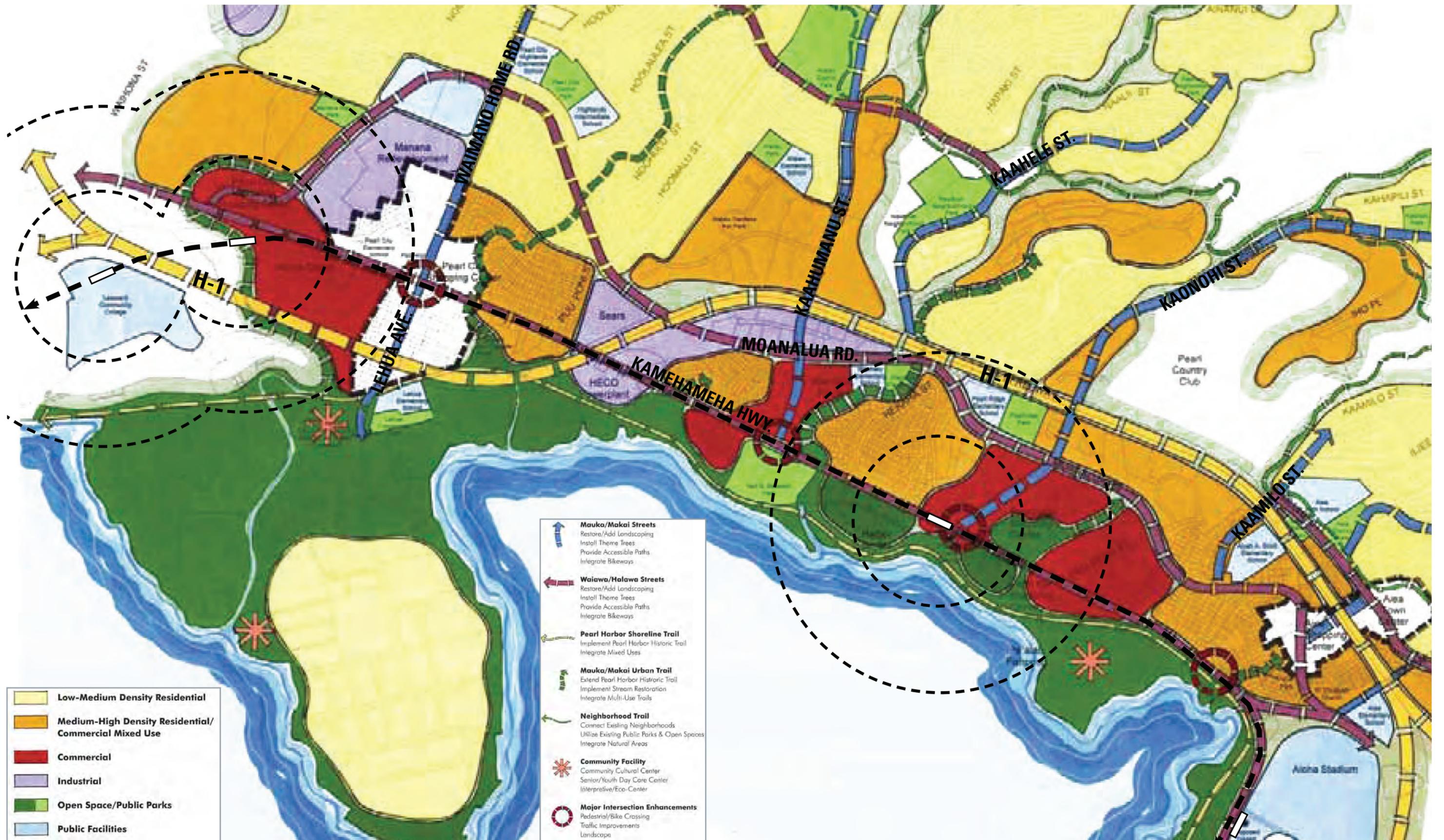
The Aiea community would like to incorporate a gateway/terminus feature at the intersection of Aiea Heights Drive and Halewiliko Street in the Town District. The Aiea community would like to allow mixed-use development and limit building heights to 40 feet in the Town District. Pearl City community would like to establish a “Main Street”, specifically from Lehua Avenue towards the Library on Waimano Home Road with wider sidewalks, narrower roads, street furniture and landscaping. The Pearl City community would like to allow mixed-use development and limit building heights to 40 feet in BMX-3 zones and 60 feet in AMX zones (once rezoned).

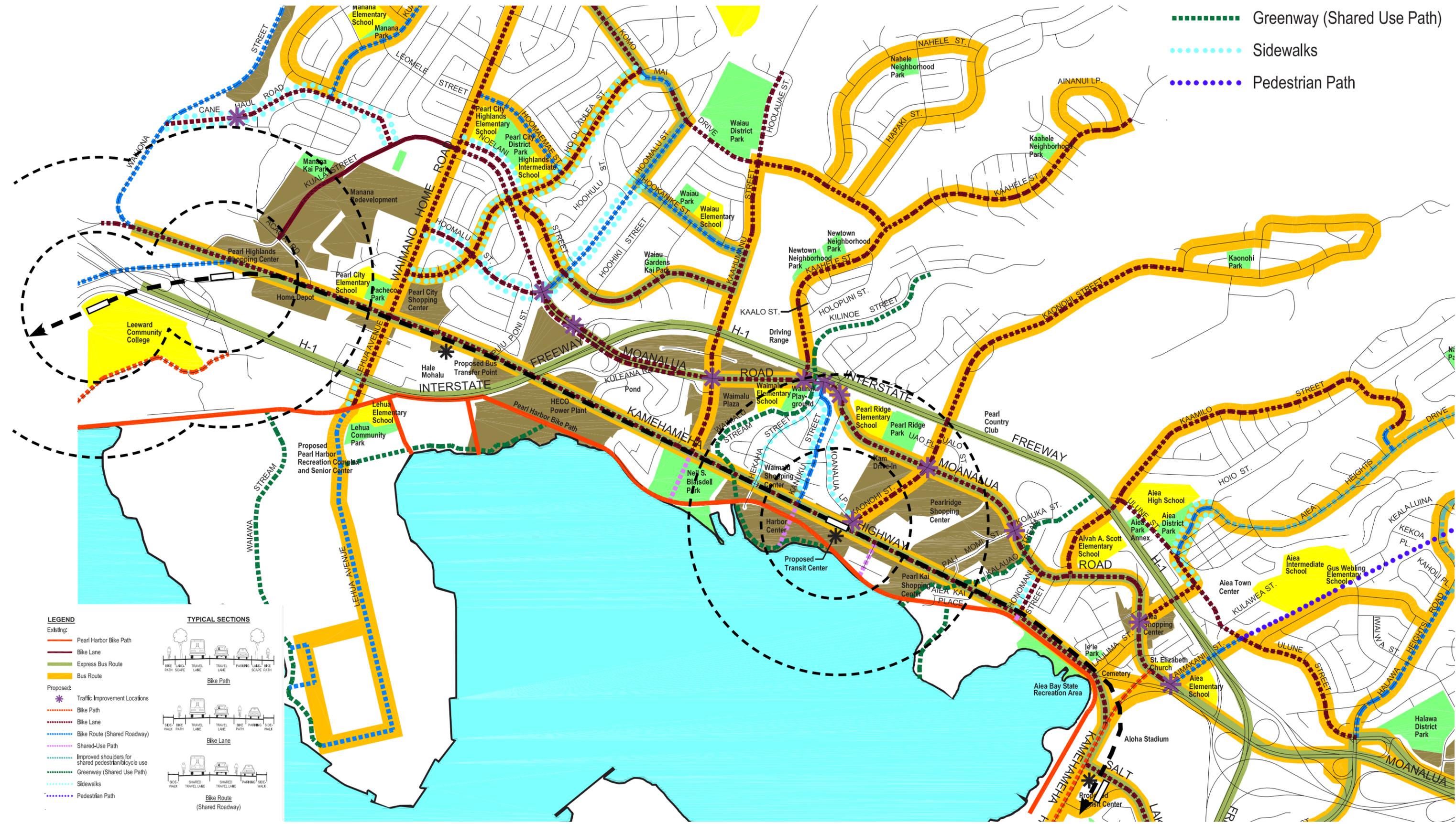


The Livable Communities Plan identifies the Pearlridge Station Area as a Regional Town Center



Expanding the use of the OR&L Right-of-Way is an important component of the Livable Communities Plan.





2.4 PEARL HARBOR HISTORIC TRAIL MASTER PLAN (SEE EXHIBIT E)

The vision of the Pearl Harbor Historic Trail Master Plan is to develop the Pearl Harbor Historic Trail as a **world-class heritage and recreational corridor** that enhances the communities from Aiea to Nanakuli. The goals and objectives of the Plan focus on four key characteristics of the community's vision for the Pearl Harbor Historic Trail: an **outdoor recreation / physical fitness network, historic preservation and education, economic revitalization, environmental preservation and education.**

The trail connects several major urban centers with the natural resources surrounding Pearl Harbor. Travelling primarily along the coast it weaves into various proposed attractions such as the Harbor Center Redevelopment, the Cultural/Interpretive Center, Nature Overlooks, the Observatory, Pearl City Peninsula, Rainbow Bay Marina, and Pearl Harbor National Wildlife Refuge. The path comes within a block of the Pearlridge transit station and this proximity could further strengthen the connections between **alternate modes of transportation.** In addition, the trail is proposed to loop up to encompass the Leeward Community College campus integrating it into the larger trail network.

There is also a proposed **Historic OR&L Railway** line to run train carts adjacent to the pedestrian/bike path. This line could offer users yet another alternate way to enjoy the amenities located along the line. Finally, the path has a **proposed ferry connection** to take travelers across the harbor, which provides even more opportunity for transit-oriented development, specifically at the Pearlridge Station.



The Pearl Harbor Historic Trail is an Important Regional Amenity



The Master Plan Identifies Improvements Throughout the Aiea / Pearl City Neighborhoods

2.5 HONOLULU RAIL TRANSIT PROJECT (SEE EXHIBIT F)

The HHCTCP involves the planning, design and construction of a rail line between East Kapolei and Ala Moana Center with future extensions to Kapolei, University of Hawaii at Manoa and Waikiki. The east-west length of the corridor is approximately **23 miles**. The project is to be **constructed in four phases** with the portion of the corridor serving the **Aiea-Pearl City neighborhoods being constructed in the first two phases**. The first phase will begin construction by the end of 2009. The second phase is to be opened by the end of 2016. The three stations located in the Aiea-Pearl City neighborhoods that are being addressed by the Aiea-Pearl City Neighborhood TOD Plan are Leeward Community College, Pearl Highlands and Pearlridge.

The **Leeward Community College** station is located between Ala Ike Street and the campus. The station entrance is between an existing building and an existing parking lot. The Leeward Community College station is **not expected to have the high passenger access demands** of other station locations because it will have neither a park and ride lot nor a bus transit center. No bus stops, taxi or other significant access mode provisions are anticipated at this station.

The **Pearl Highlands** station will include a **1,600 space parking structure** on 11 acres of land west of the station area. The station will be elevated above the road just east of the intersection between Farrington and Kamehameha Highways. The Pearl Highlands station will be **served by numerous bus routes**. About half of these routes are express bus services now serving the Alapai Transit Center. This will influence the station area design since these routes now serve commuters traveling in the peak hour and peak direction. The vehicle entrances to the parking structure will greatly influence local traffic circulation and TOD planning considerations. There will be a high volume of bus-related traffic movement combined with **high-volume, peak-period vehicle traffic** movement. The direct ramp connections with H-2 are likely to be for bus and high occupancy vehicle joint use. A connecting **pedestrian bridge** will be provided between the station and Kuala Street.

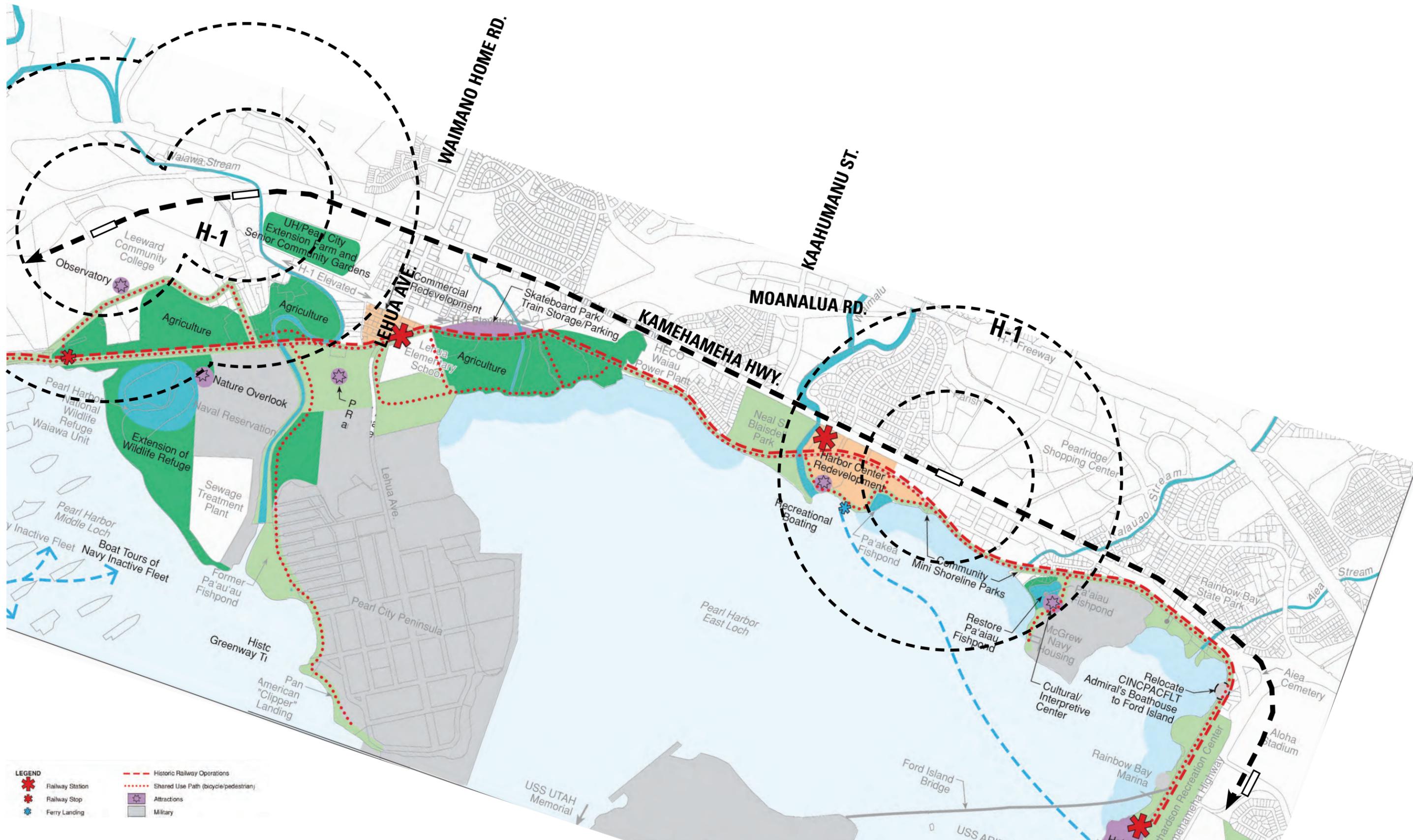
The **Pearlridge** station will be **elevated above Kamehameha Highway** with a concourse level. Station entrances will be provided on both sides of Kamehameha Highway with a pedestrian connection to the Pearl Harbor Historic Trail. The station will be **served by 14 bus routes** using the bus transit center identified in the Aiea-Pearl City Livable Communities Plan. The bus transit center should be considered as an integral part of the TOD station area design even though it is not being shown as part of the HHCTCP.



Significant Redevelopment Can Occur within the 1/4 mile TOD Areas

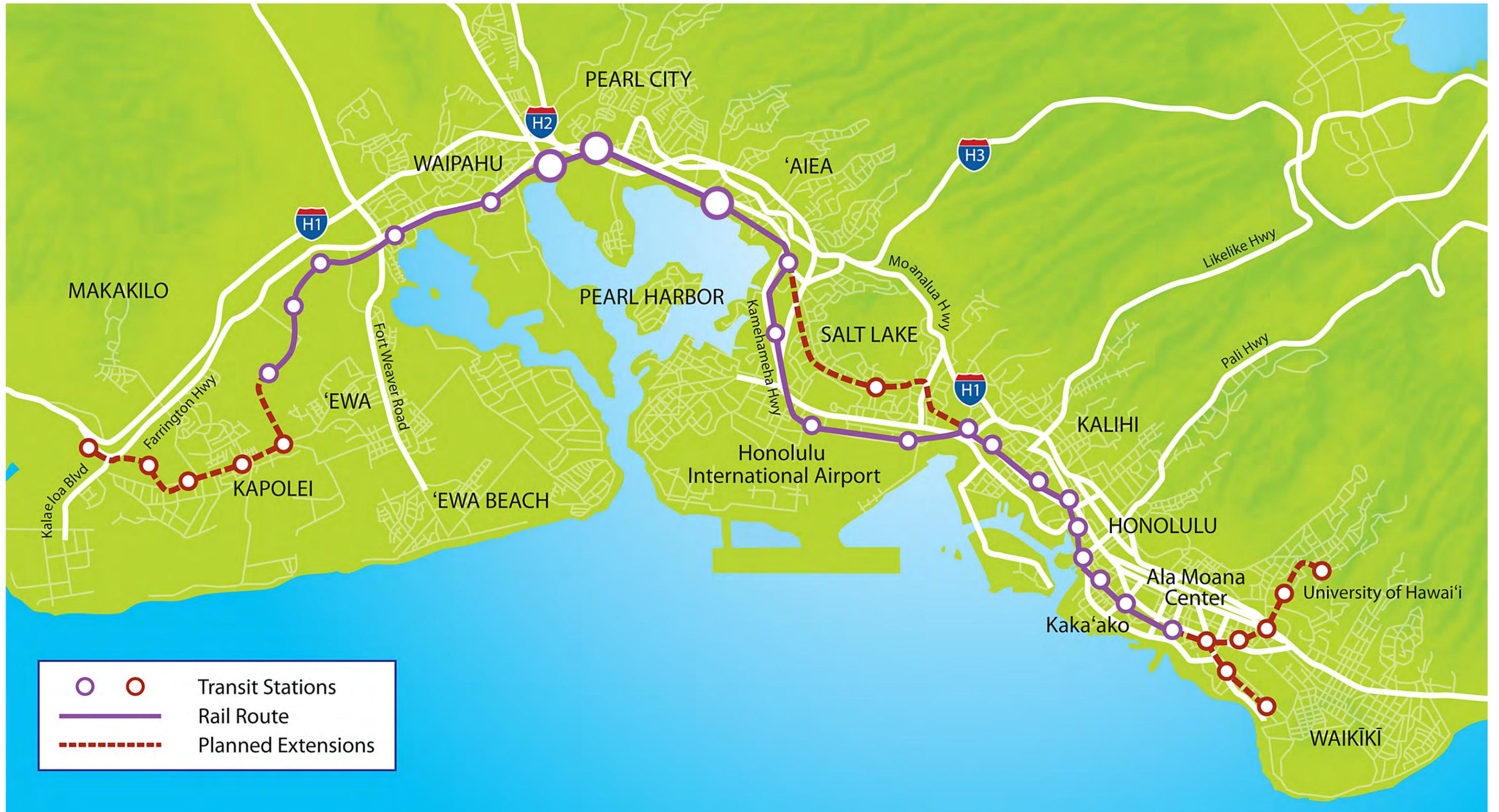


The High-Capacity Transit Will Run Down the Median of Kamehameha Highway



LEGEND	
	Railway Station
	Railway Stop
	Ferry Landing
	Historic Railway Operations
	Shared Use Path (bicycle/pedestrian)
	Attractions
	Military

EXISTING CONDITIONS REPORT | EXHIBIT E: PEARL HARBOR HISTORIC TRAIL MASTER PLAN



3. PLANNING AREA OVERVIEW

3.1 EXISTING LAND USE (SEE EXHIBIT G)

Within 1/4 mile of the **Leeward Community College Station**, the existing land use is **primarily the education facility** with numerous buildings and parking lots adjacent to H-1. On the ewa side of the college there is **military land/open space**. Just makai of Waiawa Road, there are some **scattered single family homes and agriculture land**. The shoreline and the **Pearl Harbor Historic Trail** are within 1/2 mile of this station.

The **Pearl Highlands Station** sits in an **island of vacant land** where Kamehameha Highway and Farrington Highway meet. Farrington Highway and the mass transit line travel ewa towards Waipahu. Within a 1/4 mile of the proposed station location, there is a **Home Depot** (just diamondhead) and a **Sam's Club** and **shopping center** (just mauka). Mauka of Kamehameha Highway, there is a **multi-family residential** community, while the makai side consists of **scattered single family homes and some agriculture uses**. The Pearl Harbor Historic Trail, a Wal-Mart, post office, more single and multi-family housing and urban gardens are within 1/2 mile of this station.

The **Pearlridge Station** is located within 1/2 mile of the **Pearlridge Center**, also known as the Pearl Harbor Regional Town Center on Kamehameha Highway. On the mauka side of Kamehameha Highway, there is a **mixture of single and multi-family residential and miscellaneous business services**, including automobile services and retail. The **Pearl Harbor Historic Trail** is within 1/8 mile of the transit stop, along with **direct access to the shoreline**. Other uses makai of the transit stop and Kamehameha Highway include a **Best Buy and other retail services, automobile repair services** and other **industrial warehouses** (adjacent to the Harbor) as well as some scattered **multi-family residential**.



Both Commercial and Multi-Family Residential Uses are Found Near the Pearlridge Station



Existing Multi-Family Residential is Located Adjacent to Pearl Harbor Makai of Kamehameha Highway

3.2 EXISTING ZONING (SEE EXHIBIT H)

The parcels surrounding the **Leeward Community College Station** are designated as **AG-2** (Agricultural Restricted).

Surrounding the **Pearl Highlands Station** are **IMX-1** (Industrial Mixed Use), **B-2** (Community Business), **A-2** (Apartments), **I-2** (General Industrial) and **R-5** (Residential). **IMX-1** zone includes the Home Depot. **B-2** zones includes the Pearl Highlands Shopping Center. **A-2** includes multi-family apartment buildings. **I-2** is intended to provide areas for some of the industrial employment and service needs of rural and suburban communities while accommodating light manufacturing and high technology industries. The **R-5** zoning provides for single family housing which are intended to provide areas for urban residential development. The Pearl Highlands Station is also in close proximity to the **Pearl Highlands Shopping Center**. There will be pedestrian access from the station to the shopping center to facilitate employment and shopping services.

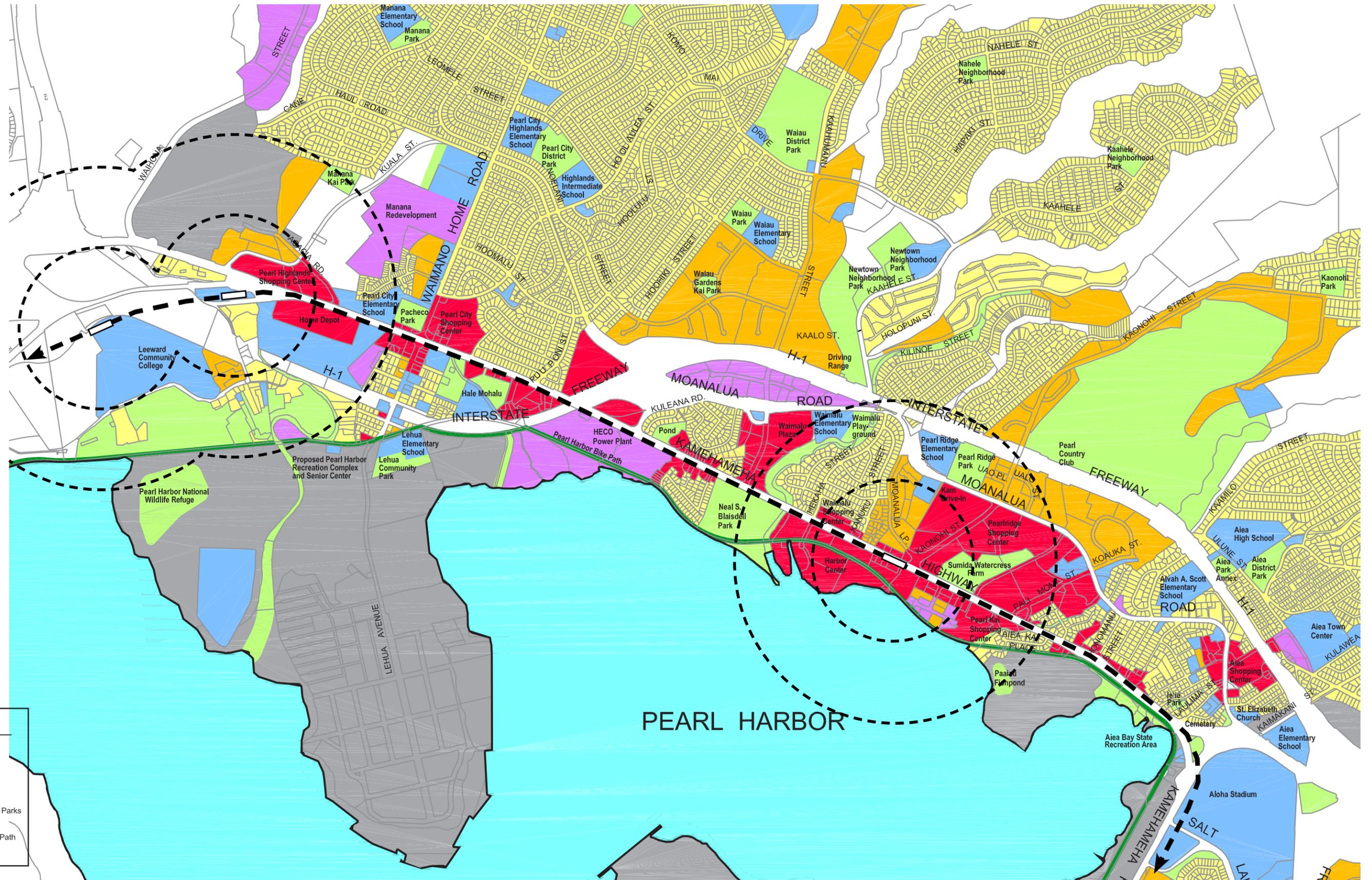
Adjacent to the **Pearlridge Station** south of Kamehameha Highway is a large area of **I-2 / IMX-1** (General Industrial, Industrial Mixed Use). Again, this area will provide for some employment in the light manufacturing and high technology industries. In addition, this area will also provide some of the service needs for the surrounding residential communities. North of Kamehameha Highway are both **B-2** (Community Business), **A-2** (Apartments) and **I-2** (General Industrial). The **B-2** zone is intended to provide areas for community business establishment meant to serve the surrounding neighborhoods. This area will also be an employment center easily accessed via the rail line. In addition, this zone contains the **Pearlridge Center**, a major shopping and employment area along the rail line. Adjacent to the **B-2** zone, is a **AG-2** (Agricultural Restricted) which provides open space for the surrounding development to utilize in terms of views and a cultural resource.

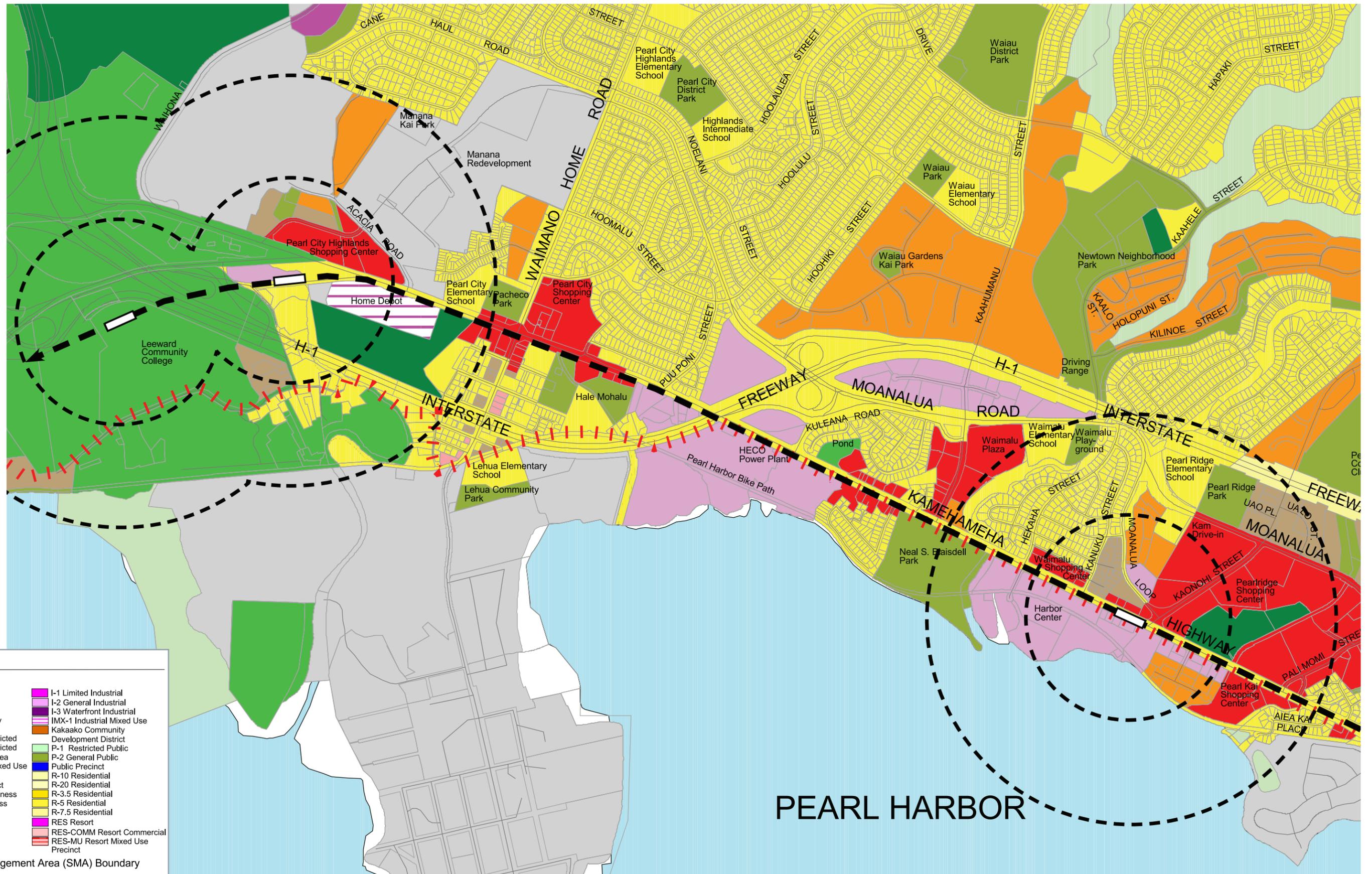


Neighborhoods Adjacent to Waimano Home Road are Zoned R-5 Residential



Areas along Kamehameha Highway Such as the Pearl Kai Shopping Center are Zoned B-2 Community Business





LEGEND

Zoning Designations

A-1 Apartment	I-1 Limited Industrial
A-2 Apartment	I-2 General Industrial
A-3 Apartment	I-3 Waterfront Industrial
AMX-2 Medium Density	IMX-1 Industrial Mixed Use
AMX-3 High Density	Kakaako Community Development District
AG-1 Agricultural Restricted	P-1 Restricted Public
AG-2 Agricultural Restricted	P-2 General Public
Aloha Tower Project Area	Public Precinct
APT-MU Apartment Mixed Use Subprecinct	R-10 Residential
APT Apartment Precinct	R-20 Residential
B-1 Neighborhood Business	R-3.5 Residential
B-2 Community Business	R-5 Residential
BMX-3 Community	R-7.5 Residential
BMX-4 Central	RES Resort
C Country	RES-COMM Resort Commercial
F1 Military and Federal	RES-MU Resort Mixed Use Precinct

Special Management Area (SMA) Boundary

3.3 PROPERTY OWNERSHIP (SEE EXHIBIT I)

Working with the major property owners adjacent to the transit stations is essential to the Aiea / Pearl City Neighborhood TOD Plan. Major property owners within the 1/4 mile station areas include:

Pearlridge Station:

KSBE (Kamehameha Schools)
50th State Properties LLC
Aizaki, EMI
BP Bishop Trust Estate
Continental Investment CO
Episcopal Church in Hawaii
Healani Land CO Inc.
Honolulu LTD
Katsumi Kazama Fam Partners
Moanalua Associates
Pearl City KDI Investors LLC
Salvation Army
State of Hawaii

Pearl Highlands Station:

City, State & Federal Government
Pearl Highlands Shopping Center

Leeward Community College Station:

Leeward Community College



Many Small Locally-Owned Properties Are Within Walking Distance of the Proposed Transit Stations



Several Large Shopping Centers Near the Proposed Transit Stations Will Be Key Opportunity Sites



- Legend**
- State or City Government
 - Federal
 - Kamehameha Schools
 - The Queen Emma Foundation
 - Others

EXISTING CONDITIONS REPORT | EXHIBIT I: MAJOR PROPERTY OWNERS

3.4 ISSUES AND OPPORTUNITIES (SEE EXHIBIT J)

The **Leeward Community College Station** includes primarily one single land use: the college. With transit on the way, it is very important to plan for a mixture of uses that support the college, enhance transit ridership, and encourage placemaking. The campus, perched on a bluff, offers **great views** of the harbor and could have potential access to the Pearl Harbor Historic Trail and waterfront. An expansive existing surface parking lot, is a wonderful opportunity for new development. With **great visibility** from H-1 and Farrington Highway, this site has a lot to offer.

Pearl Highlands Station has some great issues, as well as great opportunities. First of all, the proposed **Park and Ride** will highly activate this station area, especially at peak hours. A **pedestrian bridge** is proposed from the Park 'N Ride facility to the existing shopping area, which is crucial for successful TOD. One major constraint is the **floodway**, which runs east to west through this station area. Most development potential is within the 1/2 mile station radius with Kuala Street and Kamehameha Highway bisecting these areas. The area indicated at “area of change” which is bisected by Kuala Street could become a great mixed use environment with a **quaint, small-town feel**. The larger portion just makai of Kamehameha Highway, surrounding the existing Home Depot, might be better suited for **commercial development** with access and visibility from H-1 and Kamehameha Highway. It is important that both of these areas identified as “areas of change” connect seamlessly to the **proposed Town District along Lehua Avenue**.

The **Pearlridge Station** has the most opportunity of all three stations in the study area. This area is identified as a potential **Town District** for Pearl City, as well as a regional destination. There are many potential areas suited for transit-oriented development. These areas are called out as “areas of change”. The land makai of Kamehameha Highway and adjacent to Pearl Harbor offers **access to the water, great views** of the harbor and connections to the **Pearl Harbor Historic Trail**. The areas mauka of Kamehameha Highway have great potential for redevelopment in highly dense, mixed-use patterns. **New jobs, retail and housing opportunities** are apparent in this area. Kaonohi Street could use some **beautification and street improvements** to facilitate a pedestrian-first environment. Another opportunity is to take advantage of the **Watercress Farms** by turning development towards this amenity, instead of away from it. Restaurant lanais could overlook this urban oasis. **Views of the mountains** can be enjoyed from many parts of this station area. **Potential connections to the canal** could be beneficial for recreation purposes.



Industrial Buildings Makai of Kamehameha Highway Could Be Transformed into New Uses



Watercress Farms is an Important Community Resource and Should Be Celebrated

3.5 PRESERVATION AND CHANGE (SEE EXHIBIT J)

The tremendous public investment in transit can create the **impetus for changes and neighborhood improvements** around both Aiea / Pearl City station areas. A greater amount of change can be expected within the 1/4 mile transit radius with change being less intensive moving outward toward the 1/2 mile radius. Probability is higher when large under-utilized sites are owned by landowners with the goal of redevelopment. Typically, **single-family neighborhoods** and areas with small parcel sizes and a large number of land owners are **least effected by change**. Areas also less affected are community-oriented open spaces, historic buildings and other cultural places. These areas identified are highlighted in the previous “Issues and Opportunities” diagram. This diagram shows which areas are likely to see the greatest amount of change along with the areas that are most likely to be preserved for each station. The alternatives that will be developed as a result of the planning process will focus primarily on the areas of change while attempting to blend seamlessly with single-family neighborhoods and other areas of preservation.

As described previously, the **Leeward Community College Station** really has only one area of change. The existing parking lot could be turned into mixed use development that supports the single use facility of the college, perhaps giving students and faculty **places to eat and drink, to live, to shop and to work**. The existing parking could be placed in a structure to provide land for development.

Pearl Highlands Station has scattered opportunity with **distinct characteristics**. One area highlighted, mauka of Kamehameha Highway, is sufficient for **transit-oriented, mixed-use development** with a **pedestrian friendly** environment and perhaps a more small-town feel. Kuala Street has great potential, with improvements made and development fronting the street, a **“Main Street”** could be in the making. The other area indicated as an area of change, in between Kamehameha Highway and H-1, might be better suited for **commercial development**. Perhaps taller buildings could be located in this area to provide a **“gateway”** for Pearl City.

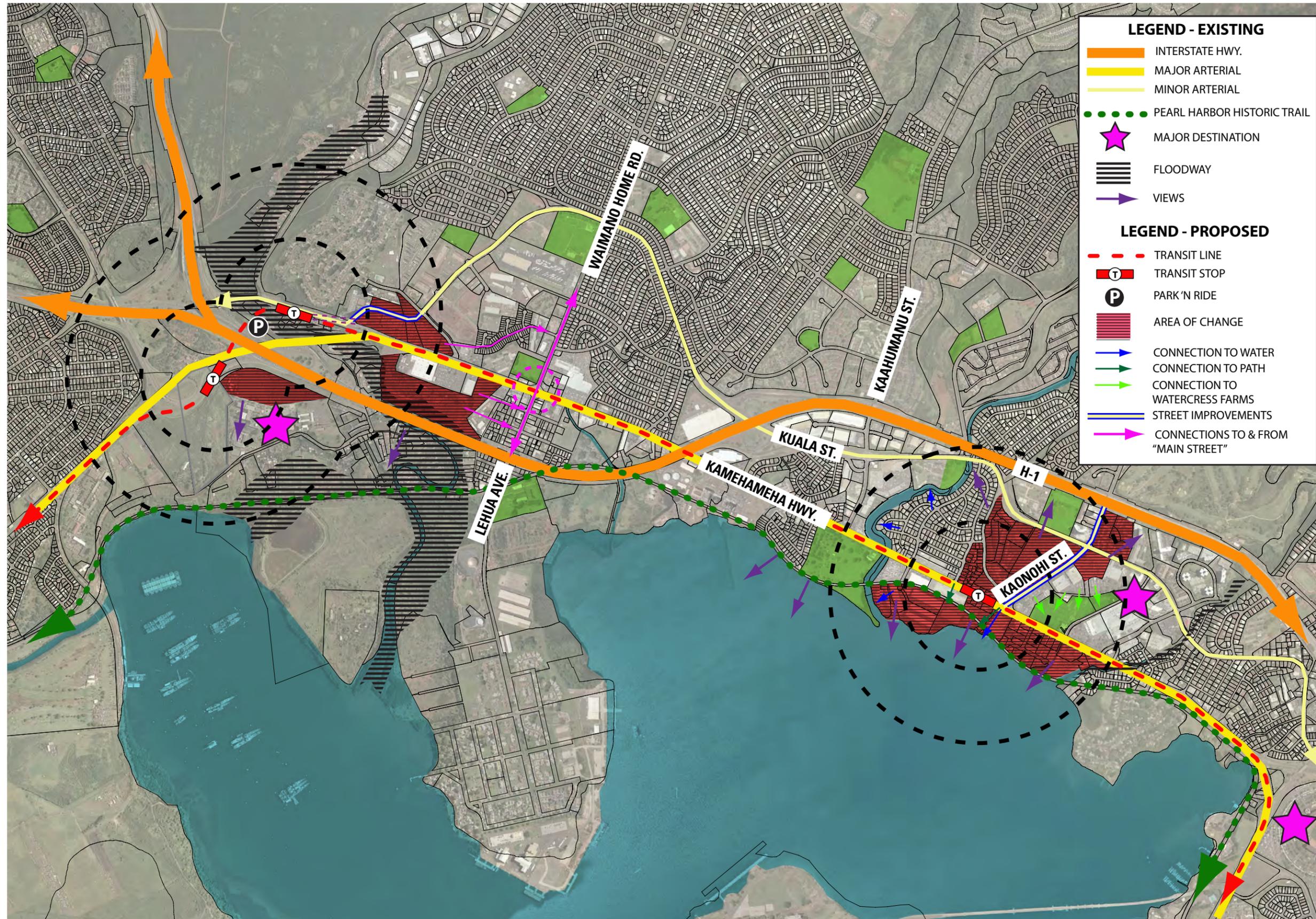
Pearlridge Station has the most potential for change. This change may be **more incremental** than the other station areas, due to the great task of land assemblage. Industrial uses are no longer desirable along the water. The people wish to connect to the water with land uses such as **residential and passive and active open space**. Areas of change located mauka of Kamehameha Highway may be more **mixed use and commercial** in nature. It is very important, however, that these uses and building form **link seamlessly** to the surrounding residential neighborhood to the west. Koanohi Street, in this station area, has great **“Main Street”** potential. Bringing buildings up to the edge of the street with wide sidewalks, cafe seating and street trees, can make this street a much more desirable place to visit.



Existing Drainageways May Be Insufficient to Control Flooding Around the Station Areas



Existing Drainageways May Be Insufficient to Control Flooding Around the Station Areas



Existing Transportation Conditions

A Technical Memorandum
Prepared For The Existing Conditions Report
Of The

AIEA – PEARL CITY NEIGHBORHOOD TOD PLAN

Prepared by

Weslin Consulting Services, Inc.

September 15, 2009

I. Introduction

This technical memorandum reviews the transportation information identified in the Aiea-Pearl City Livable Communities Plan as related to the conditions in the vicinity of three proposed fixed guideway stations at Leeward Community College, Pearl Highlands and Pearlridge. All stations are located along the Farrington Highway and Kamehameha Highway corridor. The inventory of existing transportation conditions primarily addresses the transportation infrastructure and services within one quarter mile of these stations, only major transportation features outside of this radius are referenced.

II. Aiea-Pearl City Livable Communities Plan

The Aiea-Pearl City Livable Communities Plan was prepared as part of a national Livable Communities Initiative program funded by the Federal Transit Administration (FTA). The primary purpose of the Livable Communities Initiative was to help communities develop a comprehensive, integrated (multi-modal) transportation plan coordinated with logical patterns of land use. The objectives of the Livable Communities Initiative were to improve mobility and quality of services available to residents of neighborhoods by:¹

1. Strengthening the link between transit planning and community planning, including land use policies and urban design supporting the use of transit and ultimately providing physical assets that better meet community needs;
2. Stimulating increased participation by community organizations in the decision-making process by community organizations, minority and low-income residents, small and minority businesses, persons with disabilities and the elderly;
3. Increasing access to employment, education facilities and other community destinations through high quality, community-oriented and technologically-innovative transit services and facilities; and,
4. Leveraging resources available through other Federal, State and local programs.

¹ Building Livable Communities With Transit – Planning, Developing, and Implementing Community-Sensitive Transit; United States Department of Transportation, Federal Transit Administration; page 4.

Some of the early Transit-Oriented Development (TOD) planning efforts were started under the Livable Communities Initiative such as the Oakland Bay Area Rapid Transit District Fruitvale Station Enhancements.² Improvements included a new pedestrian plaza, relocation of the bus facility, a child care center, a health clinic, a library, senior citizen housing, police substation and commercial uses. FTA provided \$2.3 of the \$44.3 million invested.

The Aiea-Pearl City Livable Communities Plan's goal was to improve traffic-congested roadways, provide a more pedestrian-friendly environment, and revitalize the livability and character of the neighborhoods. The Aiea-Pearl City Livable Communities Plan integrated the planning and development of traffic improvements with transit services and facilities and pedestrian/bicycle circulation with land use and community design.

The three major components of the Aiea-Pearl City Livable Communities Plan were 1) Transportation, 2) Community Design and 3) Implementation. These three components were developed as follows:³

1. **Transportation:** The Transportation Plan for Aiea-Pearl City included a traffic assessment of the major roadways in the region to identify key problem locations and assess potential actions to alleviate the problem conditions; identification of potential transit centers and major transfer points with convenient access to retail and service facilities within the town centers; and, pedestrian/bicycle circulation to improve access and safety.
2. **Community Design:** The Community Design Plan incorporated major land uses for their potential and capacity to define and serve the community; and included pedestrian streetscape guidelines for pathways and bikeways, landscape improvement recommendations for major roadways, and parks and open space needs.
3. **Implementation:** The Implementation Plan included project scope, implementing body, potential project timetable, cost estimates, and potential sources of funding.

The Aiea-Pearl City Livable Communities Plan area was bounded by the Pearl City Industrial Park to the west, Halawa Stream to the east, Pearl City Peninsula and Pearl Harbor shoreline to the south, and the residential ridge areas to the north. This is a much greater area than being examined for the Aiea-Pearl City Neighborhood TOD Plan. The inventory of existing transportation conditions for the Aiea-Pearl City Neighborhood TOD Plan relies upon the content of the Aiea-Pearl City Livable Communities Plan within one

² Ibid; Appendix page 38.

³ Aiea Pearl City Livable Communities Plan; prepared for the City and County of Honolulu, Department of Planning and Permitting; prepared by Wilson Okamoto Corporation, Kober/Hanssen/Mitchell Architects, Miyabara Associates; May 2004; page 1-1.

half mile of the stations, only major transportation features outside of this radius are referenced. The plan was completed in 2004 and the main purpose of this technical memorandum is to review and update the applicable features in preparation of the development of the Aiea-Pearl City Neighborhood TOD Plan.

III. Honolulu High-Capacity Transit Corridor TOD Station Areas

The Department of Transportation Services was undertaking its Bus Rapid Transit (BRT) project at the time the Aiea-Pearl City Livable Communities Plan was being prepared. The BRT project was being developed to provide convenient, efficient transportation by establishing a state-of-the-art transit network stretching from Kapolei to Waikiki and to the University of Hawai'i, Manoa. Much of the BRT project was ultimately supplanted by the Honolulu High-Capacity Transit Corridor Project (HHCTCP), but some components of the BRT work are still pertinent to the development of the Aiea-Pearl City Neighborhood TOD Plan.

The Regional BRT system was to provide a fast, convenient, and continuous transit corridor between Kapolei and Middle Street. This system included extending the existing inbound morning peak period, the H-1 zipper lane, creating an outbound zipper lane during afternoon peak hours, and building dedicated ramps in several key locations. The Highway Department of Transportation has included the H-1 outbound zipper lane and related features of the Regional BRT system in its Highway Modernization Plan.⁴

For the Aiea-Pearl City area, the Regional BRT initially proposed special access ramps to the H-1 Freeway at Kaonohi Street and Radford Drive and a transit center at the former Kamehameha Drive-In site. Subsequently, the Pearl City/Aiea Working Group, convened for the BRT project, evaluated alternative ramp locations to address community concerns regarding the Kaonohi Street access ramp, and set out to find alternatives to the proposed transit center at the former Kamehameha Drive-In site.

The new strategy focused on developing a transit corridor along Kamehameha Highway through Aiea-Pearl City. A transit center was proposed at the former Jim Slemmons auto dealership site located on the makai side of Kamehameha Highway just Ewa of Kaonohi Street. This transit center would be centrally located in the heart of the commercial district near Pearlridge Shopping Center. This is not the same location as the proposed Pearlridge station for the HHCTCP.

⁴ Highways Modernization Plan – Saving Lives, Saving Time, Saving Money; a PowerPoint presentation; slide 7: Saving Time – Key Strategies to Reduce Traffic Congestion, Operational Improvements: Intelligent Transportation System (ITS), PM Contraflow Lane, Mass Transit & Rideshare. Also see Highway Modernization Plan By Island; Page 4 of 13; Projects C1-102, C1-112 and C1-114.

The HHCTCP involves the planning, design and construction of a rail line between East Kapolei and Ala Moana Center with future extensions to Kapolei, University of Hawaii at Manoa and Waikiki. The east-west length of the corridor is approximately 23 miles. The project is to be constructed in four phases with the portion of the corridor serving the Aiea-Pearl City neighborhoods being constructed in the first two phases. The first phase will begin construction by the end of 2009. The second phase is to be opened by the end of 2016.⁵ The three stations located in the Aiea-Pearl City neighborhoods that are being addressed by the Aiea-Pearl City Neighborhood TOD Plan are Leeward Community College, Pearl Highlands and Pearlridge as depicted in Figure 1.

The Leeward Community College station is located between Ala Ike Street and the campus. The station entrance is between an existing building and an existing parking lot. The Leeward Community College station is not expected to have the high passenger access demands of other station locations because it will have neither a park and ride lot nor a bus transit center. No bus stops, taxi or other significant access mode provisions are anticipated at this station.⁶

The Pearl Highlands station will include a 1,600 space parking structure on 11 acres of land west of the station area. The station will be elevated above the road just east of the intersection between Farrington and Kamehameha Highways. The Pearl Highlands station will be served by numerous bus routes. About half of these routes are express bus services now serving the Alapai Transit Center. This will influence the station area design since these routes now serve commuters traveling in the peak hour and peak direction. The vehicle entrances to the parking structure will greatly influence local traffic circulation and TOD planning considerations. There will be a high volume of bus-related traffic movement combined with high-volume, peak-period vehicle traffic movement. The direct ramp connections with H-2 are likely to be for bus and high occupancy vehicle joint use. A connecting pedestrian bridge will be provided between the station and Kuala Street.⁷

The Pearlridge station will be elevated above Kamehameha Highway with a concourse level. Station entrances will be provided on both sides of Kamehameha Highway with a pedestrian connection to the Pearl Harbor Bike Trail. The station will be served by 14 bus routes using the bus transit center identified in the Aiea-Pearl City Livable Communities Plan. The bus transit center should be considered as an integral part of the TOD station area design even though it is not being shown as part of the HHCTCP.⁸

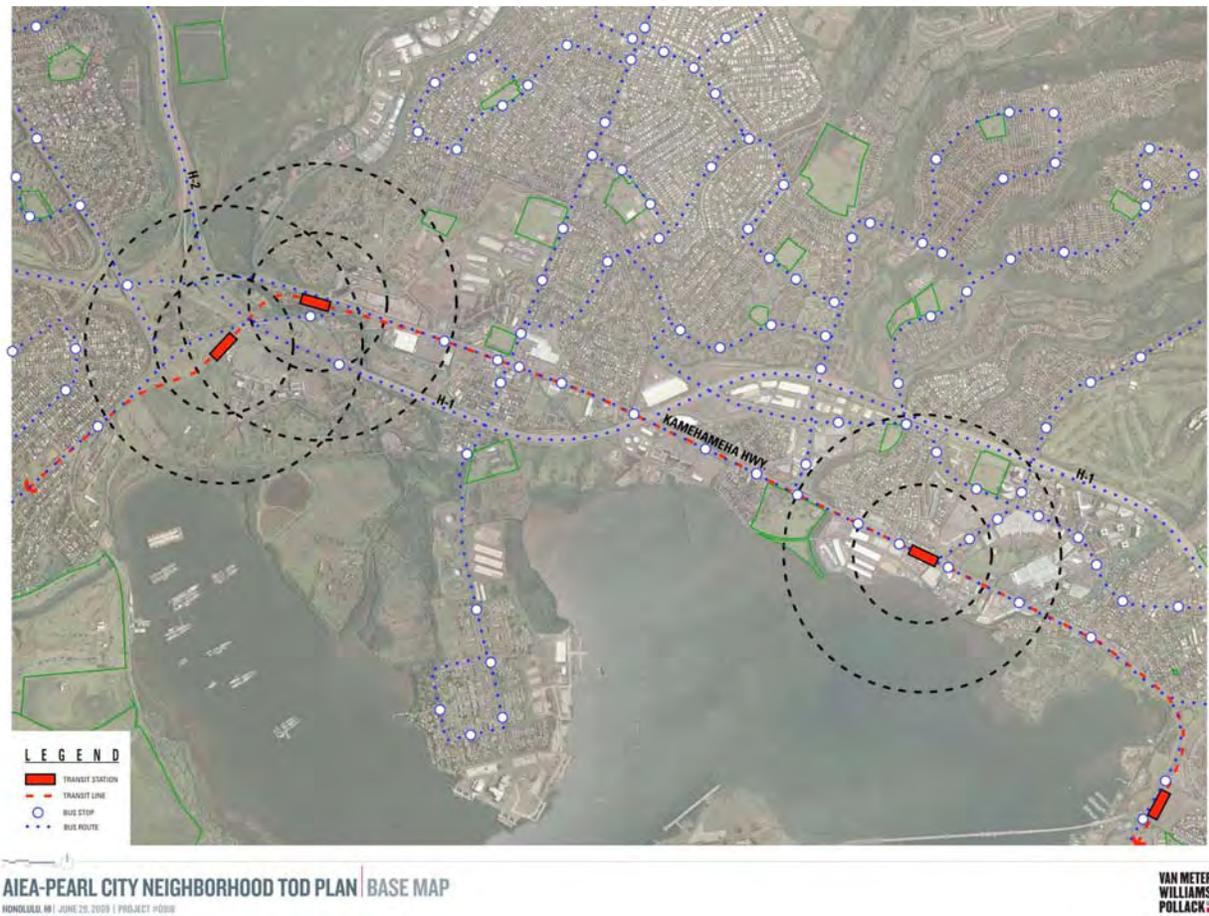
⁵ Honolulu High-Capacity Transit Corridor Project Draft Environmental Impact Statement; by the United States Department of Transportation Federal Transit Administration and the City and County of Honolulu Department of Transportation Services; November 2008; Page 2-40.

⁶ Ibid; Page 2-27, Figure 2-19.

⁷ Ibid; Page 2-27, Figure 2-20.

⁸ Ibid; page 2-28, Figure 2-21.

Figure 1: Aiea-Pearl City Neighborhood TOD Plan
Honolulu High-Capacity Transit Corridor Station Locations



IV. Existing And Planned Public Transportation Services and Facilities

Public transportation on O’ahu is the responsibility of the City and County of Honolulu, Department of Transportation Services (DTS). The service is popularly known as TheBus for fixed route operations and TheHandi-Van for demand-responsive curb-to-curb service for Americans with Disabilities Act of 1990 (ADA) paratransit-eligible individuals.

DTS plans, designs, operates and maintains transportation systems; locates, selects, installs and maintains traffic control facilities, devices and street lighting systems; approves plans and designs for construction, reconstruction and widening of public streets and roads; administers rules and regulations for the use of streets and roadways; and, manages the City's contract for bus and paratransit operations. Within DTS, the Public Transit Division (PTD) is the division responsible for managing the City's contract for bus and paratransit operations. The current contractor is O'ahu Transit Services (OTS), a private, non-profit corporation that operates and maintains TheBus and TheHandi-Van services.

TheBus consists of 96 fixed routes and four (4) deviation routes (operated by the paratransit division) for a total of 100 routes. Of these, four (4) are limited stop routes (CityExpress! A, CityExpress! B, CountryExpress! C and CountryExpress! E) and 32 are peak-period, peak-direction-only express routes. The 100 routes serve about 3,800 bus stops. Passenger amenities include approximately 980 passenger shelters and 2,400 benches.

Bus routes fall within seven route service classifications. These classifications and their function are described below.

- Rapid Bus – Rapid bus includes CityExpress! and CountryExpress! designated routes. These routes provide limited stop express service in both directions. Service is provided all day on weekdays, Saturdays and Sundays on heavily traveled corridors. The CityExpress! Routes A and B offer 15-minute service; CountyExpress! Routes typically provide 30-minute service.
- Urban Trunk – Urban trunk routes provide frequent, direct service connecting neighborhoods within the Primary Urban Center operating along the major Ewa/Diamond Head corridors. Urban trunk routes typically have 15-minute or less service frequencies (headways).
- Urban Feeder – Urban feeder routes connect the mauka/makai neighborhoods within the Urban Center. These routes serving the hills and valleys of Honolulu connect residents to the urban trunk and limited-stop express routes as well as providing service to major destinations such as downtown Honolulu, the University of Hawaii at Manoa and Waikiki.

- Suburban Trunk – Suburban trunk routes provide all day service from outlying communities to the urban center. These routes also provide connections between the suburban communities connecting with community circulators at transit centers. Routes stop at all local bus stops and operate all day, every day. Suburban trunk routes typically provide 30-minute service. Many of the suburban trunk routes operate along the same major corridors such as Kamehameha Highway, Nimitz Highway and Dillingham Boulevard. Service levels along these corridors are much higher due to the combined number of trips provided by the routes.
- Community Circulators – These routes provide circulation within their established community. They connect at a neighborhood hub or transit center after completing their single cycle trip. Community circulators provide timed connections to other circulators and suburban trunk routes. These routes stop at all local bus stops and frequently operate with loops and branches. Community circulator routes currently fall into three general categories of service provision. Higher demand routes offer 30-minute service; lower demand routes provide 60-minute service and some routes offer intermittent or peak-period-only service such as those operating in Aiea-Pearl City today.
- Community Access – These routes operate on a standard schedule serving regular bus stops utilizing the Handi-Van vehicles. Handi-Van type service is provided for registered Handi-Van customers with a 24-hour advance notice within ½ mile of the service route. These routes provide 60-minute service. Time is provided in the schedule to allow for route deviations.
- Peak Express – Peak period express routes serve predominantly home-to-work trips by connecting specific neighborhoods to employment centers. These trips are provided in the peak period, peak direction only with minimal scheduled departures.

Table 1 lists those existing bus routes operating in the vicinity of the project area. These routes include all of the service classifications with the exception of Community Access, a service classification that may be deployed in the area in the future.

Table 1: Aiea-Pearl City Neighborhood TOD Plan
Existing Bus Routes

ROUTE		SERVICE CLASSIFICATION	AIEA-PEARL CITY NEIGHBORHOOD TOD PLAN STATION SERVED		
No.	Name		LCC	Pearl Highlands	Pearlridge
A	Waipahu-UH Manoa	Rapid Bus	✓	✓	✓
11	Aiea Heights-Honolulu	Suburban Trunk			✓
20	Pearlridge-Airport-Waikiki	Urban Trunk			✓
32	Pearlridge-Kalihi	Urban Feeder			✓
40	Makaha-Honolulu	Suburban Trunk	✓	✓	✓
42	Ewa Beach-Waikiki	Suburban Trunk	✓	✓	✓
53	Pacific Palisades-Honolulu	Suburban Trunk			✓
54	Pearl City-Honolulu	Suburban Trunk			✓
62	Wahiawa Heights-Honolulu	Suburban Trunk	✓	✓	✓
71	Newton-Pearlridge	Community Circulator			✓
73	LCC-Pearl City	Community Circulator	✓	✓	
90	Pearl City Express	Peak Express			✓

The characteristics of these routes in 2009 are further detailed in the Appendix. The Transit Rider Database and Route Profiles Project compiled by the Department of Transportation Services includes detailed rider characteristics by route.⁹ This information is included in the Appendix for those routes listed in Table 1.

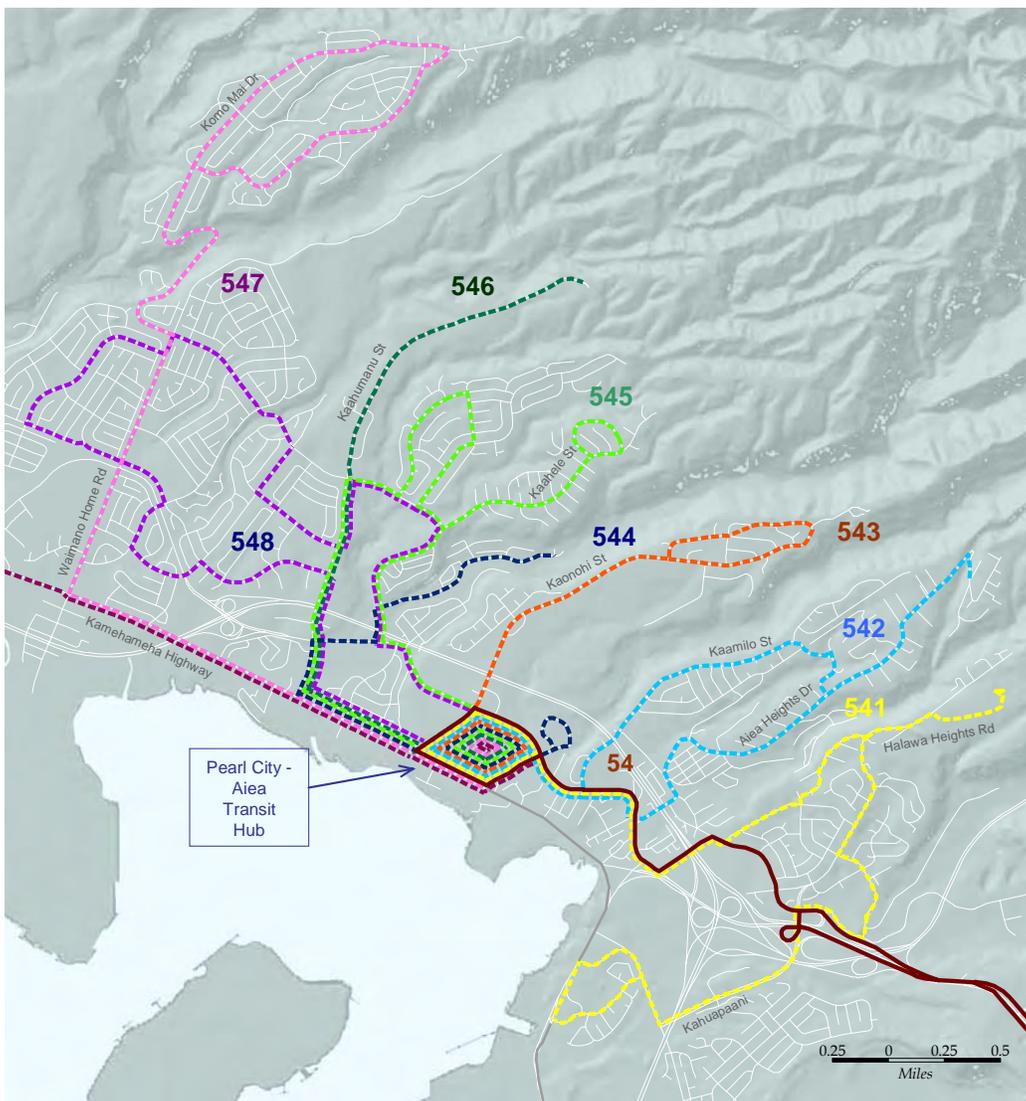
The Bus Service Improvement Plan (BSIP) was completed in 2006 by the Department of Transportation Services. The BSIP proposed route modifications to implement the bus service concept included in the Aiea-Pearl City Livable Communities Plan.¹⁰ The BSIP's "Urban Area Service Plan" covered the geographic area from Pearl City to the Kalihi Transit Center. It addressed long standing bus service efficiency issues in this geographic area.

⁹ Transit Rider Database and Bus Route Profiles Project; prepared for The City and County of Honolulu Department of Transportation Services; prepared by Weslin Consulting Services, Inc.; February 2006. See the Appendix for data on each Aiea-Pearl City area route.

¹⁰ Bus Service Improvement Plan; prepared for the City and County of Honolulu Department of Transportation Services; prepared by Weslin Consulting Services, Inc.; October 2006.

A few un-served or under-served areas make using current routes difficult from some of the newer residential areas constructed over the past fifteen years. Long routes serving local needs are delayed in traffic in downtown Honolulu in the afternoon creating on-time performance problems. Some lower productive route segments are included in the statistics for long local routes making them appear more productive. Existing transit routes need to be restructured to provide better service efficiency by making timed connections at a centrally located Pearl City – Aiea Transit Hub as shown in Figure 2.

Figure 2: Aiea-Pearl City Livable Communities Plan and Bus Service Improvement Plan
 Pearl City – Aiea Transit Hub and Bus Route Network



The Pearlridge station will need to incorporate the Pearl City – Aiea Transit Hub identified in the Aiea-Pearl City Livable Communities Plan and the BSIP. The Pearl City – Aiea Transit Hub will need to be considered as an integral part of the Aiea-Pearl City Neighborhood TOD Plan.

Based upon the transit system work completed as part of the BSIP, the bus transit center will need to have 17 bus positions. At least thirteen of those should encircle a central pedestrian-only island with a grade separated pedestrian connection to the HHCTCP's Pearlridge station's concourse level. The 13 positions are for TheBus and TheHandi-Van (7 are for 40-foot vehicles, 4 are for 60-foot vehicles and 2 are for 25-foot vehicles). The other four bus positions are for private shuttle buses (2 25-foot vehicles), one private tour or school bus position (40-foot vehicle) and 2 are for TheBus vehicle staging operations (60-foot vehicles).¹¹

Based upon the previous Aiea-Pearl City Livable Communities Plan, the BRT plans and the BSIP; the Pearlridge TOD area should function as a transit interchange facility, an evolution of the current TheBus route design in the Pearl City and Aiea neighborhoods which features a network of routes without a strong local transit center. The current operation loops bus routes around the Pearlridge shopping center. This bus operation scheme does not serve to properly or safely feed riders to the HHCTCP Pearlridge station. A bus transit center is required to achieve that requirement.

The bus entrance to the transit center should be from a signalized intersection using Transit Signal Priority (TSP) features. Further conceptual design, traffic engineering and transit operations investigations are necessary to determine the best overall site functional configuration. Several entrances are possible. One entrance might be from the intersection of Kamehameha Highway and Kanuku. The access between this intersection and the transit center will require use of a portion of the Pearl Harbor Bike Trail alignment and/or private right-of-way (joint bike and bus use of the same right-of-way is a common treatment and is currently in use along Kalakaua Avenue in Waikiki).

An exit for some bus movements might be possible at the Kaonohi intersection, but left turns from the transit center to Kamehameha Highway going eastbound may be too difficult. Bus only turn signs and markings will be necessary at the entrances to the transit center. Bus only lanes using "bus-only except for right turns" signs and markings for the bus routes along curb lanes on Kamehameha within several blocks of the transit center should be used to give buses preferential treatment over localized general purpose traffic.

¹¹ Ibid. Note: Figure 2 is from BSIP page 14. The figure depicts how eight community circulator (or Tier III) routes connect at the transit center with Route 54 (a Tier II service). The total bus position requirements located at the Pearl City – Aiea Transit Hub will need to serve other routes not shown in Figure 2. A bus position is required for each route since the bus schedules will be designed to allow timed transfer connections among all community circulator routes during the same time span.

At least one on-street bus stop in each direction will be needed at the HHCTCP Pearlridge station along Kamehameha Highway next to the station area. These are for a major local route with frequent service not making timed connections with the other community circulator routes at the Pearlridge off-street bus transit center. The makai on-street bus stop should be aside the off-street transit center as much as possible. The current bus stops in this location are not pullouts and the future on-street bus stops should not be pullouts.

V. Existing and Planned Pedestrian and Bicycle Facilities

The Aiea-Pearl City Livable Communities Plan proposed a pedestrian/bikeway circulation system intended to effectively serve and connect schools, parks and other activity areas and destinations, as well as provide convenient access to the public transportation system. The pedestrian and bikeway system encouraged alternative modes of travel between the various land use facilities in Aiea-Pearl City.

The proposed bikeway system was intended to accommodate a broad range of bicyclists, including recreational, commuter and bicycling enthusiasts. The proper placement of improved sidewalks and paths was intended to encourage increased pedestrian activity between activity areas within the community.

V.1. Existing and Planned Pedestrian Facilities

Sidewalks are provided throughout areas of Aiea-Pearl City, although the predominantly older neighborhoods do not have adequate pedestrian facilities. The Livable Communities Plan community survey emphasized the need for sidewalks in these areas. Some of the sidewalk facilities that do exist are in need of improvement and new facilities are needed to further link existing and proposed activity areas, thereby improving mobility for pedestrians.

The provision of safer pedestrian crossing areas is needed. Key areas include Moanalua Road and Kamehameha Highway in the vicinity of Pearlridge Shopping Center. Designated mauka-makai pedestrianways to the Pearl Harbor Bike Path, shoreline areas and HHCTCP stations are for the most part non-existent.

The Aiea-Pearl City Livable Communities Plan observed that pedestrian crossing poses a safety concern. Prominent among these are Kamehameha Highway across from the Pearlridge Shopping Center where one HHCTCP station is to be located. This safety concern has not changed, but the section on roadways will discuss forthcoming major Kamehameha Highway safety improvements underway by the HDOT in fulfillment of the state's response to the proposals in the Aiea-Pearl City Livable Communities Plan.

Pedestrians encounter heavily traveled multiple-lane arterials along Kamehameha Highway. Given the pedestrian-oriented nature of the Pearlridge Shopping Center, improvements to provide for safe pedestrian crossing conditions are necessary.

Moanalua Road in the vicinity of Pearlridge Shopping Center is currently a four-lane arterial with a center median/turn lane. An existing crosswalk on Moanalua Road immediately Diamond Head of the driveway access to the shopping center (across of Ualo Street) provides a mid-block crossing for pedestrians. In the nearby vicinity, the two nearest pedestrian crossings on Moanalua Road are located at the signalized intersections of Kaonohi Street and Pali Momi Street/Koauka Loop.

To provide for a safer midblock pedestrian crossing, a proposed improvement involved upgrading the existing crosswalk on Moanalua Road near Ualo Street to an in-pavement flashing crosswalk with an actuated pedestrian walk signal to alert motorists of crossing pedestrians. A raised curb within the median area was recommended to provide pedestrians with a safety refuge area while waiting to cross the street.

Kamehameha Highway in the vicinity of Pearlridge Shopping Center is a six-lane arterial with a median and turning lanes at the signalized intersections. Pedestrian crosswalks are currently provided at three signalized intersections along a 0.4 mile stretch of Kamehameha Highway in the vicinity of the shopping center – at Kaonohi Street, Lipoa Place and Pali Momi Street (East).

Various other unsafe pedestrian crossing locations were addressed in the Aiea-Pearl City Livable Communities Plan that are in close proximity to the HHCTCP Pearlridge station. A notable location is in the vicinity of the Kamehameha Drive-In where pedestrians frequently jaywalk across Kaonohi Street and Moanalua Road during swap meet events, despite the presence of marked crosswalks at the intersection.

The Aiea-Pearl City Livable Communities Plan included the provision that pedestrian facilities should incorporate safety, attractiveness and convenience measures to encourage and promote usage. Amenities for pedestrians should be adequately illuminated and strategically located and incorporated in consideration of nearby facilities and land uses.

Adequate signing and marking are essential, especially to alert pedestrians to potential conflicts. The use of guide signing to indicate destinations, directions and distances was proposed. The use of pavement markings to indicate directions of travel was recommended.

V.2. Existing and Planned Bicycle Facilities

Currently, the only existing bikeway facilities in the Aiea-Pearl City area include the Pearl Harbor Bike Path traversing makai of Kamehameha Highway along the OR&L right-of-way from the Pearl City Peninsula to the vicinity of the Rainbow Bay Marina in Aiea, and bike lanes along the new Kuala Street extension in Pearl City.

The need still exists for developing bikeways to connect existing residential areas with activity centers, schools, recreational areas, and major transit stops. There is a need to identify and designate bikeways within Aiea-Pearl City to encourage usage and increase safety along specific streets and corridors. An integrated bikeway system is needed to link activity areas, schools, recreational areas, and proposed transit centers within the region.

The existing Pearl Harbor Bike Path should be integrated with mauka areas to achieve a comprehensive mauka-makai connection and serve as feeder routes for cyclists to HHCTCP stations. The need and desire for bikeway connections mauka into the various residential ridge areas was revealed in the community survey. The provision of such mauka bikeway connections would complement the opportunity available to bus riders in being able to have their bicycles transported on City buses and ultimately the HHCTCP rail line.

The Aiea-Pearl City Livable Communities Plan used the past Hawaii standards for distinguishing the general types of bikeway facilities being proposed for designated areas. These traditional bicycle facility types are not considered adequately inclusive of the full range of bicycle facilities being rapidly implemented in places like Portland, San Francisco and New York City from European classifications that have been successful in improving safety and mobility at a reasonable cost. These more advanced bicycle facility types have been found especially beneficial in shifting access from private automobiles to alternative modes at rail stations. These advanced bicycle facility treatments will be discussed in future Aiea-Pearl City Neighborhood TOD Plan documents.

For the Aiea-Pearl City Livable Communities Plan, the term “bikeway” was used to define any trail, path, part of a highway or shoulder, sidewalk, or other travelway specifically signed and/or marked for bicycle travel. The term is applicable whether or not the facility is reserved for the exclusive use of bicycles or is shared with some other type of vehicle or with pedestrians. The various designations of bikeways were defined as follows:

- **Bike Path:** (also referred to as *Shared-Use Path*) A completely separate right-of-way for the exclusive or semi-exclusive use of bicyclists, walkers, joggers or skaters. Where such a facility forms part of the roadway, it is

separated from the roadway by a significant amount of open space and/or a major physical barrier (such as trees or a considerable change in ground elevation). Bike paths are primarily proposed in areas of special scenic value, or where integration with existing travel corridors would otherwise prove hazardous. A minimum 10-foot width is recommended for a bike path.

- **Bike Lane:** A portion of a roadway that has been designated for the preferential or exclusive use of bicycles. While there are many variations on the general concept, there are only two different types of bike lanes – protected and unprotected. A protected bike lane is separated from adjacent vehicular traffic by a physical barrier such as concrete bumper stops, placement of the lane between parked cars and the curb, a median buffer landscape strip, or other similar means. An unprotected bike lane is delineated by a painted white line or a row of pavement markers. The recommended minimum width of a bike lane is 4 feet.
- **Bike Route:** (also referred to as *Signed Shared Roadway*) A street or system of streets that meets certain minimum standards and is officially designated and marked as a “bike route”. Bicycles share the roadways with moving vehicles. Bike routes are generally used to provide continuity between urban centers, especially in the more rural and less heavily used travelways outside the central business and commercial districts. In some cases, where sufficient space for a bike lane is not available, especially in congested urban areas, bike routes provide continuity on a bikeway. A minimum travelway width of 12 feet is recommended for the designation of bike routes.
- **Greenway:** A path, paved or unpaved, as wide as a watershed or as narrow as a trail. Greenways typically follow rivers, wetlands, the coast, through landscape and open spaces and help maintain delineations between urban and conservation lands.

Existing bicycle plans for the Aiea-Pearl City area generally follow the above definitions for bicycle facilities. These plans include the following:

- *Honolulu Bicycle Master Plan* – A July 2009 draft updating the 1999 report used in the Aiea-Pearl City Livable Communities Plan has been reviewed for this document. The specific projects in the vicinity of the HHCTCP stations under consideration for the Aiea-Pearl City Neighborhood TOD Plan are listed in Table 2.¹²

¹² O’ahu Bike Plan Public Review Draft; City and County of Honolulu Department of Transportation Services; prepared by Helber Hastert & Fee Planners, Inc.; July 2009; Table 5.

Table 2: Aiea-Pearl City Neighborhood TOD Plan
Planned O’ahu Bikeway Projects Within One Half Mile of Selected Stations

BICYCLE PROJECT DESCRIPTION			FEATURES				STATION SERVED		
Code	Name	Location	Type	Owner	Length (miles)	Cost (\$1000s)	LCC	Pearl Highlands	Pearlridge
2-6	Cane Haul Road (South)	Waipahu Street to Waipio Point Access Road	P	C/P	1.16	---	✓		
2-11	Kamehameha Hwy (Waipio)	Waipio Uka Street to Waipahu Street	R	S	0.91	54	✓		
2-16	LCC (Ala Ike Street)	Secondary Access Road to Waiawa Road	L	S	1.22	---	✓		
2-17	LCC Access Road (Mauka)	Kamehameha Hwy to LCC	R	S	0.27	150	✓		
2-115	Kamehameha Hwy (East Loch)	Waihona Street to Arizona Memorial	L	S	5.42	4,233		✓	✓
2-123	Kuala Street	Acacia Road to Kamehameha Hwy	L	C	0.28	38		✓	
2-136	Pearl Ridge Transit Station	Kamehameha Hwy to Pearl Harbor Bike Path	L	C	0.09	10			✓
3-1	Cane Haul Road (North)	Waipahu Street to H-2 Freeway	P	C/P	2.35	---	✓	✓	
3-2	Farrington Hwy (Leeward CC)	Kamehameha Hwy to Kamehameha Hwy	L	S	0.77	410	✓	✓	
3-6	Kamehame Hwy (Waipahu)	Widen overpass across H-1/H-2	L	S	0.73	7,144	✓		
3-10	LCC-Pearl Harbor Bike Path Access	Pearl Harbor Bike Path to Waiawa Road	P	C	0.70	1,613	✓		
3-104	Honomanu Street	Moanalua Road to Kamehameha Hwy	L	C	0.16	17			✓
3-109	Kaahumanu Street	Kamehameha Hwy to Komo Mai Drive	L	C	1.01	110			✓
3-132	Moanalua Road (Aiea)	Kaahumanu Street to Aiea Heights Drive	L	C	1.78	193			✓
3-137	Noelani Street	Moanalua to Kaahumanu Street	R	C	1.23	134			✓
3-147	Bike Path Access at Blaisdell Park	Kamehameha Hwy to Pearl Harbor Bike Path	P	C	0.18	131			✓
3-150	Bike Path Access at McGrew Point	Kamehameha Hwy to Pearl Harbor Bike Path	P	C	0.04	29			✓
3-151	Bike Path Access at Pearl Kai Ctr	Kamehameha Hwy to Pearl Harbor Bike Path	P	C	0.16	116			✓
3-164	Waihona Street	Cane Haul Road to Kamehameha Bike Lanes	L	C	0.37	40	✓		

LEGEND: Type: L = Lane; R = Route; P = Path
Owner: C = City; S = State; P = Private

There does not appear to be any significant changes that would elevate the priority or enhanced treatment of bicycle access at HHCTCP station locations. Both the 1999 *Honolulu Bicycle Master Plan* and the current update released as a public review draft provide a strategy for the bicycle component of our future transportation system. They identify an integrated network of on-road bike lanes and off-road shared-use paths that would link people with their favorite destinations.

A major component of the 1999 plan was the Bike-Friendly Route No. 1 project completing major elements of the Central Bike Corridor from Kahala to Downtown and major elements of the Makai Bike Corridor from the Pearl Harbor Bike Path to Downtown. Bike-Friendly Route No. 1 included 19 different road segments within the City and served the commuter cyclists and accommodated recreational and utilitarian trips. The intent of Bike-Friendly Route No. 1 was to give commuters and other bicyclists a direct and safer bikeway to traverse urban Honolulu. A major segment of Route No. 1 involved the creation of gateways to the Pearl Harbor Bike Path using signage and landscaping at access points. Entrance and exit signs were recommended.

- *Bike Plan Hawaii* -- Bike Plan Hawaii 2003 provides a status report of bicycling conditions in Hawaii and a long-term blueprint for future programs and facility improvements. The planning process included consultations with federal, state, and county officials, local bicycling organizations, and members of the general public through 21 community meetings. Bike Plan Hawaii 2003 is a state Department of Transportation master plan to create a guide for enhancing the bicycling environment through a variety of channels – from grassroots initiatives to government actions. The plan recognizes that bicycle facilities have become integral to our state and city transportation infrastructure.¹³ The plan identifies the Pearl Harbor Bike Path as the only existing bikeway facility within the Aiea-Pearl City area. The Aiea-Pearl City Livable Communities Plan relied upon the State Department of Transportation Highway Division's *Bike Plan Hawaii* (April 1994), but no significant changes can be found in the more recent state plan that are not incorporated into the more recent City and County of Honolulu bike plan released in draft form in July 2009 that would involve the Aiea Pearl City Neighborhood TOD Plan areas.
- *Pearl Harbor Historic Trail Master Plan* -- The City and County of Honolulu's *Pearl Harbor Historic Trail Master Plan* identified possible bikeway, shared-use path (bike and pedestrian), and greenway

¹³ Bike Plan Hawaii; State of Hawaii Department of Transportation; 2003.

connections from the Pearl Harbor Historic Trail. These linear paths generally used existing city street corridors. More than 30 miles of trail connections were proposed, including within the Aiea-Pearl City area involving designation of the bikeway segments, installation of signs, pavement markings, and, in some cases, widening of bike shoulders or sidewalks. The connections deemed feasible for incorporation in the Livable Communities Plan proposed bicycle circulation plan are still valid.

The Aiea-Pearl City Livable Communities Plan bicycle circulation recommendations considered the future bikeways in the State's *Bike Plan Hawaii*, City's *Honolulu Bicycle Master Plan*, and City's *Pearl Harbor Historic Trail Master Plan*. The updates to those plans do not significantly alter what was proposed in the Aiea-Pearl City Livable Communities Plan.

The Aiea-Pearl City Livable Communities Plan also considered problem locations identified through the Community Survey for the Aiea-Pearl City Livable Communities Plan, input from community meetings and workshops, discussions with school principals in the area and the City and County of Honolulu Department of Transportation Services, and existing State bicycle/pedestrian accident data. The intent was to provide for a bikeway system largely separated from vehicular traffic, thereby ensuring a pleasant and safe environment for facility users.

The Aiea-Pearl City Livable Communities Plan observed that the availability of three major streams in the area – Waiawa Stream, Waimalu Stream and Kalauao Stream – each terminating at the shoreline, provided a unique opportunity for development of tranquil and scenic adjacent pathways for bicyclists, thereby further integrating access to recreational areas and to future HHCTCP stations, namely the Pearlridge station.

VI. Existing and Planned Roadway Network Facilities

Conditions along the roadways in the Aiea-Pearl City Livable Communities Plan were characterized as congested, particularly during peak commuter periods and on weekends. This observation has not changed.

Congestion was largely attributed to the concentration of commercial and retail uses makai of the H-1 freeway, including a regional shopping center and big box and discount retailers. These land uses draw residents from elsewhere on the Island in addition to those from the area. The HHCTCP offers a competitive alternative to this existing dominance of private vehicle access to commercial and retail uses, particularly with an effective TOD plan. There is still the need identified in the plan to implement traffic improvements at key locations throughout Aiea and Pearl City to alleviate traffic flow problems and improve safety conditions.

Problem locations identified through the Aiea-Pearl City Community Vision Group and Livable Communities Plan community survey focus primarily on Kamehameha Highway and Moanalua Road, including the major intersections. To alleviate traffic congestion along these major east-west streets, improvements are needed along these streets and at the major intersections which would also facilitate traffic flow along the mauka-makai streets.

The steady growth of motorized traffic over the years, along with wide or inadequately designed older neighborhood streets and congested arterial streets contribute to the tendency of motorists to speed or cut through the neighborhoods. This results in safety hazards for residents, pedestrians and bicyclists. Through community feedback, the need for traffic calming improvements in the Aiea-Pearl City area was identified, particularly within residential neighborhoods. In fact, all traffic calming recommendations in the plan are well over one half mile away from any of the HHCTCP station locations and are, therefore, not included in this technical memorandum.

Within the Aiea-Pearl City transportation network, the roadways can functionally be classified into four general categories: interstate/freeway/expressway, principal arterial, minor arterial, and major collector. The categories are based on geometric and traffic characteristics of each street type. The following describes the roadways in the area using this classification scheme:

- Interstate roads include the H-1 Freeway which traverses in an east-west direction, Moanalua Freeway which connects to the H-1 Freeway in Aiea, and the H-3 Freeway which provides north-south access to Kaneohe and the Windward side of the Island through Halawa Valley. The freeway classification includes the segment of roadway which transitions from the Moanalua Freeway to Moanalua Road and Kamehameha Highway in Aiea.
- Two principal arterials providing east-west access through the region include Kamehameha Highway and Moanalua Road between Waimano Home Road and Moanalua Freeway. Another principal arterial is the segment of Waimano Home Road between Kamehameha Highway and Moanalua Road.
- Minor arterial streets include the segment of Waimano Home Road between Moanalua Road and Komo Mai Drive; the segments of Kaahumanu Street and Kaonohi Street between Kamehameha Highway and Moanalua Road; Salt Lake Boulevard; and Kahuapaani Street in Halawa.
- Major collector streets providing north-south or mauka-makai access include Kuala Street, the segment of Waimano Home Road mauka of Komo Mai Drive, Hoolaulea Street, Hoomalu Street, Puu Poni Street, the

segment of Lehua Avenue from Kamehameha Highway Lehua Elementary School, Kaahumanu Street between Moanalua Road and Komo Mai Drive, Kaahele Street, Hekaha Street, Kanuku Street, Moanalua Loop, Kaonohi Street mauka of Moanalua Road, Honomanu Street, Kaamilo Street, Aiea Heights Drive, and Halawa Heights Road. East-west major collector streets include Acacia Road, Komo Mai Drive between Aumakua Street and Kaahele Street, and Ulune Street between Aiea Heights Drive and Halawa Heights Road.

Vehicle circulation within Aiea-Pearl City is provided by roadways that generally represent a grid-like network. The major east-west arterials and collector streets are complemented by the various north-south arterials and collector streets which allow for a relatively uniform circulation system. However, this type of system also encourages through or bypass trips on neighborhood streets as traffic congestion on arterials and collector streets increase. The major component of the roadway network involving the Aiea-Pearl City Neighborhood TOD Plan is Kamehameha Highway.

Kamehameha Highway is a six- to seven-lane roadway traversing in the east-west or Diamond Head-Ewa direction. The roadway functions as both a local and regional arterial facility and provides access to adjacent commercial uses as well as servicing through traffic. Kamehameha Highway connects to regional roadway facilities such as Farrington Highway and the H-1 and Moanalua Freeways. The posted speed limit along the roadway is 35 miles per hour (mph).

Kamehameha Highway carries approximately 63,000 vehicles per day at the Kaluauo Bridge in Aiea (East end of Pearl Kai Center). During peak traffic hours, the Highway carries approximately 3,500 to 5,000 vehicles per hour. Peak hours generally occur during the morning commute, and traffic volumes remain high from the midday (lunch hour) through the afternoon commute. Generally, high traffic volumes characterize the roadway, although heavy congestion occurs only at specific locations along the corridor.

The recommended improvements in the Aiea-Pearl City Livable Communities Plan considered the State Department of Transportation (DOT) Highways Division's planned Kamehameha Highway Improvement Project. These are the first six projects listed in Table 3. The second set of roadway projects are other HDOT and DTS projects being undertaken along Kamehameha Highway.¹⁴ The Kamehameha Highway Improvements Project is a program by HDOT and DTS to develop and implement safety, appearance and traffic flow improvements. The project extends from Waihona Street (Sam's Club near the HHCTCP Pearl Highlands station) to Center Drive (Hickam Air Force Base).

¹⁴ Kamehameha Highway Improvements Project; <http://www.kamehamehahighwayimprovements.org>, accessed 9/11/2009.

Table 3: Aiea-Pearl City Neighborhood TOD Plan
Kamehameha Highway Roadway Projects

PROGRAM	PROJECT	DESCRIPTION
Kamehameha Highway Improvement Projects	1) Signal Improvements: Hekaha St.	1) Improve signal operations at Hekaha St intersection.
Kamehameha Highway Improvement Projects	2) Signal Improvements: Kaahumanu St.	2) Improve signal operations at Kaahumanu St intersection.
Kamehameha Highway Improvement Projects	3) Monitoring and Signal Operation Improvements	3) Upgrade traffic signal hardware throughout corridor, including pedestrian safety and traffic monitoring features.
Kamehameha Highway Improvement Projects	4) Signal Optimization	4) Optimize traffic signal operations through the development of an integrated signal plan.
Kamehameha Highway Improvement Projects	5) Median Fencing	5) Median fencing will be improved or installed.
Kamehameha Highway Improvement Projects	6) Pearl Harbor Historic Sites Gateway	6) An attractive entryway connecting Kamehameha Highway to the Pearl Harbor Historic Sites reception areas.
HDOT Project	1) Kamehameha Hwy & Acacia Rd.	1) Project completed by Wal-Mart as a development condition. Addition of a westbound right-turn lane on Kamehameha Highway.
DTS Project	2) Acacia Rd & Kuala St.	2) Improve traffic signal phasing and channelization including additional dedicated turning lanes.
DTS Project	3) Waimano Home Rd & Kuala St.	3) Improve traffic channelization including additional dedicated turning lanes.
DTS Project	4) Kaahumanu St & Kamehameha Hwy.	4) Added curb painting, signing and striping to better define parking restrictions to prevent lane queuing due to parked vehicles.
DTS Project	5) Kaahumanu St & Moanalua Rd.	5) Improve traffic channelization including additional dedicated turn lanes & median with fencing on makai leg of Kaahumanu.
DTS Project	6) Kaahele St Re-striping	6) Added median & acceleration /deceleration lanes for intersecting streets along Kaahele St.

The Kamehameha Highway Improvements Project addresses the following types of considerations:

- Traffic Congestion – Hardware and software improvements to traffic signal coordination and timing throughout the corridor to reduce congestion during peak hours.
- Safety – Improvements to medians and intersections to increase safety for all travelers.
- Aesthetics – Improvements to landscaping to open scenic views and promote visual continuity.
- Cultural/Historic Context – Improvements to roadway treatments to reflect the cultural values of the community and agricultural history of the area.

To better accommodate traffic flow through the area, many of the traffic improvements projects will occur throughout the corridor. Traffic monitoring cameras will be installed at seven strategic locations, providing full coverage of the entire corridor. Five intersections will be modernized. Pedestrian countdown signals will be installed at each intersection from Acacia Road to Center Drive.

The Kamehameha Highway Improvements Project will incorporate the following elements to create a better experience for pedestrians and a more walkable community.

- Data Collection -- Traffic, safety and physical condition data have been collected throughout the corridor.
- Pedestrian Countdown Signals -- Pedestrian Countdown Signals will be installed at each intersection from Acacia Road (Home Depot) to Center Drive (Hickam Air Force Base).
- Pedestrian Signal Timing -- Ensure pedestrians adequate time to cross the streets.
- Median Fencing -- A chain link fence will be constructed in certain median locations along Kamehameha Highway to restrict illegal mid-block pedestrian crossings. This will encourage pedestrians to cross at marked cross

Underground fiber optics will establish a communications link between all intersections and the traffic control center downtown. Signal changes were implemented at the intersection of Hekaha St. and Kamehameha Hwy. in December 2006. Signal changes for Kaahumanu St. and Kamehameha Highway were implemented this year. Signal timing will be optimized for weekday and weekend peak travel times. Work is underway in 2009 for signal improvements and median fencing.

VII. Transportation System and Land Use Integration

The Aiea-Pearl Cities Livable Communities Plan featured a comprehensive effort to address the interrelationship of the various transportation system needs while enhancing the livability of the area. It did so by attempting to increase the availability of travel mode choices for people.

Alternative travel mode choices were facilitated by effectively integrating locational and design considerations of the roadway network, public transportation, pedestrian and bikeway elements. The plan observed that the interconnection of streets improves circulation patterns by increasing the number of direct routes for motorists and pedestrians, shortening walking and biking distances, and improving transit accessibility and circulation.

Traffic calming improvements encourage slower speeds by motorists, thereby resulting in an increasingly safer environment for motorists, pedestrians and bicyclists. Safe, pedestrian-friendly streets were found to be essential in promoting walking, transit use, and bicycling. The plan determined that the provision of enhanced bikeway facilities offers bicyclists better protection from motorized traffic and improved access to activity areas, thereby encouraging bicycling as a safe travel mode choice.

The plan advocated for enhanced pedestrian mobility to increase the potential for transit use and reduce automobile trips. It determined that enhanced bus routes and amenities strategically integrated with pedestrian and bikeway facilities would further encourage use of these travel modes. The BSIP built open the Aiea-Pearl Cities Livable Plan by offering a set of bus route service improvements designed to achieve the goals of the plan.

These observations and determinations remain valid. They provide an excellent foundation for the forthcoming Aiea-Pearl City Neighborhood TOD planning process.

Appendices:

1. Table: Aiea-Pearl City Neighborhood TOD Plan Area
Existing Bus Route Characteristics In 2009

2. Transit Rider Database and Bus Route Profiles
Aiea-Pearl City Neighborhood TOD Plan Area
Bus Route Characteristics In 2004

3. Bus Service Improvement Plan
Aiea-Pearl City Neighborhood TOD Plan Area
Bus Route Plans In 2006

SEPTEMBER 15, 2009City and County of Honolulu

The following information provides an overview of the existing infrastructure for the Aiea - Pearl City TOD Plan areas. The specific station areas are the Leeward Community College Station/Pearl Highlands Station and the PearlrIDGE Station. Water, sewer and drainage discussions related to existing conditions for each station area are provided below.

Leeward Community College Station/Pearl Highlands Station**Water**

- ◆ An Existing Water Exhibit (See Exhibit 1A) is attached for both stations. The extent of water distribution mains in the general area is somewhat limited to that serving the Leeward Community College campus and that system serving the Pearl Highlands Shopping Center from Kuala and Acacia Streets. The distribution systems are 8 and 12-inch. A 12-inch system would typically be capable of providing adequate fire flow for commercial and mixed use purposes.

◆

Sewer

- ◆ An Existing Sewer Exhibit (See Exhibit 2A) is attached for both station areas. The Leeward Community College Station area has the ability to connect to the sewer system serving the Leeward Community College. This gravity sewer system connects to the Pearl City Sewage Pumping Station (SPS). All sewage from the Pearl City SPS is routed by means of a 36-inch force main to the Honouliuli Wastewater Treatment Plant (WWTP). There are no significant deficiencies between the Pearl City SPS and the Honouliuli WWTP.
- ◆ The Pearl Highlands Station immediate area is low lying and there is no gravity sewer to allow direct connection to the City system. The Pearl Highlands Station will in all probability require a lift station to connect to City sewer system. Sewer connection points are in reasonably close proximity to the station site. Should new sewage flows be modest it and are generally related to the new station itself, the use of a packaged SPS system like a Gorman Rupp wet well mounted station may be viable.

Drainage

- ◆ A FIRM Exhibit (See Exhibit 3A) is attached for both station areas. The Leeward Community College Station area is in FIRM Zone D and there are no foreseeable drainage implications. Zone D is identified as “areas in which

flood hazards are undetermined, but possible”. In the case of the Leeward Community College Station, the flood hazard possibility does not exist.

- ◆ The Pearl Highlands Station is in a designated floodway and special hazard district subject to inundation by the 1% annual chance flood. No improvements are allowed the floodway district without the issuance of a “No-Rise” certification. Any vertical projection from existing grade within the floodway boundary limit will cause a rise in the flood elevation and must be compensated by a reduction elsewhere to allow a “no-rise” condition to be achieved. The floodway implications at the Pearl Highlands Station should be considered extremely limiting for TOD considerations.

Pearlridge Station

Water

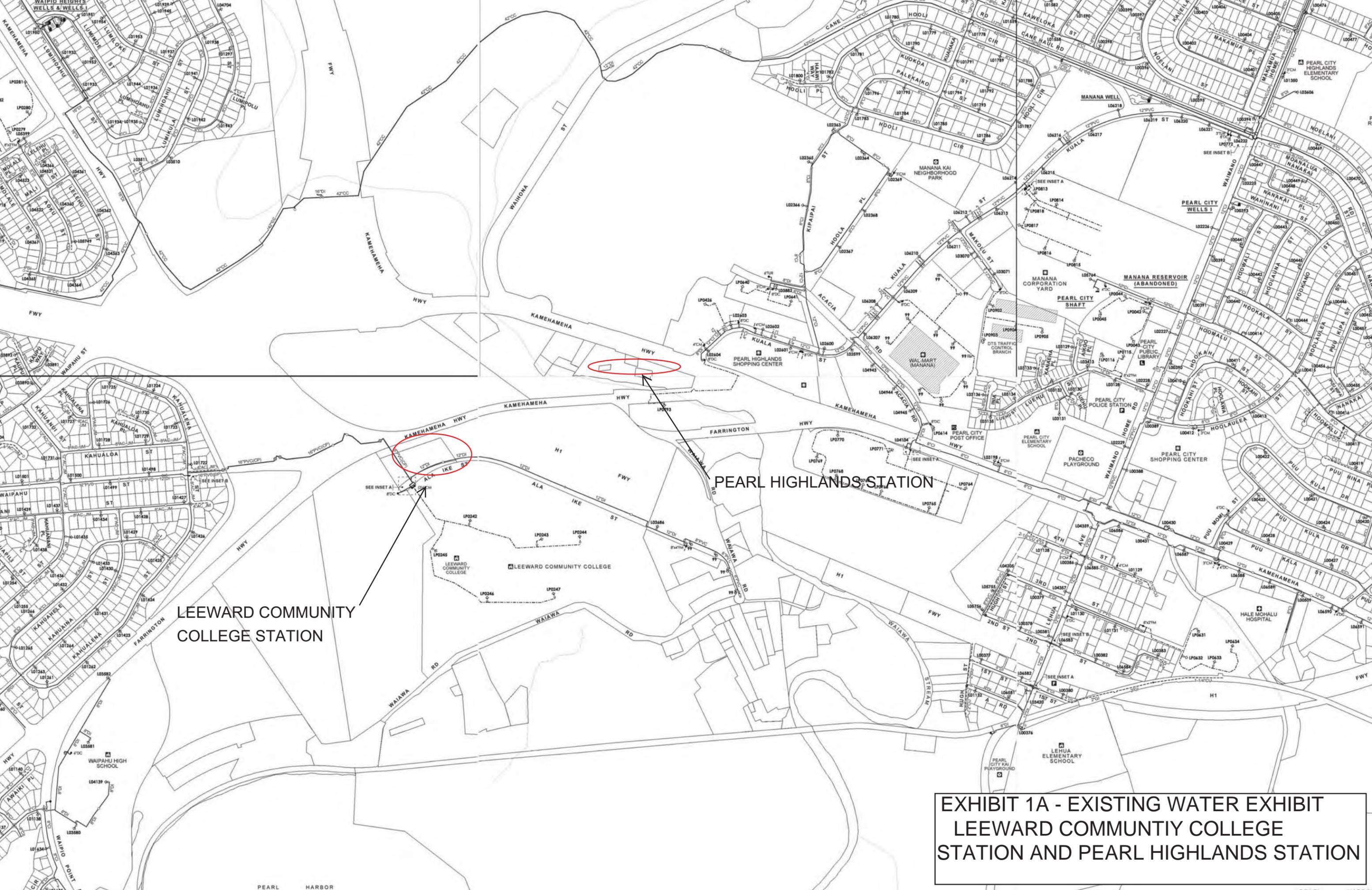
- ◆ An Existing Water Exhibit (See Exhibit 1B) is attached for the station area. There is a relatively extensive network of distribution mains in Kamehameha Highway, the industrial/commercial areas below Kamehameha Highway and the street network surrounding Pearlridge Center. The distribution mains are 8 and 12-inch. A 12-inch system would typically be capable of providing adequate fire flow for commercial and mixed use purposes.

Sewer

- ◆ An Existing Sewer Exhibit (See Exhibit 2B) is attached for the station area. The Pearlridge Station area has the ability to connect to existing City gravity sewers in area. The gravity sewer system is connected to the Waimalu SPS. The Waimalu SPS in turn delivers all sewage by force main to the Pearl City SPS. The gravity sewer system and Waimalu SPS have no major deficiencies. As discussed prior, there are no significant deficiencies between the Pearl City SPS and the Honouliuli WWTP.

Drainage

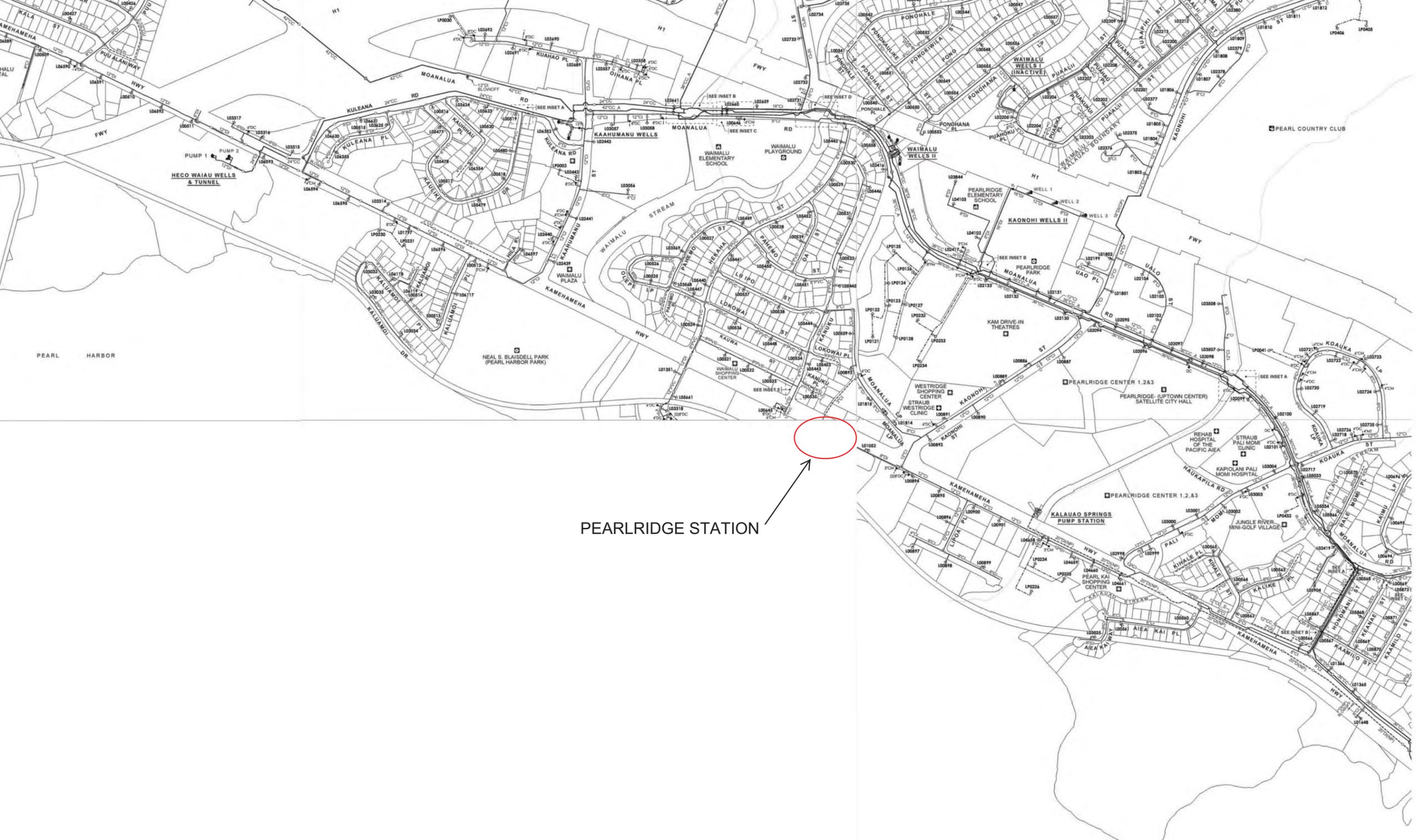
- ◆ A FIRM Exhibit (See Exhibit 3B) is attached for the station area. The Pearlridge Station area is in FIRM Zone D and there are no foreseeable drainage implications. Zone D is identified as “areas in which flood hazards are undetermined, but possible”. In the case of the Pearlridge Station, no flood hazard is possible.



LEEWARD COMMUNITY COLLEGE STATION

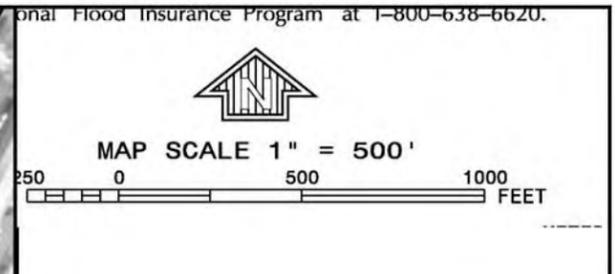
PEARL HIGHLANDS STATION

EXHIBIT 1A - EXISTING WATER EXHIBIT
LEEWARD COMMUNITY COLLEGE STATION AND PEARL HIGHLANDS STATION



PEARLRIDGE STATION

EXHIBIT 1B - EXISTING WATER EXHIBIT
PEARLRIDGE STATION



NFIP PANEL 0239F

FIRM
FLOOD INSURANCE RATE MAP
 CITY AND COUNTY OF HONOLULU, HAWAII

PANEL 239 OF 395
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)
 CONTAINS:
 COMMUNITY NUMBER PANEL SUFFIX
 HONOLULU, CITY AND COUNTY OF 150001 0239 F

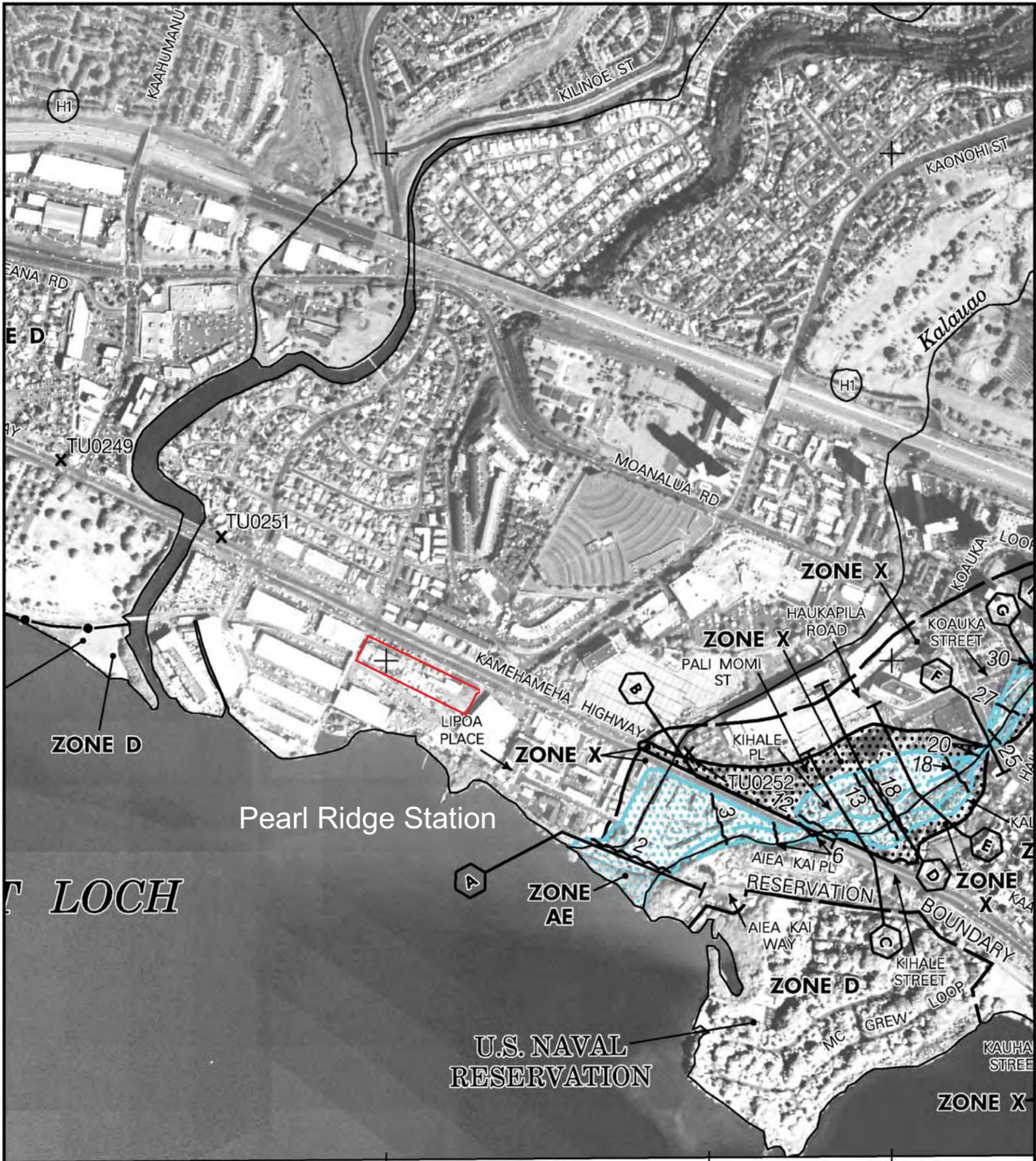
Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
 15003C0239F
MAP REVISED
 SEPTEMBER 30, 2004

Federal Emergency Management Agency

EXHIBIT 3A- FIRM EXHIBIT
LEEWARD COMMUNITY COLLEGE
AND PEARL HIGHLANS STATIONS

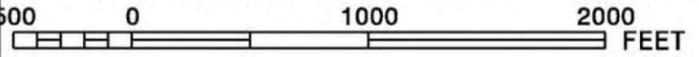
This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



onal Flood Insurance Program at 1-800-638-6620.



MAP SCALE 1" = 1000'



NFIP

PANEL 0245F

FIRM
FLOOD INSURANCE RATE MAP
 CITY AND COUNTY
 OF HONOLULU,
 HAWAII

PANEL 245 OF 395

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HONOLULU, CITY AND COUNTY OF	150001	0245	F

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MAP NUMBER
15003C0245F

MAP REVISED
SEPTEMBER 30, 2004

Federal Emergency Management Agency

EXHIBIT 3B - FIRM EXHIBIT
PEARLRIDGE STATION

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TRANSIT ORIENTED DEVELOPMENT, AIEA AND PEARL CITY: OVERVIEW MARKET ANALYSIS AND ECONOMIC IMPACTS

Plasch Econ Pacific LLC

October 2009

1. INTRODUCTION

a. Purpose

- This report provides an overview of the market for planned transit-oriented development (TOD) in Aiea and Pearl City, and the economic benefits and impacts of this development.

b. Transit Stations

- The transit stations addressed in the analysis include:
 - Pearl City Station
 - Pearl Highlands Station
 - Leeward Community College Station

c. Geographic Scope

- The geographic scope of the analysis extends approximately one-quarter mile out from each of the transit stations.
- These geographic areas are referred to below as the three TOD Project Areas.

d. Alternatives

- The analysis addresses two development alternatives:
 - Alternative A—Xxxxx
 - Alternative B—Xxxxx
- These alternatives are described in the Month X, 2009 document, “Xxxxx,” by Van Meter Williams Pollack, LLC.

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2. LOCATIONAL AND OTHER ADVANTAGES FOR DEVELOPMENT

a. Central Location and Access to Other Communities

- Aiea and Pearl City are centrally located within the island's existing and planned urban area.
- Businesses and residents have good access to downtown Honolulu, Central O`ahu, `Ewa, and Windward O`ahu via the H-1, H-2 and H-3 Freeways, Moanalua Road, Kamehameha Highway, and Farrington Highway.
- Aiea and Pearl City are excellent locations for:
 - Residents working in Aiea and Pearl City as well as those commuting to jobs in Honolulu, `Ewa and Central O`ahu.
 - Students attending Leeward Community College and UH West O`ahu.
 - Retail stores and office complexes serving Aiea, Pearl City and the surrounding region.

b. Leeward Community College (LCC)

- LCC serves about 6,000 students per semester in its credit programs and about 20,000 students per year in its non-credit programs.
- LCC employs about 300 full-time faculty and staff, and 60 to 80 lecturers and other temporary employees.
- To varying degrees, the students, faculty and staff shop in stores in Pearl City.
- Also, many of them live near LCC.

c. Commercial Development

- Major shopping centers in the area include:
 - Pearlridge Center, which is Hawai`i's second largest shopping center at 1.2 million sq. ft.
 - Pearlridge Shopping Center (255,122 sq. ft.)
 - Pearl Highlands (411,518 sq. ft.)
 - Waimanu Plaza Shopping Center (143,229 sq. ft.)
- In addition, smaller shopping centers and office complexes are located along Kamehameha Highway, Moanalua Road, Hekaha St., Kaonohi St., and Pali Momi St.

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d. Light-industry Parks

- Light-industry parks in the area include:
 - Harbor View Center and adjacent industrial properties (about 28 acres)
 - Newtown Business Park (about 10 acres)
 - Hawai'i Business Park (about 5 acres)
- The transit system will allow some employees and customers to commute to and from businesses located in the industrial parks.
- However, some of the existing industrial businesses near the transit stations are likely to relocate in order to make room for redevelopment in favor of mixed-use residential/commercial projects.

e. Kapiolani Medical Center at Pali Momi

- The planned Pearl City Station is near Kapiolani Medical Center at Pali Momi, making the area near the station an attractive location for physicians who want to have their offices near a major medical facility.
- The Medical Center is a 116-bed facility with more than 400 physicians on its staff. The adjoining medical office building houses over 100 physicians and specialists.

f. Bus Service to the Transit Stations

- Bus service to the transit stations will draw commuters from nearby communities, and these commuters will also become potential customers for businesses near the stations.

g. Low Value of Existing Buildings

- Many of the buildings near the planned Pearl City Station are good candidates for replacement, since many of the lots are large, most buildings occupy only a fraction of the lots, the buildings are only one or two stories and, when the transit stations are built, the buildings will be over 30 years old (verify).

3. PLANNED TRANSIT-ORIENTED DEVELOPMENT

a. Multi-family Homes (number)

	<u>Alt. A</u>	<u>Alt. B</u>
— Pearl City Station TOD Area	x,xxx	x,xxx
— Pearl Highlands Station TOD Area	x,xxx	x,xxx

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— Leeward Community College TOD Area	<u>x,xxx</u>	<u>x,xxx</u>
— Total	x,xxx	x,xxx
— Annual absorption averaged over 20 years	xxx	xxx
b. Commercial Retail and Office Space (sq. ft.)	<u>Alt. A</u>	<u>Alt. B</u>
— Pearl City Station TOD Area	x,xxx	x,xxx
— Pearl Highlands Station TOD Area	x,xxx	x,xxx
— Leeward Community College TOD Area	<u>x,xxx</u>	<u>x,xxx</u>
— Total	x,xxx	x,xxx
— Annual absorption averaged over 20 years	xxx	xxx

4. ABSORPTION RATES

a. Homes

- As indicated above, development of the new homes within the three TOD Project Areas over a 20-year period will require an average absorption rate of about xxx multi-family homes per year for Alternative A and about xxx per year for Alternative B.
- This amounts to about x% and x% of the 4,000 or so new homes projected annually for O'ahu for the 2010-to-2030 period.

b. Commercial Retail and Office Space

- Development of the new commercial space within the three projects over a 20-year period will require an average absorption rate of about x,xxx sq. ft. per year for Alternative A, and x,xxx sq. ft. per year for Alternative B.
- This amounts to about xx% and xx% of the annual xxx,000 sq. ft. of commercial space projected for O'ahu.

5. CHARACTERISTICS OF RESIDENTIAL DEVELOPMENT

a. Median Resale Home Prices (2008)

	<u>MF Price</u>
— Pearlridge/Aiea	\$302,933
— All O`ahu	\$325,000

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- As indicated, median prices for multi-family homes in Pearlridge/Aiea are low compared to those for all of O`ahu.

b. Existing and Anticipated Types of New Homes

- The new homes near the transit stations are expected to offer a wide selection of sizes, amenities and prices.
 - Multi-family homes are likely to range from small studio apartments for singles to 3-bedroom/2-bath units for larger families.
 - Prices and rents are expected to range from affordable to moderate levels.

c. Anticipated Market Prices of New Multi-family Homes Near the Stations

	<u>Low</u>	<u>Median</u>	<u>High</u>
— 1 bedroom, 1 bath, 500 sq. ft.	\$220,000	\$250,000	\$290,000
— 2 bedrooms, 1 bath, 700 sq. ft.	\$260,000	\$290,000	\$330,000
— 2 bedrooms, 2 baths, 900 sq. ft.	\$300,000	\$330,000	\$375,000
— 3 bedrooms, 2 baths, 1,100 sq. ft.	\$340,000	\$370,000	\$420,000
— These prices are consistent with resale prices of multi-family homes in the Aiea/Pearl City region.			
— Because of the advantages of living near a transit station, homes near transit stations are expected to command prices and rents about 10% to 20% higher than similar homes that are not near the stations.			
— At the same time, building costs and home prices near transit stations can be reduced by having less parking than is typically provided.			

d. Types of Households

- The future mix of housing types near the transit stations is expected to be more diverse than is currently the case for typical developments on O`ahu. The new households are expected to include:
 - College-age students (singles, roommates, couples)
 - Young couples, with and without children
 - Families, with and without children
 - Retirees (singles and couples)
 - Families at various income levels (low, moderate, high, etc.)

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- Families with various types of workers (entry level, unskilled laborers, skilled laborers, administrators, managers, professionals, etc.)

e. Affordability Benefits of Transit

- Many residents living near the transit stations may reduce the number of cars they would normally own and operate—possibly owning one car instead of two.
- A portion of their resulting savings in transportation costs can be applied to servicing their mortgage or paying rent on a home that may be larger and have more amenities than they would otherwise be able to afford.

f. Housing Affordability Requirements and Practices

- For changes in zoning, the City requires that 10% of the homes in new projects be affordable to families earning 80% or less of median income, and an additional 20% of the homes must be affordable to families earning 81% to 120% of median income. The remaining 70% of the homes may be sold or rented at market prices.
- Assuming that at least 30% of the units near the transit stations will be priced at affordable rates, then more than x,xxx units will be affordable homes for Alternative A, and x,xxx units will be affordable for Alternative B.

g. HUD Affordable Guidelines, Honolulu (2009)

	<u>Percentage of Median Family Income</u>		
	<u>80%</u>	<u>100%</u>	<u>120%</u>
— Income for:			
• Family of 1	\$53,250	\$55,510	\$66,610
• Family of 2	\$60,900	\$63,440	\$76,130
• Family of 3	\$68,500	\$71,370	\$85,640
• Family of 4	\$76,100	\$79,300	\$95,160
— Sale price of home for:			
• Family of 1	\$243,600	\$254,000	\$304,800
• Family of 2	\$278,600	\$290,300	\$348,300
• Family of 3	\$313,400	\$326,500	\$391,800
• Family of 4	\$348,200	\$362,800	\$435,400

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— Monthly rent (including utilities) for:

• Studio	\$1,331	\$1,387	\$1,665
• 1-bedroom unit	\$1,426	\$1,486	\$1,784
• 2-bedroom unit	\$1,712	\$1,784	\$2,141
• 3-bedroom unit	\$1,978	\$2,061	\$2,474

h. Units Affordable for Low-Income Families

- For low-income families (i.e., income below 80% of median income), government assistance may be required to help families purchase or rent market-priced housing, or government assistance may be required to supply housing at rents and prices that are affordable to these families.
- Government programs to help low-income families afford housing payments include rent vouchers to renters and low-interest loans to buyers.
- Government programs to increase the supply of homes at below-market rents and purchase prices include government-built housing, land and/or grants to organizations to build homes, low-interest construction loans, and tax credits for supplying below-market housing.

i. Gentrification

- Once the transit system nears completion, demand for homes near the transit stations will increase. In turn, this higher demand could result in the rents and prices of homes being bid up to somewhat higher levels. In the process, some renters could be displaced if they cannot pay the higher prices, and some homeowners may choose to take advantage of the higher prices by selling their homes and moving to some other neighborhood. In short, some gentrification may occur in the future.
- Owners of homes that increase in value due to their proximity to the transit stations will realize corresponding increases in family wealth. These increases in home values will far exceed the present value of the additional property taxes on the homes. If a family chooses to sell their property, they will have more equity which they can then use toward a down payment on a home elsewhere. Under the circumstances, it can be presumed that these homeowners will be better off financially due to the higher property values attributable to a nearby transit station.
- Displaced renters will need to find affordable housing elsewhere. This could include City-mandated affordable homes in new residential projects

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that will require a zoning change. As mentioned above, about 10% of the units will have to be affordable for families earning 80% or less of median income, while an additional 20% will have to be affordable for families earning 81% to 120% of median income. Over 50,000 homes are planned for `Ewa and Central O'ahu, of which 15,000 (30%) must be priced to meet affordability requirements.

j. Upscale Homes

- Limited development of expensive upscale multi-family homes (costing near or possibly over \$1 million) near the Pearl City Station is possible. Such homes would take advantage of views of Pearl Harbor, would be comparatively large (over 1,500 sq. ft.), and would feature more and higher-quality amenities than the less expensive homes

6. PARTIAL RELOCATION OF INDUSTRIAL ACTIVITIES

a. Activities to be Relocated

- The industrial area near the planned Pearl City Station encompasses about 28 acres and contains about xx million sq. ft. of industrial space. Some of the industrial activities along Kamehameha Highway will have to relocate in order to make room to redevelop the area into residential and commercial mixed use.
- In addition, industrial activities that are incompatible with nearby homes and commercial activities will have to relocate. Incompatibility could result from excessive noise, obnoxious odors, or other nuisance problems.
- Since the subject area already contains industrial buildings that host a number of small economically healthy industrial activities, redevelopment of some blocks may be challenging and, if left to market forces, could take longer than 20 years.

b. Required Replacement Space and Acreage (approximate)

- Industrial space x,xxx million sq. ft.
- Land (at about 50% FAR) xx acres

c. Available Land in Existing and Planned Industrial Parks

- `Ewa Industrial Park (`Ewa) 40 acres
- Gentry, Honouliuli (`Ewa) 42

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— Harborside Center (West Kapolei)	251
— Ho'opili (East Kapolei)	46
— Irongate (West Kapolei)	66
— JCIP (West Kapolei)	150
— Kapolei Business Park (West Kapolei)	120
— Royal Kunia (Kunia)	123
— Waiawa Ridge, Phase I (Waiawa)	16
— West Kalaeloa Business Park (West Kapolei)	<u>100</u>
— Total	954 acres
— This accounting does not include acreage that may be planned for industrial development at Kalaeloa (the former Barbers Point Naval Air Station), Waiawa Ridge Phase II, or Koa Ridge Makai.	

7. PROSPECTS FOR REDEVELOPMENT

- a. For the larger parcels near the transit stations, no major difficulties are foreseen for market-driven redevelopment from low-intensity commercial and light industry to higher-intensity mixed-use commercial/residential. As mentioned in Section 2.g, many of the buildings are good candidates for replacement, since they occupy only fractions of their lots, are one or two stories and, when the transit stations are built, the buildings will be over 30 years old (verify).
- b. Redevelopment of smaller proprietries may require joint development or consolidation of groups of parcels into larger parcels, and considerable time for some of the properties to be redeveloped.

8. ECONOMIC BENEFITS AND IMPACTS

a. Population

- At full development, the homes in the TOD Project Areas will provide housing for about xx,xxx residents for Alternative A, and xx,xxx residents for Alternative B. These estimates are based on an average of 2.8 residents per multi-family home.

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b. Workforce

- The employed workforce in these homes will number about x,xxx workers for Alternative A, and xx,xxx workers for Alternative B. These estimates are based on 45% of the resident population.

c. Employment

- At full development, the commercial retail and office space in the TOD Project Areas will provide about x,xxx jobs for Alternative A and x,xxx jobs for Alternative B. These estimates are based on an average of 2 jobs per 1,000 sq. ft. of commercial space.
- The new jobs are expected to range from entry-level positions requiring few skills and providing incomes of less than \$25,000 per year, to management and highly skilled professional jobs paying over \$100,000 per year.

d. Growth Impacts

- TOD will affect where residential and commercial development will locate, but it will not significantly affect the amount of island-wide development or the amount of population growth.

e. Transportation

- For Aiea and Pearl City residents, transportation benefits of the transit system will include:
 - Better access to jobs at employment centers located near transit stations.
 - Faster rush-hour commutes.
 - Increased mobility for residents who may not drive or have access to a vehicle.
 - Reduced expenditures on transportation and parking fees for families who can reduce vehicle ownership and/or use.
 - Reduced energy consumption for transportation.
- For students commuting to LLC and UHWO via the transit system, reduced expenditures on transportation costs and parking fees.

f. Housing

- Housing benefits and impacts will include:
 - A wide choice of multi-family homes at competitive and affordable prices.

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- Somewhat higher housing values and rents near the transit stations. The higher prices will reflect higher demand in response to the locational advantages. However, home prices can be reduced by building fewer parking stalls than would normally be the case.

g. Commercial and Industrial

- Benefits of commercial development near the transit stations will include a broader choice of goods, restaurants and services in Aiea and Pearl City, including:
 - Convenience and specialty stores catering to residents in Aiea, Pearl City, and nearby communities.
 - Fast food, ethnic, gourmet and other restaurants.
 - Specialized medical doctors, dentists, veterinarians, accountants, attorneys, personal-service providers, etc.
- Other economic benefits and impacts will include:
 - Increased sales for stores and restaurants catering to residents in Aiea, Pearl City, and nearby communities.
 - Higher rents in response to higher sales, and increased demand for commercial space.
 - The relocation of about xxx,xxx sq. ft. of industrial space from Pearl City to nearby industrial parks.

h. Fiscal Impact

- As mentioned above, TOD will affect where residential, commercial and industrial development will locate, but will not significantly affect the amount of development on the island. As such, the impact of TOD on City finances will depend on revenues and costs relative to potential development elsewhere on O'ahu.
- Infrastructure: The cost to the City for infrastructure improvements to support TOD will depend on the circumstances.
 - If developers provide or pay for their fair shares of infrastructure improvements for TOD, then the cost to the City will be similar to that for projects in 'Ewa and Central O'ahu.
 - But if the City provides a significant share of the infrastructure for TOD, then the cost to the City could be higher than it would be to support development in 'Ewa and Central O'ahu.

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— Operations, Full Development

- At full development, TOD probably will result in lower operating revenues to the City compared to those generated by development in 'Ewa and Central O'ahu.
 - + The amount of development will be greater and the property values higher near transit stations, but this will be offset by less development elsewhere on O'ahu.
 - + However, reduced vehicle ownership and use will result in lower City revenues from the motor vehicle weight tax, the fuel tax, and parking fees.
 - + Also, if reduced family expenditures on car ownership and use allow more families to own their homes rather than renting, then property taxes will be reduced due to the \$80,000 homeowner exemption on the assessed value of owner-occupied homes.
 - + Other City taxes and revenues probably would not be affected significantly by whether or not development occurs as part of TOD.
- City operating expenditures in support of TOD could be lower than that for projects in 'Ewa and Central O'ahu. This is because the more compact development around a transit station allows reduced expenditures on police and fire services, and on maintaining roads, water lines, and sewer lines.
- The net result could be a small increase in net operating income to the City for TOD compared to projects in 'Ewa and Central O'ahu.