

“Celebrate Waipahu”

# Waipahu Neighborhood TOD Plan

PUBLIC REVIEW DRAFT

March 2009



Prepared for:  
City and County of Honolulu  
Department of Planning and Permitting

Prepared by:  
Van Meter Williams Pollack



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# Executive Summary

# Waipahu

## Neighborhood TOD Plan

### Executive Summary

The Plan provides a vision for:

- Neighborhood improvements
- Urban development that takes advantage of transit

### A. The Vision

The people of Oahu are making an important investment in their future by funding a fixed guideway system connecting Waipahu 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 districts 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 Waipahu Neighborhood Transit-Oriented Development (TOD) Plan is the first in a series of focused community-based 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 and 1/4 mile of the proposed transit stations and is intended to provide a vision for neighborhood improvements and future urban redevelopment adjacent to the Farrington / Leoku and Farrington / Mokuola transit stations. It is the goal of the Plan to foster more livable communities that take advantage of the benefits of transit; specifically, reducing transportation costs for residents, businesses and workers. While taking advantage of more efficient use of land, TOD can provide more walkable, healthier, economically vibrant neighborhoods, safe bicycling environments, convenient access to daily household needs and enhancement of local character.



*Transit Plaza at Farrington / Mokuola Station*



*Festival Market Place Plaza and Daylit Stream*

## B. Summary of Recommendations

### 1. FARRINGTON / MOKUOLA

- Transit plazas on Farrington Highway
- Revitalization of “Old Town” area
- Restoration of Kapakahi Stream with stream walk to Pouhala Marsh and Pearl Harbor Historic Trail
- Day-lit Kapakahi Stream and Festival Market Place Plaza, connecting to Hawaii’s Plantation Village
- Neighborhood mini parks adjacent to infill development
- Infill multi-family housing throughout station area
- Infill mixed use and retail along Waipahu Depot Road, Farrington Highway and Waipahu Street
- Consolidation of Parking

### 2. FARRINGTON / LEOKU

- Transit plazas on Farrington Highway
- Leole “main street” with mixed-use development connecting station and Pearl Harbor
- Infill mixed use and retail development along Farrington Highway
- Gateway office development at Fort Weaver Road and Farrington Highway
- Live/work buildings makai of Farrington Highway
- Infill multi-family housing throughout station area
- Affordable housing redevelopment makai of Farrington Highway
- Restoration of drainage canal between Leokane and Leoleo Streets as a natural greenway
- Neighborhood mini parks adjacent to infill development
- Consolidation of Parking



*Leole “Main Street” Mixed-Use Environment*



*Neighborhood Mini Park and Live/Work Buildings*

## ***Executive Summary***

### Executive Summary

#### C. Next Steps

The following steps should be taken by the City and County in the near-term in order to put the Plan into action and to ensure the framework for transit-oriented development and neighborhood improvements follows the vision and principles defined by the community.

##### 1. ADDRESS THE FLOODING ISSUES AT FARRINGTON / MOKUOLA

- Substantial redevelopment cannot occur without new flood control measures
- Historic and cultural resources as well as existing homes and businesses are at risk

##### 2. CREATE THE WAIPAHAU TOD ZONING REGULATIONS

- Codify the Plan recommendations
- TOD zoning will provide predictability and incentives for quality redevelopment

##### 3. IDENTIFY POSSIBLE INCENTIVES AT THE CITY, STATE AND FEDERAL LEVELS

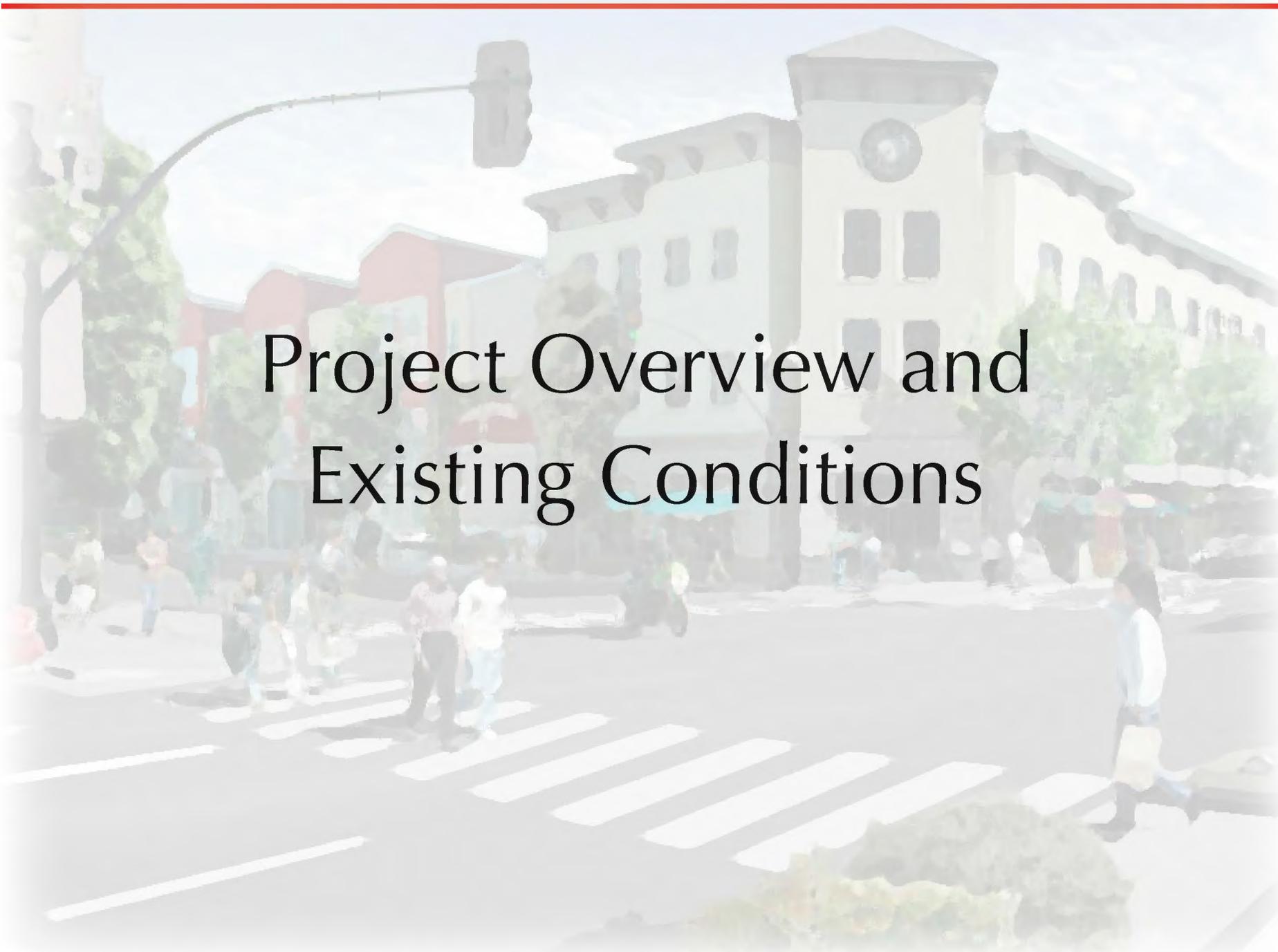
- Funding sources need to be identified for public improvements
- Identify possible funding mechanisms such as tax increment financing and district parking scenarios

##### 4. WORK WITH PROPERTY OWNERS THAT ARE INTERESTED IN REDEVELOPING ACCORDING TO THE PLAN

- Identify a City point-person to deal with transit-oriented development proposals
- Help to facilitate property exchanges and joint development

##### 5. IDENTIFY SHORT-TERM PUBLIC IMPROVEMENT PROJECTS IN THE STATION AREAS

- Identify new locations for existing Farrington Highway median trees - the Plan recommends the following prioritization of tree relocation:
  - 1) Within the Farrington Highway right-of-way - this could include the inner transit boulevard medians as well as within the planting strips adjacent to sidewalks
  - 2) Within the right-of-way of other Waipahu neighborhood streets
  - 3) Within existing or planned public parks and open space areas
- Prioritize stream clean-up and restoration of existing open spaces and amenities
- Develop bicycle and pedestrian paths on existing streets that connect directly to the transit stations in collaboration with the Oahu Bike Plan and Pearl Harbor Historic Trail Master Plan
- Identify possible locations for temporary transit parking within both station areas



# Project Overview and Existing Conditions

# Waipahu

## Neighborhood TOD Plan



FIGURE 1 - Proposed Station Locations



## A. Background and Context

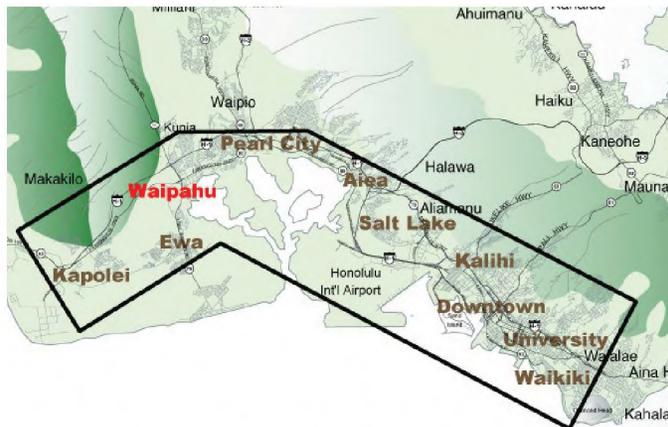
The Honolulu High-Capacity Transit Corridor Project is studying how to improve the ability of people to move in the highly congested east-west corridor between Kapolei and the University of Hawaii at Manoa. Over sixty percent of Oahu's population currently lives within the area served by this corridor. This area is projected to continue to grow faster than the rest of Oahu.

Waipahu is located just mauka of Pearl Harbor along the H-1 Freeway between the fast-growing Ewa region and the Primary Urban Center. The Waipahu Neighborhood TOD Plan focuses on two proposed transit stations at the intersections of Farrington / Leoku and Farrington / Mokuola Streets.

The public investment in transit can create the impetus for changes and neighborhood improvements around both Waipahu 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. A major catalyst of change is 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. The Alternatives that have been developed as a result of this planning process focus primarily on the areas of change in closer proximity of the stations while attempting to blend seamlessly with single-family neighborhoods and other areas of preservation.

### ***Project Overview and Existing Conditions***

- Waipahu is ideally situated between the fast-growing Kapolei area and the Primary Urban Center
- A greater amount of change can be expected within the 1/4 mile transit radius

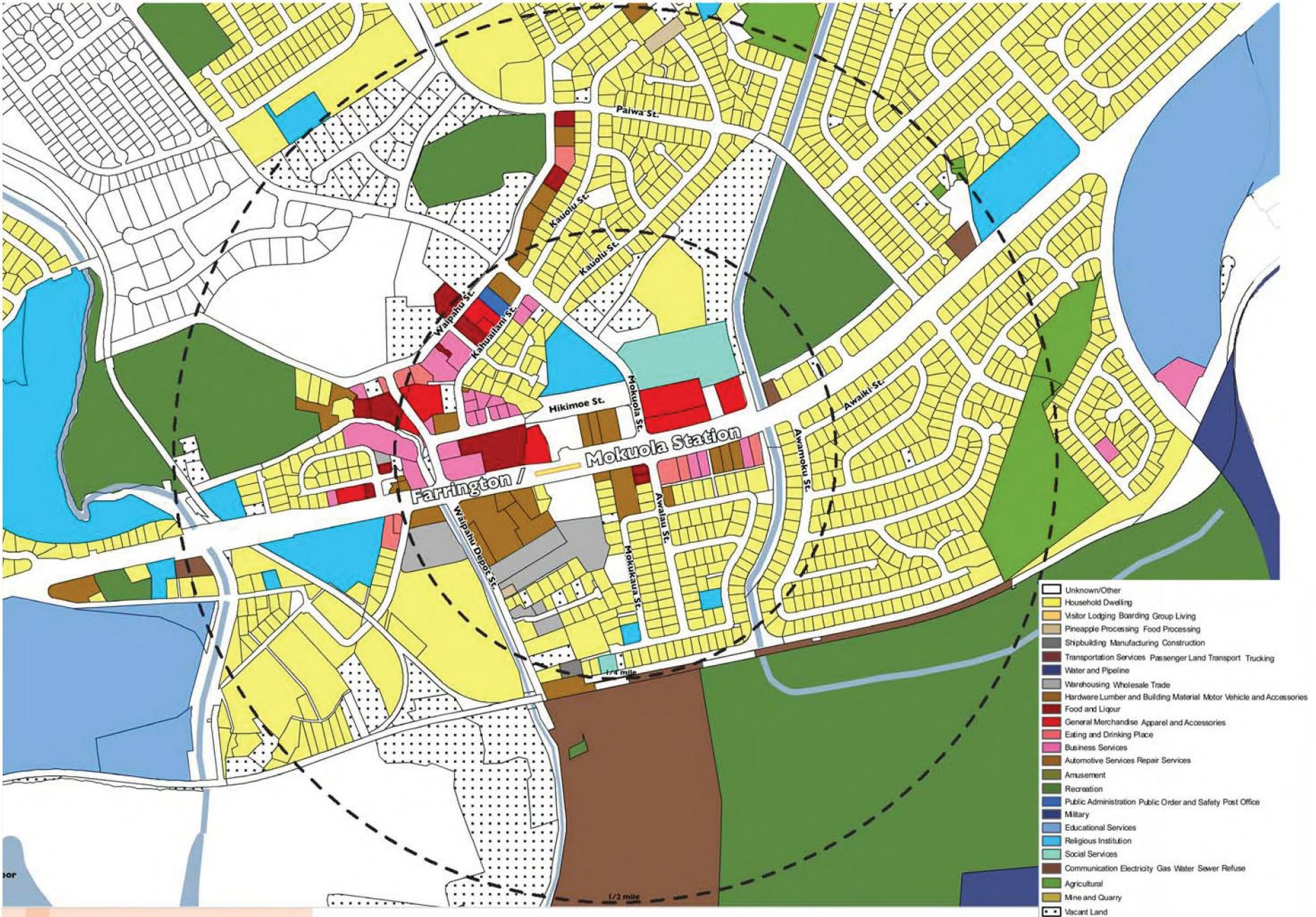


*Waipahu Location on Transit Corridor*

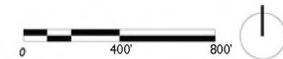


*Hawaii's Plantation Village Looking Towards Smokestack*

# Waipahu Neighborhood TOD Plan



**FIGURE 2 - Farrington / Mokuola Existing Land Uses**  
Map is Based on C&C of Honolulu, Land Use File Data (1998)



## B. Farrington / Mokuola Land Use and Context

Of the two station areas, the Farrington / Mokuola area contains a greater mixture of uses and a more fine-grained street and block network. This area is defined by its plantation town character with the Waipahu Sugar smokestack acting as an icon for the neighborhood. Several historic buildings line Waipahu Depot Road mauka of Farrington. Within 1/4 mile of the Farrington / Mokuola station, the existing land use consists primarily of small retail centers, business service, single and multi-family residential, auto service and civic uses. The Waipahu bus transfer station, civic center and library are approximately 500 feet from the proposed station. The land uses within 1/4 and 1/2 mile of Farrington/ Mokuola include primarily single-family neighborhoods along with several gathering places and destinations.

The Hawaii Plantation Village, Leeward YMCA, Filcom Center and Waipahu's parks and open spaces such as Waipahu District Park, Hans L' Orange Park and Ted Makalena Golf Course draw visitors from a wide radius. These cultural amenities help to make Waipahu unique and should be preserved and enhanced. The Waipahu Neighborhood TOD Plan will seek to build on these cultural amenities, preserving and respecting the past, while creating a vibrant community for the future.

### ***Project Overview and Existing Conditions***

- Defined by historic plantation character
- Contains a wide variety of cultural amenities that serve the entire region



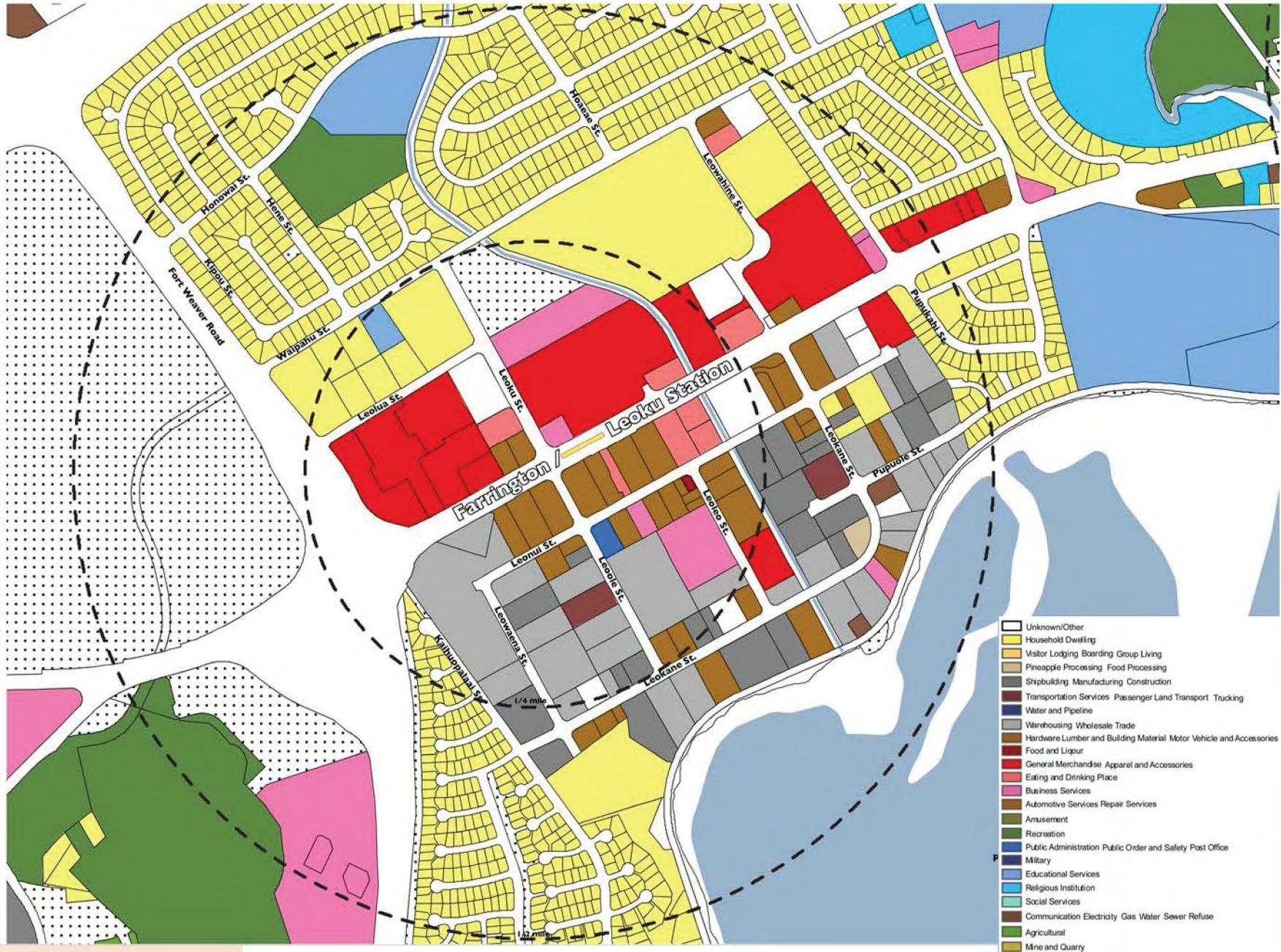
*Waipahu Depot Road Towards Smokestack*



*Newly Opened Waipahu Festival Market Place*

# Waipahu

## Neighborhood TOD Plan



**FIGURE 3 - Farrington / Leoku Existing Land Uses**  
 Map is Based on C&C of Honolulu, Land Use File Data (1998)

## C. Farrington / Leoku Land Use and Context

Fort Weaver Road, a major arterial, marks the ewa border of Waipahu. Fort Weaver Road is elevated above Farrington Highway as it nears the interchange with the H-1 Freeway, creating a substantial physical landmark, visual barrier and defining edge to the station area. This intersection and the surrounding area act as a major gateway to Waipahu and has significant locational advantages for new commercial and office development.

Within 1/4 mile of the Farrington / Leoku station, the existing land use consists primarily of retail, light industrial and auto service uses. The industrial area makai of Leonui Street covers over 50 acres and hosts over 1.8 million square feet of industrial space. On the mauka side of Farrington Highway are two large shopping centers and a number of smaller fast food restaurants. Leolua Street marks a noticeable transition into a multi-family neighborhood. On the makai side of Farrington there are currently a number of auto dealers and service uses. Along Leowaena, Leole and Leoleo Streets heading makai towards Pearl Harbor, the businesses are primarily light industrial and warehousing.

The land uses within 1/4 and 1/2 mile of Farrington / Leoku are similar to those closer to the station with the exception of a large single-family neighborhood mauka of Waipahu Street and ewa of Kaihuopalaai Street towards Fort Weaver Road. There is also a small densely packed multi-family neighborhood directly adjacent to the light industrial area along Pupukahi Street.

### ***Project Overview and Existing Conditions***

- Defined by commercial center character
- Currently an important employment center for the region with approximately 3.4 million s.f. of commercial and light industrial space



*Area Contains Mixture of Uses*



*Auto-oriented Uses Dominate the Station Area*

# Waipahu

## Neighborhood TOD Plan

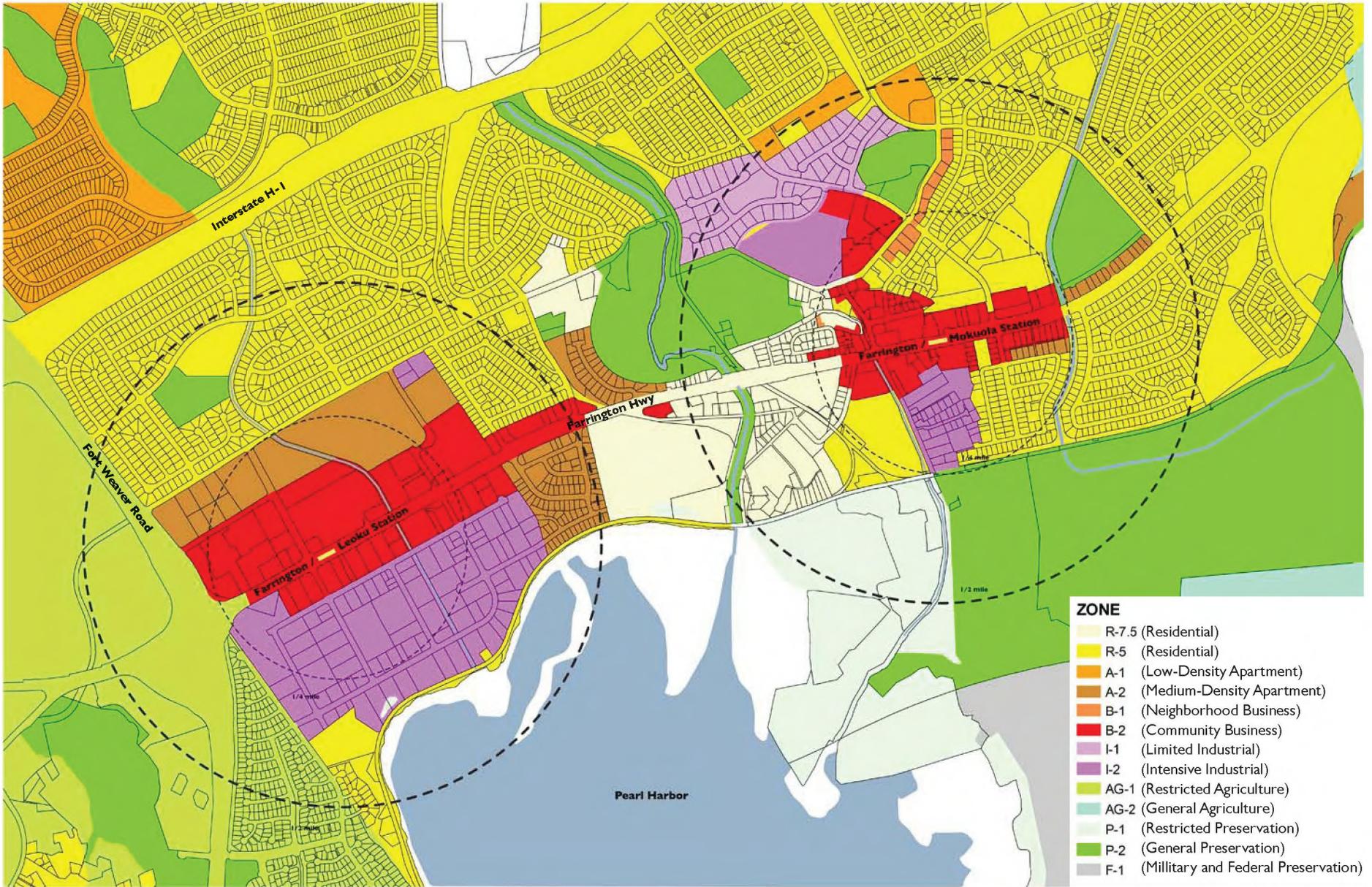


FIGURE 4 - Existing Zoning Designations



## D. Existing Zoning Regulations

The parcels directly surrounding both of the station areas are designated B-2 (Community Business District) which is intended to provide areas for community-wide business establishments, serving several neighborhoods. To the makai side of the B-2 zones at the Leoku Station area are large areas designated I-2 (Intensive Industrial District) which is intended to provide areas for the full range of industrial uses necessary to support the city. In the Mokuola station area, areas makai of the B-2 zones and diamond head of Waipahu Depot Road are currently zoned I-2 (Intensive Industrial District). The I-2 District is intended to be located away from residential communities where certain heavy industrial uses would be allowed.

The Farrington / Leoku Station consists of several large residential areas designated A-2 (Medium Density Apartment District) which is intended to provide areas for medium density, multifamily dwellings. Within 1/2 mile of both station areas there are several large single-family neighborhoods designated R-5 and R-7.5 (Residential District) which are intended to provide areas for urban residential development along with open space areas designated P-1 (Restricted Preservation District), P-2 (General Preservation District) and AG-1 (Restricted Agricultural District).

### ***Project Overview and Existing Conditions***

- The majority of property within 1/4 mile of the proposed transit stations is currently zoned for commercial, industrial, apartment and residential (single-family) uses.



*The B-2 Community Business District Contains a Number of Shopping Centers*



*The I-2 Intensive Industrial District Contains a Number of Light Industrial Businesses*

### Project Overview and Existing Conditions

- Areas within transit nodes would be the center of mixed-use, medium-density residential and commercial development
- Farrington / Leoku identified as a commercial and light industrial area
- Farrington / Mokuola is defined as a Regional Town Center

### E. Central Oahu Sustainable Communities Plan

The Central Oahu Sustainable Communities Plan (Central Oahu SCP) (December 2002) which is currently being updated, consists of policies, principles, and guidelines intended to guide land use and infrastructure decisions 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 and mixed-use development on master planned suburban communities within the Urban Community Boundary and on redevelopment around two transit nodes in Waipahu.

The Central Oahu SCP identifies two Waipahu transit nodes at the intersections of: (1) Leoku Street and Farrington Highway; and (2) Waipahu Depot Road and Farrington Highway. With the exception of the SCP-identified Old Town Commercial Center, areas within one-quarter mile of transit nodes would be the center of mixed-use, medium-density residential and commercial development. The area is envisioned as having shops, entertainment centers, restaurants, offices and residences within easy walking distance of the transit center. The Central Oahu SCP specifically calls for a commercial and light industrial area centered around the intersection of Leoku Street and Farrington Highway.

The Central Oahu SCP identifies the area surrounding the planned Farrington/Mokuola station as a Regional Town Center, an area which serves as a center for shopping, civic activity, and municipal services for the region. The Regional Town Center is envisioned as offering a wide range of shopping and dining opportunities and professional, business and industrial services.



*Mixed-Use, Medium Density Development*



*A Wide Range of Retail, Business and Service Uses*

### F. Previous Plans and Studies

#### 1. WAIPAHU LIVABLE COMMUNITIES INITIATIVE

The Waipahu Livable Communities Initiative (May 1998) includes a transit-oriented focus as an opportunity to revitalize the older areas of Waipahu.

The Initiative identifies both the Farrington / Leoku and Farrington / Mokuola station sites as major transfer points in the public transportation network. Major transfer points provide identifiable locations for transit functions and are located where a number of existing or proposed routes converge. The Initiative identifies future potential for both station areas to develop into major transit stations with accompanying mixed urban uses in the surrounding area.

#### 2. WAIPAHU TOWN PLAN

The Waipahu Town Plan (December 1995), presents a vision for Waipahu as a harmonious blend of the old and the new. Within the framework of this vision, Waipahu's Old Town would retain and embrace its cultural plantation heritage.

The Plan identifies the Farrington / Leoku site as a commercial anchor while the Farrington / Mokuola station site is not specifically designated. Just east of the Farrington / Mokuola site, the area around the intersection of Farrington and Waipahu Depot Road is designated as a pedestrian-oriented "Old Town" commercial district with thematic architecture, specialty stores, restaurants, goods and services. Existing businesses are encouraged to revitalize their building facades and new businesses encouraged to infill into the area.

### ***Project Overview and Existing Conditions***

- Old Town should retain and embrace Waipahu's cultural plantation heritage
- Farrington / Leoku is identified as a Commercial Anchor



*Historic Buildings Along Waipahu Street*



*Auto-dominated Area at Farrington / Leoku*

# Waipahu Neighborhood TOD Plan

## Project Overview and Existing Conditions



Alt A - "The Village"



Alt B - "Great Street"



Alt C - "Old Town"

FIGURE 5 - Farrington / Mokuola Draft Station Area Alternatives



Alt A - "The Gateway"

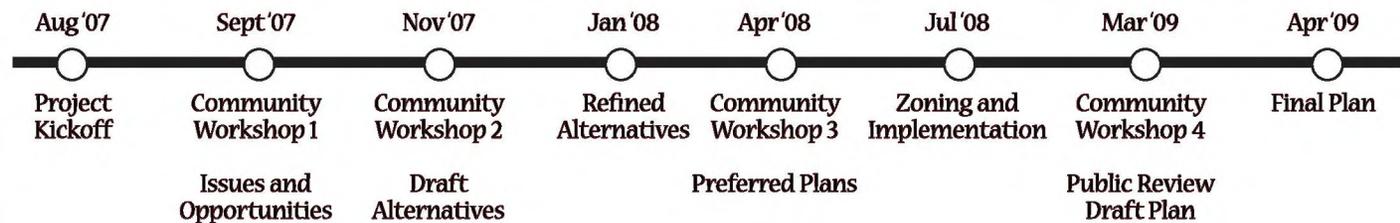


Alt B - "The Center"



Alt C - "Canal Walk"

FIGURE 6 - Farrington / Leoku Draft Station Area Alternatives



Project Timeline

## G. Process

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 follow careful listening of all concerns and needs by all parties that result in a common set of goals.

The Waipahu Neighborhood TOD Plan has been developed through a community-based effort including community workshops, Advisory Committee meetings and a property and business owner open house. The Advisory Committee, comprised of individuals from a diverse range of interests and affiliations, has been essential as a guiding group and a sounding board for the City's planning team. The Committee has also networked with the larger Waipahu community, encouraging attendance and participation at the community workshops.

Beginning in August 2007, the planning process has included identification of issues, opportunities and constraints, the creation of Draft Station Area Alternatives, refinements of the Alternatives, and development of Preferred Station Area Plans. The Plan also makes recommendations on phasing, implementation, and revisions to the Land Use Ordinance (LUO) including TOD special district regulations for the areas around the two Waipahu stations.

## ***Project Overview and Existing Conditions***

### **Community Outreach Included:**

- **Advisory Committee meetings**
- **Community Workshops**
- **Property owner and business owner open house**

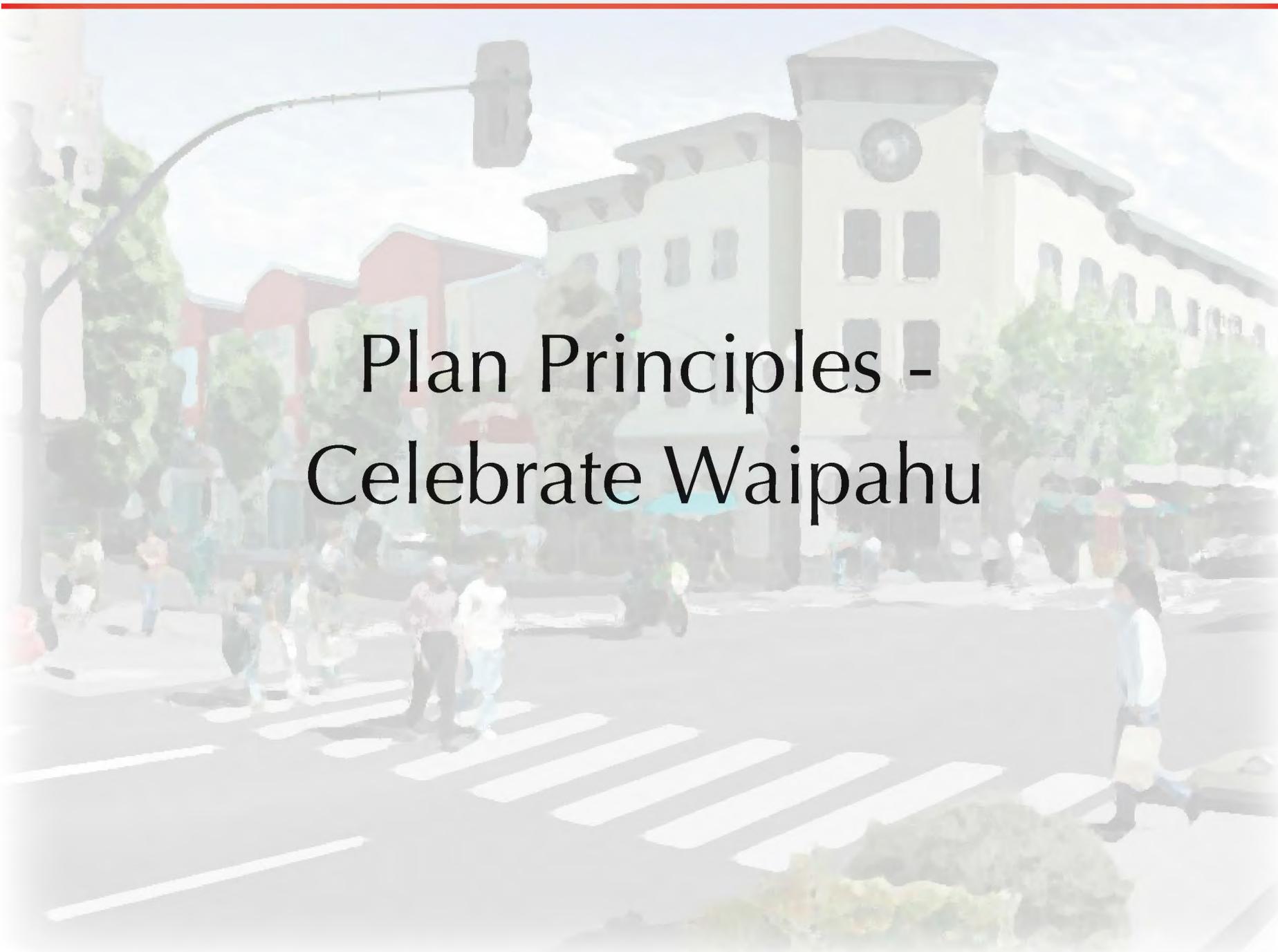


*Community Workshops*



*Advisory Committee Meetings*





Plan Principles -  
Celebrate Waipahu

# Waipahu

## Neighborhood TOD Plan

### ***Plan Principles - Celebrate Waipahu***

- Principles were developed through community process
- “Celebrating Waipahu” recognizes the neighborhood’s potential

#### **A. Celebrate Waipahu!**

The following principles were developed with community stakeholders, neighborhood residents and property owners through the Neighborhood Plan process. They are intended to serve as overall objectives for both the Plan and the Special District regulations. Recommendations made in this Plan relate to these important principles.

The overall theme of the Waipahu TOD Neighborhood Plan is to “Celebrate Waipahu!” This theme reflects Waipahu’s unique role and character in the overall Honolulu region and recognizes that transit-oriented development has the potential to improve the public’s general perception of Waipahu through the emphasis of existing cultural and natural resources, economic development, neighborhood improvements and strengthening the quality of residential developments.



*Historic Heritage at Hawaii’s Plantation Village*



*Community Events and Local Culture*

### B. Maintain the Local Character of the Place

This principle recognizes the character of the neighborhoods surrounding the Waipahu transit stations.

#### 1. FARRINGTON / MOKUOLA - "OLD TOWN"

The Farrington / Mokuola station area reflects Waipahu's heritage as a former sugar plantation town with an impressive collection of cultural and community resources including the Filcom Center, Hawaii's Plantation Village, the Leeward YMCA, the Waipahu Library and Hans L'Orange Park. This area also contains a number of attractive historic buildings, mostly along Waipahu Depot Road and Waipahu Street. With a few exceptions, the "Old Town" area is generally low-rise in character and contains a wide range of uses. The historic sugar mill smokestack, now incorporated into the Leeward YMCA, is a landmark for the "Old Town" area.

#### 2. FARRINGTON / LEOKU - "COMMERCIAL CENTER"

The location of the Farrington / Leoku station area has helped it become an important retail, service and employment center for Central Oahu. The Farrington / Leoku area is the gateway to Waipahu for people coming from western Oahu. The "Commercial Center" has seen more recent development, is generally low and mid-rise in character and is lacking historic buildings, community resources and gathering places. The Plan and Special District Regulations seek to maintain the neighborhood's role as an employment center, enhance this area's ability to attract commercial and residential uses and emphasize the Waipahu gateway character of the area.

### ***Plan Principles - Celebrate Waipahu***

- The "Old Town" is the recognized historic heart of Waipahu
- The "Commercial Center" is a newer, retail and employment center



*Historic Photograph of "Old Town" Area along Waipahu Depot Road*



*Businesses along Farrington Highway in the "Commercial Center"*

# Waipahu

## Neighborhood TOD Plan

### ***Plan Principles - Celebrate Waipahu***

- Emphasize network of green spaces, linking existing larger parks with new neighborhood open spaces
- Celebrate the “land of gushing waters”
- Reconnect the neighborhood to Pearl Harbor

### **C. Enhance the “Green Network”**

This principle emphasizes the creation of a network of green spaces and linkages through the station areas. This green network should include parks, paths, trails and shaded neighborhood streets in order to soften development and provide opportunities for residents to feel more connected to the natural environment.

In Hawaiian, Waipahu means the “land of gushing waters.” Water has always been important to this area, from the ancient Hawaiians to the sugar plantation era. This principle recognizes the important link between the station area neighborhoods and the streams, marshes and Pearl Harbor shoreline.

Waipahu has several important parks and open spaces such as Waipahu District Park, Hans L ‘Orange Park and Ted Makalena Golf Course that provide residents and visitors both passive and active recreational opportunities. Other areas such as Pouhala Marsh and the Pearl Harbor Historic Trail have the potential to be important amenities for residents. Currently the most under utilized resource in Waipahu is the Pearl Harbor shoreline. Buildings in both station areas turn their backs to the waterfront and there are very few access points for pedestrians to reach the shore. The Shoreline Park and Preservation Area proposed in the Pearl Harbor Trail Master Plan (May 2001) along the entire shoreline in Pearl Harbor’s West Loch and Middle Loch is intended to restore the shoreline in Waipahu to public use, provide active and passive recreation facilities, and help create the Pearl Harbor Historic Trail, a pedestrian path, bikeway, and restored historic train system running from Rainbow Marina near Aloha Stadium to the Waianae Coast.



*Lack of Open Space in the Farrington / Leoku Station Area*



*Using Existing Waterways As Public Amenities*

### D. Create a Safe, Pedestrian-First Environment

Providing a safe, convenient and attractive pedestrian environment in the neighborhoods around the station areas is a major principle of the Plan. Based on field analysis, sidewalks are provided along less than a third of the streets within one quarter mile of the Farrington/Mokuola Station. An improved and connected street system would enhance circulation by providing increased route options. Many of the existing sidewalks in both station areas are partially or completely obstructed by planters, utility poles and other objects that hinder safe pedestrian movement. Over ninety percent of the roads within one quarter mile of the Farrington/Leoku station have sidewalks on both sides of the street with an average width of between four to six feet. Current development configurations in the area are typically auto-oriented. The introduction of high-capacity transit can be the impetus to creating a true pedestrian-first environment.

### ***Plan Principles - Celebrate Waipahu***

- Provide safe, convenient and attractive pedestrian environment
- Development in the station areas should be oriented to the pedestrian
- New streets and pathways will help to connect homes with transit, jobs, retail and services



*Many Streets in the Station Areas are Lacking Pedestrian Amenities*



*Creating a Pedestrian-First Environment in the Station Areas*

# Waipahu

## Neighborhood TOD Plan

### **Plan Principles - Celebrate Waipahu**

- Mixture of housing choices and price ranges
- Maintain the quantity of affordable housing
- Many residents living near transit may reduce the number of cars they would normally own, resulting in overall household savings

### **E. Provide Mixed-Income Housing**

This principle emphasizes a mixture of housing choices around the transit station which include a variety of price options, housing types, and unit sizes to support a wide range of household types such as singles, small and large families, empty nesters, students and seniors. Due to its location and surroundings, Waipahu is a relatively affordable neighborhood and attracts many immigrant families. Much of this affordable housing is located in out-dated apartment buildings from the 1960's and 1970's, many needing extensive repairs and rehabilitation. A main goal of this principle is to maintain the quantity of affordable housing in the station areas while improving the overall housing stock in mixed residential developments. 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 the resulting savings in transportation costs can be applied to servicing a mortgage or paying rent on a home that may be larger and have more amenities than they would otherwise be able to afford. The future mix of housing types near the transit stations is expected to be more diverse than is currently the case. The new households are expected to include:

- College-age students (singles, roommates, couples)
- Young couples, with and without children
- Established families, with and without children
- Retirees (singles and couples)
- Families at various income levels (low, moderate, high, etc.)
- Families with various types of workers (entry level, laborers, professionals, etc.)



*Much of the Existing Affordable Housing was built in the 60's and 70's*



*Affordable Housing Should be Integrated into Mixed-Income Areas*

## F. Inter-Modal Transportation Network

The new transit stations are part of a larger inter-modal transportation network that should be created in the surrounding neighborhoods. New streets, paths and trails should be developed in order to accommodate pedestrians, bicyclists, park 'n ride drop-offs, buses, and local through traffic.

There is a need for identifying and developing pedestrian ways and bikeways to connect the existing residential areas with the proposed stations. Bike paths need to be clearly defined and separated bikeways developed to increase usage and safety along major streets and corridors. The shoreline bike path needs to be integrated with other mauka areas of Waipahu and the station locations.

For Waipahu residents, transportation benefits of the transit system will include:

- Better access to jobs in communities along the transit line.
- Faster rush-hour commutes.
- Increased mobility for residents who may not drive or have access to a vehicle.
- Reduced expenditures on transportation for families who can reduce vehicle ownership and/or use.
- Reduced energy consumption for transportation.

### ***Plan Principles - Celebrate Waipahu***

- Station areas currently have limited connectivity to surrounding neighborhoods
- New streets, paths and trails should be developed



*The Existing Bus Transfer Area on Hikimoe Street*



*The Station Areas Will Have a Variety of Transportation Options*

### G. Create a Mixed-Use Village-Like Setting in the Core Areas

Transit-oriented development has the potential to create mixed-use, village-like settings in the core areas (especially within ¼ mile) of the stations. Honolulu has a collection of pre-World War II neighborhoods such as Chinatown, Kaimuki and Kapahulu that were developed as mixed-use villages where people could live, work and play without the need for long car drives. The Preferred Station Area Plan focuses on allowing and promoting the type of land uses and building forms that will help to create this active, vibrant village-like character.

- Active, village-like character in station areas

- Many older neighborhoods in Honolulu are good examples of mixed-use villages

Benefits of new commercial and mixed-use development near the transit stations will include a broader choice of goods, restaurants and services in Waipahu, including:

- Convenience and specialty stores catering to area residents and commuters.
- Fast food, ethnic, gourmet, and other restaurants.
- Specialized medical doctors, dentists, accountants, attorneys, personal-service providers, etc.



*Farrington Highway is Currently Suburban in Character*



*A Mixed-use Village Setting is Active and Inviting*



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# Farrington / Mokuola Preferred Station Area Plan

# Waipahu

## Neighborhood TOD Plan

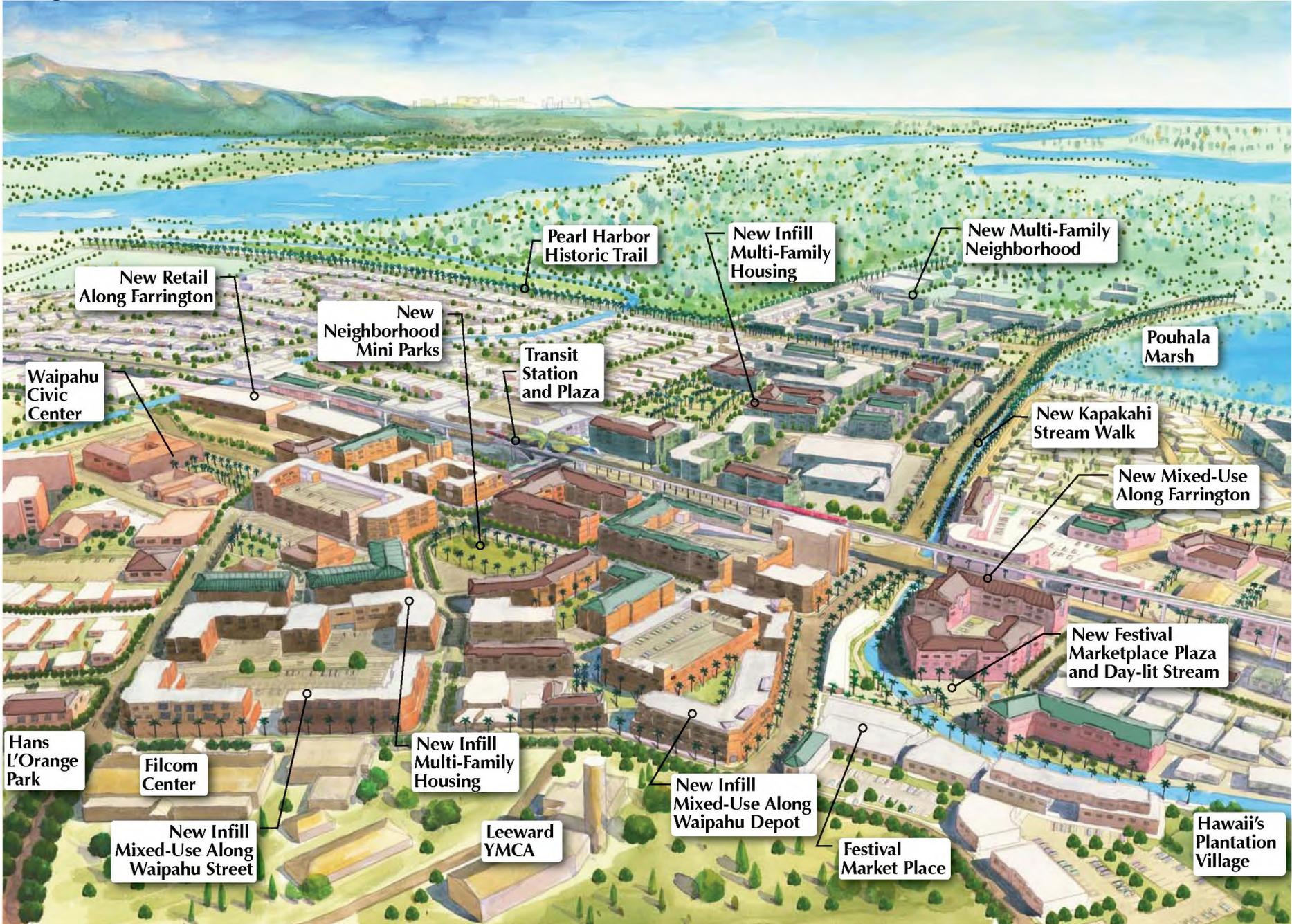


FIGURE 7 - Farrington / Mokuola Overall Structure - Looking Diamond Head towards Downtown Honolulu

## A. Overall Structure

The Farrington / Mokuola Station Area Plan will include a new transit station on Farrington Highway. This station will provide a node for higher density, mixed-use development. The Plan focuses intensity within 1/4 mile of the station in order to create a highly walkable, attractive village center. This area includes the core of the Old Town of Waipahu and will provide amenities such as convenience shopping, day care, restaurants and park space.

The Plan focuses on strengthening the historic core of Waipahu through incremental redevelopment along Waipahu Depot Road and along both sides of Farrington Highway. These areas would retain their historic low rise character while providing new retail, office and residential opportunities in a walkable, mixed-use setting. Existing historic buildings would be restored through reinvestment. One block diamond head from Waipahu Depot Road, areas have been designated for high density residential development which will help to provide activity on the streets, customers for local shops and restaurants and ridership for the transit system. High intensity uses adjacent to the proposed station on Farrington highway will maintain overall commercial square footages in new buildings while providing additional transit-oriented housing.

The Plan's vision promotes the restoration of Kapakahi Stream and the creation of an adjacent stream walk for bicyclists and pedestrians. This stream walk will lead mauka across Farrington into a new Festival Market Place Plaza where the stream will be uncovered and restored to serve as a community focal point. The stream walk will continue mauka to Hawaii's Plantation Village, linking it with the "Old Town" area, the transit station and the Pouhala Marsh.

### ***Farrington / Mokuola Station Area Plan***

- Strengthening the historic core
- Infill housing, retail and mixed use development
- Connecting the neighborhood through the Kapakahi Stream Walk



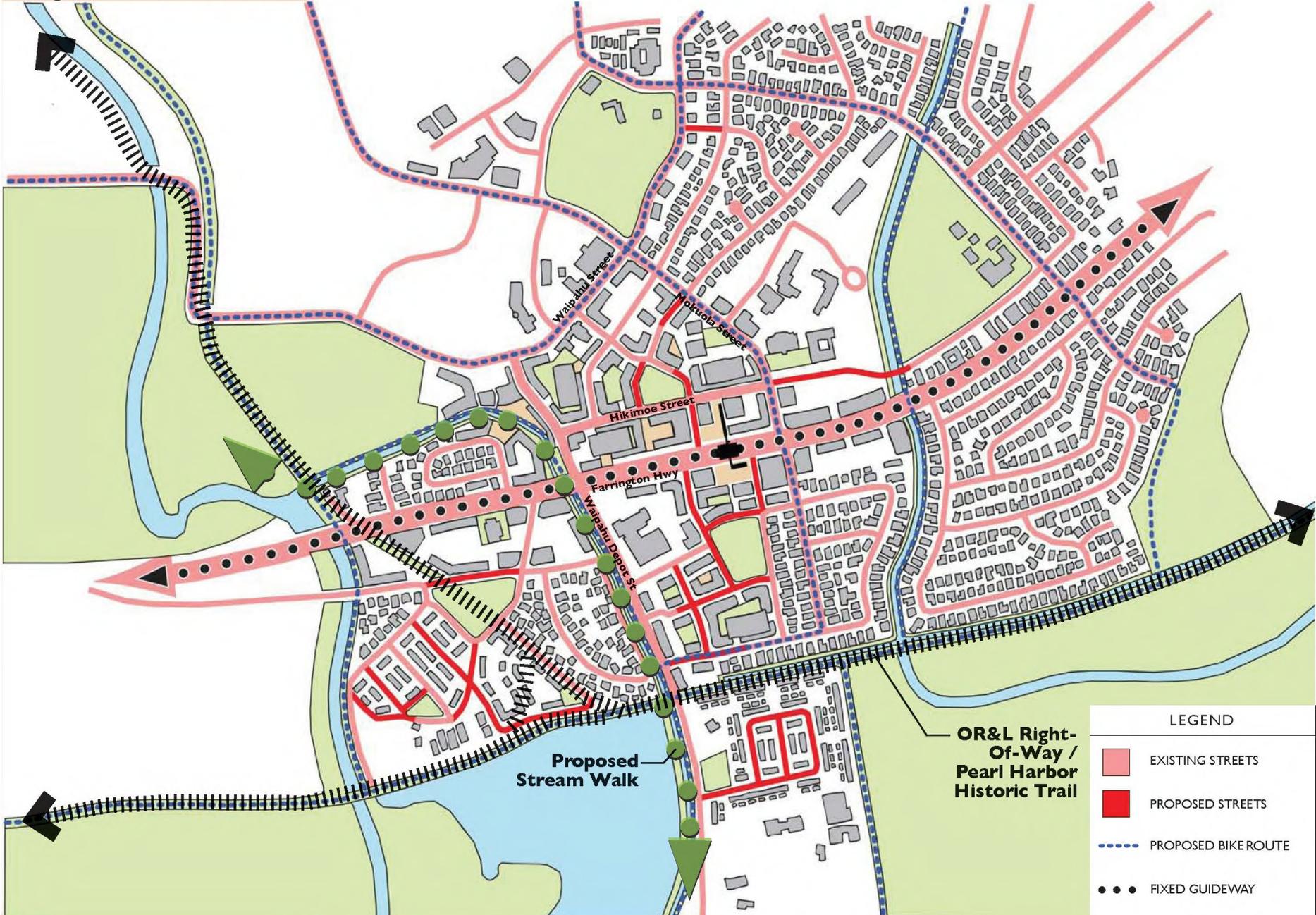
*The "Old Town" Should Have an Active Village-Like Character*



*The Kapakahi Stream Walk Will Help to Connect the Neighborhood*

# Waipahu

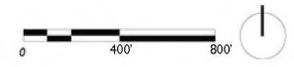
## Neighborhood TOD Plan



**LEGEND**

- EXISTING STREETS
- PROPOSED STREETS
- PROPOSED BIKE ROUTE
- FIXED GUIDEWAY

FIGURE 8 - Farrington / Mokuola Connectivity Diagram



## B. Connectivity and Circulation

The goal of Waipahu is to be a transit-oriented, connected community where residents can live, work, learn, shop and play. The multi-modal circulation network should connect all aspects of the community and provide usable transportation options for people of all ages, abilities and socioeconomic backgrounds. The public street network provides the threads that weave together neighborhoods.

A major element of the Plan includes the creation of an urban transit boulevard along Farrington Highway near the proposed station. The two-block long urban transit boulevard will have the elevated transit line in the center median, through-traffic lanes on either side of the transit line, separated lanes for local traffic and drop-offs, wide sidewalks and parking adjacent to new mixed-use buildings.

A series of new streets on either side of Farrington Highway is also proposed. These streets improve the overall connectivity network for autos, bicyclists and pedestrians while creating a more urban block network that is ideal for redevelopment. Streets in Waipahu should have the following characteristics:

- Good emergency service access (fire, police, ambulance)
- Safe streets – where residents, especially children and the elderly are safe
- Green streets – trees, landscaped medians, reduced stormwater run-off
- Corridors planned and designed for use by all modes – transit, walking, bicycling, autos
- Well-connected network – small blocks, frequent intersections, no long dead-end streets



*Pedestrian-First Environment*



*Connectivity for All Modes of Transportation*

### ***Farrington / Mokuola Station Area Plan***

- Usable, attractive transportation options
- Transit system as backbone of connectivity network
- Boulevard option along Farrington Highway at transit station

# Waipahu

## Neighborhood TOD Plan

### **Farrington / Mokuola Station Area Plan**

- Transit will provide a viable alternative to the private automobile
- Pedestrian village character and fine-grained neighborhood scale

#### 1. TRANSIT

The high-capacity transit 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. The transit system will be the future connectivity “backbone” for Waipahu, and should be efficient, convenient and easily accessed by pedestrians, bicyclists, bus riders and auto drivers. Express and local feeder buses will serve commuters from neighboring communities. These commuters will also become potential customers for businesses near the station.

#### 2. PEDESTRIANS

By focusing development in a centralized area surrounding the transit station, a pedestrian village character can be created. The fine-grained scale of the neighborhood will encourage residents and pedestrians to stroll and spend time at restaurants, cafes and mini parks. This concept expands upon existing developments in the area, including the Waipahu Festival Market Place as well as the historic plantation town character to create an indoor / outdoor shopping and living environment that will be unique to Waipahu.



*The Transit System Will be the Backbone of the Connectivity Network*



*Pedestrian Village Character Near Stations*

## ***Farrington / Mokuola Station Area Plan***

- Buses should connect into and support the high-capacity transit system
- Parking structures may be developed by private property owners to help support overall neighborhood parking needs.

### 3. BUSES

Waipahu currently has very high bus transit ridership. With the creation of the high-capacity transit system, the Farrington / Mokuola area will also be served by a network of buses, helping to connect residents to the transit station. These buses will typically travel on major streets and will help connect neighboring communities with the station area.

### 4. AUTOS / PARKING

Areas adjacent to the station on both sides of Farrington should accommodate kiss-and-ride drop-offs and pick-up of transit riders. In terms of commuter parking, no large public park-and-rides are currently being developed with the construction of the transit system in Waipahu. The proposal is to locate parking structures that could be privately developed to provide parking for new uses as well as commuter parking on a paid basis. Development of these structures and an overall shared parking policy could help to facilitate a parking district in the station area.

New and existing streets, as shown in Figure 8, are designed for on-street parking. On-street parking will help to support retail uses while at the same time providing convenient, short-term guest parking for residential uses.



*Busses Will Help to Connect the Neighborhood to the Transit Station*



*On-Street Parking Should be Provided in Retail Areas*

# Waipahu Neighborhood TOD Plan

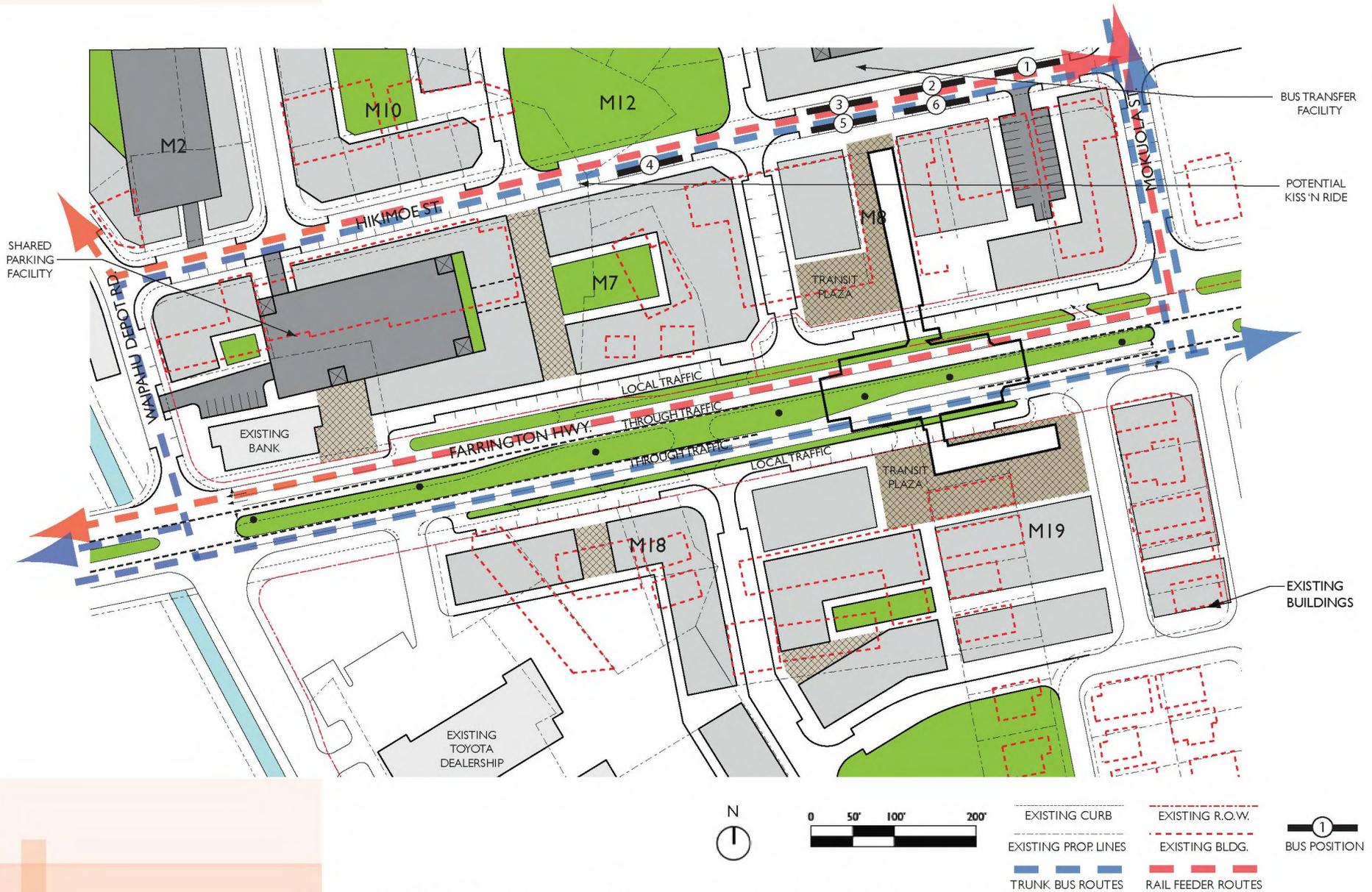


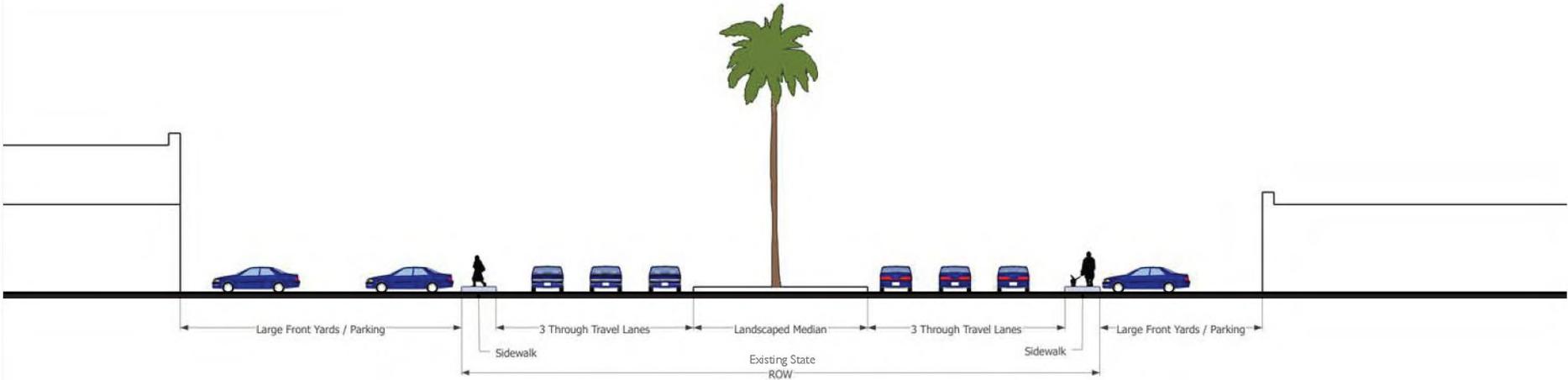
FIGURE 9 - Farrington / Mokuola Station Boulevard Concept and Station Area Diagram

***Farrington / Mokuola  
Station Area Plan***

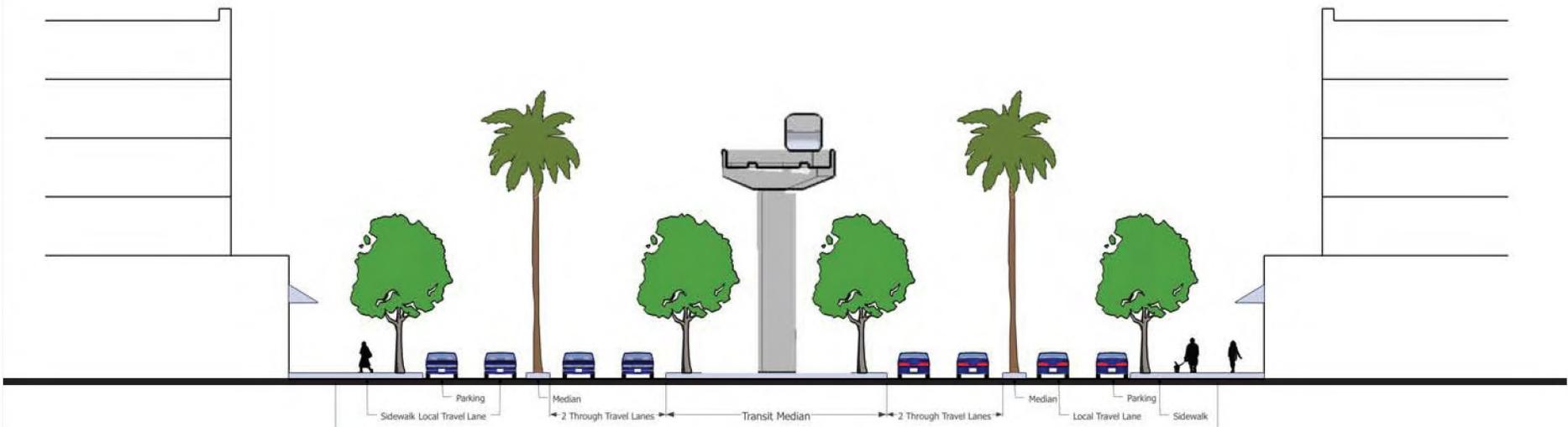


*FIGURE 10 - Conceptual Illustration of Boulevard Concept at Farrington / Mokuola Station*

# Waipahu Neighborhood TOD Plan



*FIGURE 11 - Farrington Highway - Typical Non-Boulevard Condition (Dimensions and Conditions Vary By Location)*



*FIGURE 12 - Farrington Highway - Boulevard Concept (Dimensions and Conditions Vary By Location)*

## 5. BOULEVARD CONCEPT

An urban transit boulevard is proposed between Waipahu Depot Road and Mokuola Street as shown in Figure 9. The concept described is flexible based on the exact location of the transit stations. In this concept, the transit station stop will occur just diamond head of mid-block where new through-streets are being proposed as shown on Figure 8. The proposed transit plazas would be located on blocks M8 and M19.

By creating a short boulevard near the transit station, local traffic can be separated from through traffic while providing slower speeds and a safer pedestrian environment adjacent to the stations. A boulevard treatment will also help to provide space for kiss-and-ride drop-offs and short-term convenience parking for commercial uses. The Mokuola Station area includes an existing frontage road along the mauka side of Farrington Highway. Most of this area can be easily configured into a larger boulevard concept. On block M7, however, the right-of-way (ROW) would need to be widened by 30' from centerline of the transit median to new parallel parking curb. Further ewa on block M7, the ROW shifts making the ROW widening at 18' to the new parallel parking curb. On the makai side of Farrington along blocks M18 and M19, the existing ROW of 60' is the same as the new parallel parking curb. Though the ROW will need to be widened on the mauka side of Farrington Highway, in the alternative shown, no existing buildings would have to be demolished in order to locate the stations or plazas.

### ***Farrington / Mokuola Station Area Plan***

- A boulevard treatment on Farrington Highway can provide slower speeds and a safer pedestrian environment adjacent to the stations
- Through-traffic capacity can be maintained while creating local lanes adjacent to commercial development

# Waipahu

## Neighborhood TOD Plan



FIGURE 13 - Farrington / Mokuola Parks and Open Space Diagram



### C. Parks and Open Space

Open space networks are an important system within any well-planned community. They occur in both the public and private realms of a community and offer opportunities for both active and passive recreation. They provide inter-linked “green” corridors for non-motorized movement within the community, and where literal open spaces do not exist, the street becomes the connector - another type of “open space.”

In the Farrington/Mokuola Station area, a unique, major open space opportunity exists along the Kapakahi Stream. This linear waterway is envisioned with a multiuse pathway that accommodates bicycles and pedestrians, for both recreational and commuter uses.

Existing community open spaces include Hans L’Orange Park and the Waipio Soccer Park. These larger open spaces should be better connected into the neighborhood by the proposed Kapakahi Stream Walk and the Pearl Harbor Historic Trail, allowing residents to walk or bike to the parks.

The Plan recognizes the important character-defining feature of the existing trees within the median of Farrington Highway. With development of the elevated rail system in the median of Farrington Highway, the existing street trees will need to be relocated. The Plan recommends the following prioritization of tree relocation:

- 1) Within the Farrington Highway right-of-way - this could include the inner transit boulevard medians as well as within the planting strips adjacent to sidewalks
- 2) Within the right-of-way of other Waipahu neighborhood streets
- 3) Within existing or planned public parks and open space areas



*Parks Should Provide Community Gathering Areas*



*Streets Should Also Function as Open Space*

### ***Farrington / Mokuola Station Area Plan***

- An open space network can provide a green corridor for non-motorized movement within the community

# Waipahu

## Neighborhood TOD Plan

### **Farrington / Mokuola Station Area Plan**

- Mini Parks should act as neighborhood centers
- The transit plaza should be an active front door to Waipahu

#### 1. MINI PARKS

Mini Parks, typically between one and two acres in size, are proposed throughout the Farrington / Mokuola Station Area. These parks act as neighborhood centers and can contain a wide variety of uses including playgrounds, picnic areas, fountains, dog runs, community gardens and shaded areas for relaxation and quiet reflection. Each resident in the TOD areas should eventually be within a short two-block to three-block walk from a Mini Park. Mini Parks are typically ringed with houses, apartments, shops and community facilities such as churches and libraries. The active uses surrounding neighborhood parks help to increase the sense of safety and vitality for area residents.

#### 2. TRANSIT PLAZA

Small transit plazas are proposed for both sides of Farrington at the station. These plazas will be active community gathering spaces and “entry doors” to the neighborhood. The transit plazas should be located at the touchdown points of the elevated transit system, near the intersection of Farrington and Mokuola Streets. These plazas will act as “outdoor rooms” for important community events and activities and should be of adequate size for gathering. The transit plazas should be primarily hardscape in design and should be ringed by mixed-use buildings with retail on the ground floor and housing above. The retail surrounding the plazas will help to create an active, vibrant “village-like character.” Uses within the transit plazas should include outdoor cafes, musical performances and art shows.



*Building Should Orient to Open Spaces*



*The Transit Plaza Will Serve as an Entry Point to Waipahu*

### 3. KAPAKAHI STREAM AND POUHALA MARSH

Restoring and cleaning the Kapakahi Stream along with the creation of a Stream Walk is an important element to the Plan. The stream will be recreated as a positive community amenity and a direct open space link from the station area to the Pouhala Marsh and Pearl Harbor Historic Trail. New uses along Waipahu Depot Road will front directly onto the stream and will feature outdoor restaurants and cafes that will help to activate the space and create a unique stream-side neighborhood for Waipahu. This Stream Walk will lead mauka across Farrington into a new Festival Market Place Plaza where the stream will be uncovered to serve as a community focal point. The Stream Walk will continue mauka to Hawaii's Plantation Village, effectively linking it with the "Old Town" area, the transit station and the Pouhala Marsh.

### 4. FESTIVAL MARKET PLACE PLAZA

The Festival Market Place Plaza, located in the center of the "Old Town" area, should act as an "outdoor room" for important community events and activities. The Plaza should be primarily hardscape in design and ringed by mixed-use buildings with retail on the ground floor and housing above. The retail surrounding the plaza will help to create an active, vibrant gathering place for Waipahu. Uses within the Plaza should include outdoor cafes, farmers markets, musical performances and art shows. The Plaza should include an assortment of benches and seating areas, fountains sculptures and landscaping.

## ***Farrington / Mokuola Station Area Plan***

- Restoring and daylighting the Kapakahi Stream is a major element of the Plan
- The Festival Market Place Plaza should help to create an active, vibrant gathering place for Waipahu



*Kapakahi Stream Should be Restored as a Public Amenity*



*The Festival Marketplace Plaza Should be a Community Gathering Place*

# Waipahu

## Neighborhood TOD Plan



FIGURE 14 - Farrington / Mokuola Illustrative Plan



## D. Land Use and Urban Form

The illustrative Plan for Farrington / Mokuola is intended to show the community's desired land use patterns, urban design concepts, connectivity and open space improvements and is not meant to be parcel-specific. The designation of the area around the Farrington / Mokuola station as a transit-oriented development implies the intent to create a place that supports a pedestrian-oriented center with a compact land use pattern. Higher density land uses are concentrated nearest to the station area to encourage and support walking and transit use, and to maximize access between housing and jobs.

The bullets to the right shows the approximate existing commercial/industrial square footages and unit counts that are within the community defined "areas of change." These "areas of change" are mostly within the ¼-mile radius of the transit station, although some areas are within the ½-mile radius.

The program for the Farrington / Mokuola Station Area is based on an overall gross floor-area-ratio (FAR) of 1.04 and is focused on the concept of retention of commercial/industrial square footages with a corresponding increase in the number of dwelling units within a five- to ten-minute walk of the station. The maximum allowable FAR is currently 2.5, and with open space bonuses it increases to 3.5. The proposed redevelopment does not exceed what is currently allowed, though permitted uses will need to be adjusted in the TOD Special District Zone (Zoning Overview, page 65.)

While commercial/industrial square footages generally remain stable, the buildings that house these businesses will be newly developed in a more urban, pedestrian-friendly form. The long-term balance of housing and employment uses are market-driven and will likely be adjusted over time. This Plan creates a framework to allow for this long-term flexibility.



*A Mixture of Uses Will Help to Revitalize Old Town*



*The Daylit Kapakahi Stream Will Connect the Neighborhood*

## **Farrington / Mokuola Station Area Plan**

By 2030:

- Residential: net increase of approximately 1,520 units
- Commercial / industrial: existing inventory to be replaced with new buildings and the amount of space to remain unchanged at approximately 971,000 square feet
- Approximately 70 percent of newly developed space will be for residential uses, and 30 percent will be for commercial/industrial uses

# Waipahu

## Neighborhood TOD Plan

### **Farrington / Mokuola Station Area Plan**

- New housing will help support neighborhood services
- Medium- and higher-density housing opportunities exist both mauka and makai of Farrington Highway

#### 1. HOUSING

New higher-density housing should be developed within ¼ mile of the transit stations. This housing will help support neighborhood retail and services while also providing ridership for the transit system. Higher-density housing should be in the range of 30 - 100 dwelling units per acre (du/ac). Residents will be able to live a less car-dependant lifestyle, while being able to walk to shops, cultural facilities and parks. Higher-density residential areas are planned about one to two blocks from the transit station on both the mauka and makai sides of Farrington Highway. Each of these new areas should be focused around a new neighborhood mini park which will help to provide greenspace for the area while also functioning as neighborhood gathering spaces. Higher-density housing should be primarily in the form of stacked flats with structured parking.

Outside of the ¼ mile TOD area, the Plan focuses on the creation of new housing opportunities at a density lower than in the TOD precinct. Directly makai of the Pearl Harbor Historic Trail, a new waterfront residential neighborhood has been designated that will allow people to live next to and enjoy the Pouhala Marsh, the Ted Makalena Golf Course, the Waipio Soccer Park and the amenities of the station area. Another medium-density residential neighborhood is designated in the area between Hula Street and the Pearl Harbor Historic Trail. Medium-density housing should be primarily in the form of townhouses and garden apartments and should generally be in the range of 12 - 30 du/ac.

The new homes near the Waipahu transit station are expected to offer a wider choice of sizes, amenities, and prices than is currently the case for Waipahu's homes. Homes are likely to range from small studio apartments for singles to 3 bedroom/2 bath multi-family homes for larger families. Prices and rents are expected to range from affordable to luxury levels.



*Higher Density Residential Neighborhoods Support Transit*



*New Medium Density Residential Near Pearl Harbor*

## 2. MIXED-USE

Mixed-use refers to the combining of retail/commercial and/or service uses with residential or office use in the same building or on the same site. Certain buildings in Waipahu will have a vertical mixture of uses with the above floors used for residential or office use and a portion of the ground floor for retail/commercial or service uses. Mixed-use development helps to create vibrant, urban neighborhoods with a diverse collection of residents, shoppers and workers. Historical precedents for mixed-use development on Oahu are abundant and include some of the most-cherished places on the island including downtown Honolulu, Chinatown, Kapahulu, and Kaimuki.

Mixed-use commercial development should be located along Farrington Highway, especially adjacent to the transit station. In order to help strengthen the neighborhood's historic core, mixed-use residential development should be located along Waipahu Depot Road both mauka and makai of Farrington, as well as along Waipahu Street across from the YMCA and Filcom Center. These areas should be planned to integrate with the scale and character of the existing historic buildings.

### ***Farrington / Mokuola Station Area Plan***

- Mixed-use buildings will help to create vibrant, urban neighborhoods
- Residential mixed-use areas should help to strengthen the historic core along Waipahu Street and Waipahu Depot Road



*Mixed-use Areas Provide Active, Vital Retail Environments*



*Residential Mixed-use Development in the Historic Core*

# Waipahu

## Neighborhood TOD Plan

### ***Farrington / Mokuola Station Area Plan***

- Retail areas should be located along Farrington Highway
- Retail areas should contain a mix of complementary uses and services

### 3. RETAIL

Areas along Farrington Highway diamond head of Awalau Street and ewa of Pahu Street should retain their retail character. If mixed-use development isn't viable in these areas, they have the potential to become more vibrant retail and restaurant zones. When redeveloped, these areas should bring new buildings all the way up to the sidewalk and place the parking in the rear to help encourage an active, attractive pedestrian space. Restaurant uses should encourage outdoor seating along the sidewalk or in designated plaza areas.

Retail buildings in the station areas should contain a mix of complementary uses and services. Complementary uses are those that offer goods and services at different times of the day, and provide a consolidated "one-stop" area for people to live, work, shop and participate in entertainment and community activities in close proximity to one another.



*Retail Uses Should be Pedestrian-Oriented, with Storefronts Along Streets*



*Restaurant areas Should Include Outdoor Seating Options*

## 4. CIVIC

The Farrington / Mokuola area currently includes a variety of community facilities including the Filcom Center, Waipahu Civic Center, Waipahu State Library and Leeward YMCA. These areas should be better integrated into the neighborhood through open space and streetscape improvements. Expanding on these existing community facilities, areas are designated for future civic uses. These facilities could possibly include churches, day care, community centers, post offices, fire and police stations and senior centers. The larger facilities will serve as important neighborhood focal points and should be located along Mokuola Street and within walking distance to the transit station. Smaller facilities such as churches and community centers may be located throughout the station areas.

### ***Farrington / Mokuola Station Area Plan***

- Civic uses should be promoted along Mokuola Street



*Civic Uses Should be Located Near Transit*



*Churches Can be Located Throughout the Station Areas*





Farrington / Leoku  
Preferred Station Area Plan

# Waipahu

## Neighborhood TOD Plan

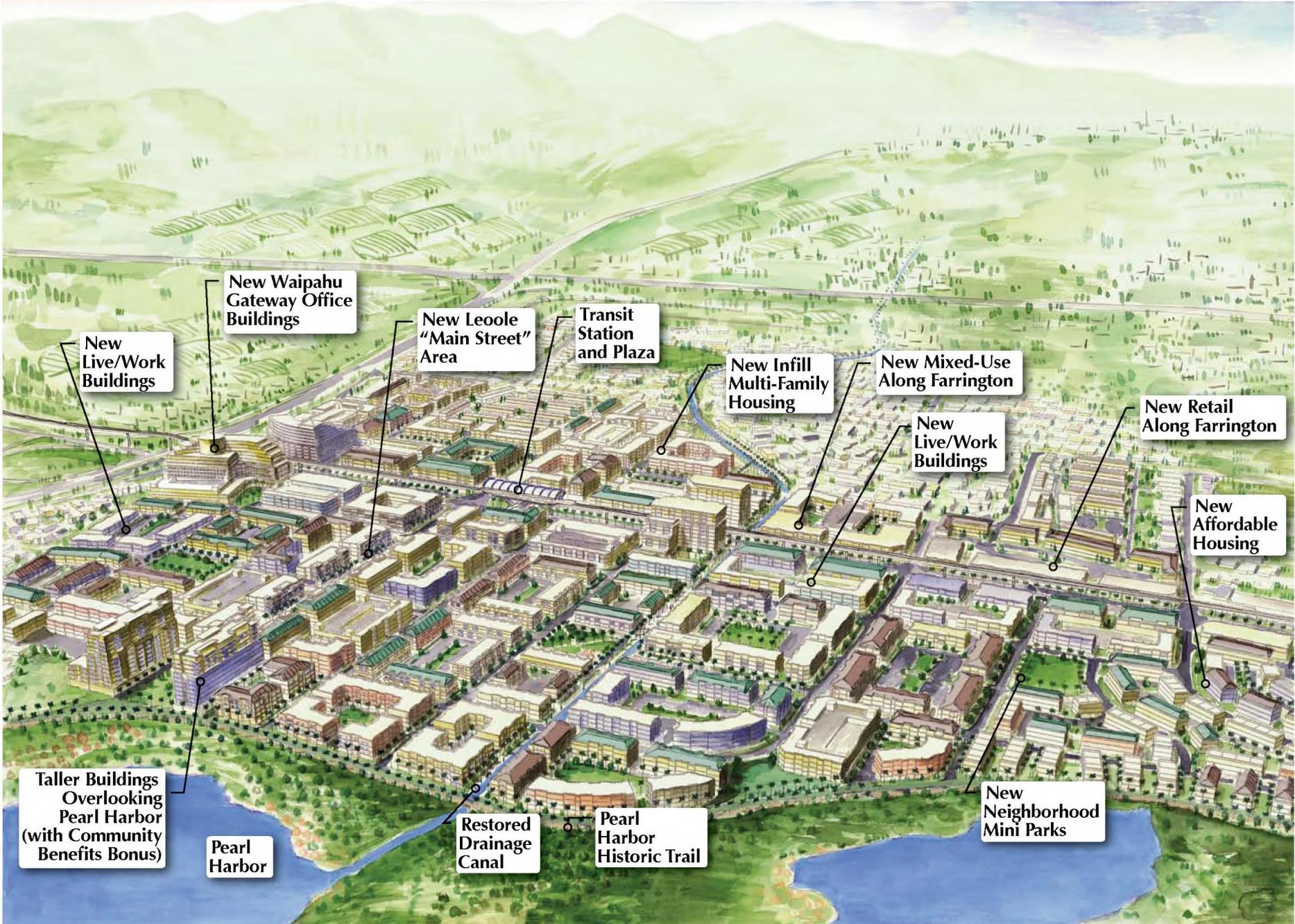


FIGURE 15 - Farrington / Leoku Overall Structure - Looking Mauka

## A. Overall Structure

In the Farrington / Leoku Station area, development intensity will be concentrated adjacent to the proposed transit station and along Farrington Highway. In addition, a new mauka-makai pedestrian-oriented “Main Street” will be focused along the existing Leoku Street one block mauka of Farrington and along Leole Street four blocks makai of Farrington terminating on a new public open space at Pearl Harbor. The “Main Street” along Leole will be lined with mixed-use buildings with active ground floor uses including shops, restaurants and offices. A vibrant and attractive Leole Street will lead residents and visitors makai to the Pearl Harbor Historic Trail and the waterfront. Farrington Highway will keep its current role as a commercial center and will also be lined with mixed-use buildings that will be developed at a slightly larger scale and footprint given the width and character of the Highway. The creation of “landmark” buildings on the sites diamond head of Fort Weaver Road and near the station will help to emphasize the gateway nature of the Plan.

### ***Farrington / Leoku Station Area Plan***

- Development concentrated adjacent to the transit station, along Farrington Highway and Leole Street
- The creation of landmark buildings in key locations to serve as a gateway to Waipahu



*Leole Street Will be Vibrant and Attractive*



*New Employment Uses Will be Focused Near Fort Weaver Rd.*

# Waipahu

## Neighborhood TOD Plan

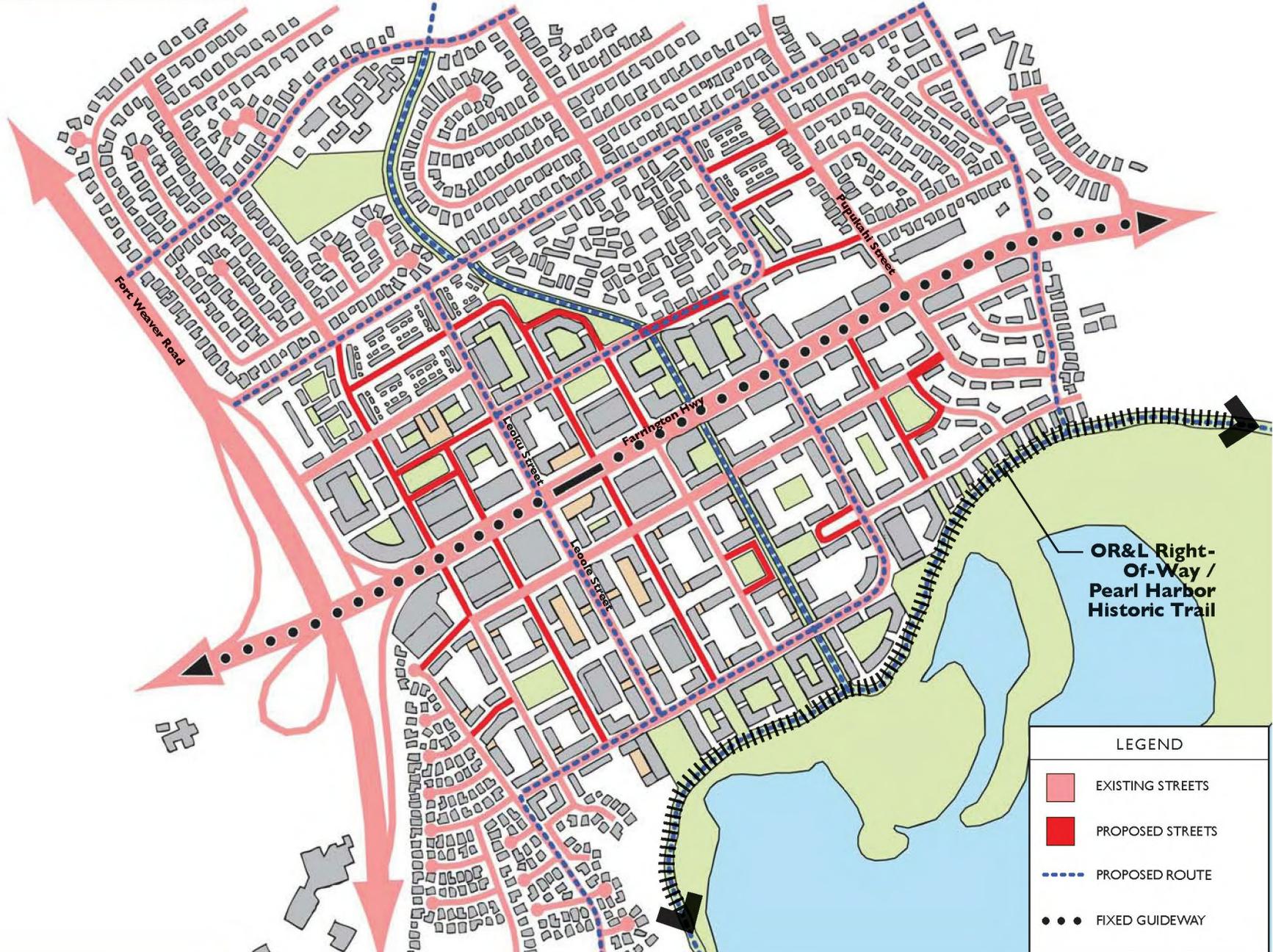


FIGURE 16 - Farrington / Leoku Connectivity Diagram

## B. Connectivity and Circulation

An important principle is the creation of an inter-modal transportation network that connects all aspects of the community, and provides transportation options for people of all ages, abilities and socioeconomic backgrounds. The public street network provides the threads that weave together neighborhoods and should be pedestrian-friendly places. Creating a pedestrian-first environment is one of the most important principles developed during the community process.

A major element of the Plan includes the creation of an urban transit boulevard along Farrington Highway near the proposed station. The two-block long urban transit boulevard will have the elevated transit line in the center median, through-traffic lanes on either side of the transit line, separated lanes for local traffic and drop-offs, wide sidewalks and parking adjacent to new mixed-use buildings.

A series of new streets are proposed on either side of Farrington Highway. These streets improve the overall connectivity network for autos, bicyclists and pedestrians while helping to create a more urban block network that is ideal for redevelopment.

### ***Farrington / Leoku Station Area Plan***

- A safer more attractive pedestrian environment
- Transportation options for people of all ages, abilities and backgrounds



*Streets Should Have Wide Sidewalks and Pedestrian Amenities*



*The Pearl Harbor Historic Trail Will Provide Off-street Bike Routes*

# Waipahu

## Neighborhood TOD Plan

### **Farrington / Leoku Station Area Plan**

- Transit will provide the opportunity for new compact walkable neighborhoods
- A pedestrian village character can be created in the station area

#### 1. TRANSIT

The proposed High Capacity Transit system will promote the opportunity to create new compact walkable neighborhoods through infill development while also providing a viable alternative to the private automobile. It is important that the transit system as the future connectivity “backbone” for Waipahu is efficient and convenient and that it can be easily accessed by pedestrians, bicyclists, bus riders and auto drivers. Bus service to the station will draw commuters from Royal Kunia, Village Park, West Loch Estates, ‘Ewa Villages, ‘Ewa Gentry, Ocean Pointe, ‘Ewa Beach, and Iroquois Point. These commuters will also become potential customers for businesses near the station.

#### 2. PEDESTRIANS

The Farrington / Leoku area is currently an auto-dominated zone. By focusing development in a centralized area surrounding the transit station, a pedestrian village character can be created. The fine-grained scale of the neighborhood will encourage residents and pedestrians to stroll and spend time at restaurants, cafes and mini parks. Sidewalk improvements, retail buildings with sidewalk storefronts and traffic calming measures are all concepts that are recommended to help create a pedestrian-first environment.



*Elevated Transit as the Future “Backbone” for Waipahu*



*The Station Area Should Be a Pedestrian-first Environment*

### 3. BUSES

The Farrington / Leoku area will be served by a network of buses, helping to connect residents to the transit station. These buses will typically travel on major streets and will help provide connectivity and integration with neighboring communities and the station area.

### 4. AUTOS / PARKING

In terms of commuter parking, no large public park-and-rides are currently being developed with the construction of the transit system in Waipahu. The Plan provides areas adjacent to the station on both sides of Farrington for kiss-and-ride drop offs and pick ups of transit riders. The plan also proposes locations for parking structures that could be privately developed to provide parking for new uses as well as commuter parking on a paid basis. Development of these structures could help to facilitate a parking district around the station to provide shared parking compatible uses.

On-street parking is recommended on all new and existing streets in the station area. On-street parking will help to support retail uses while at the same time providing convenient short-term guest parking for residential uses.

## ***Farrington / Leoku Station Area Plan***

- Buses should provide connectivity and integration with neighboring communities
- On-street parking should be located on existing and new streets in the station area



*The Bus Will Provide Internal Neighborhood Circulation Access*



*On-Street Parking Should be Located Throughout the Station Area*

# Waipahu Neighborhood TOD Plan

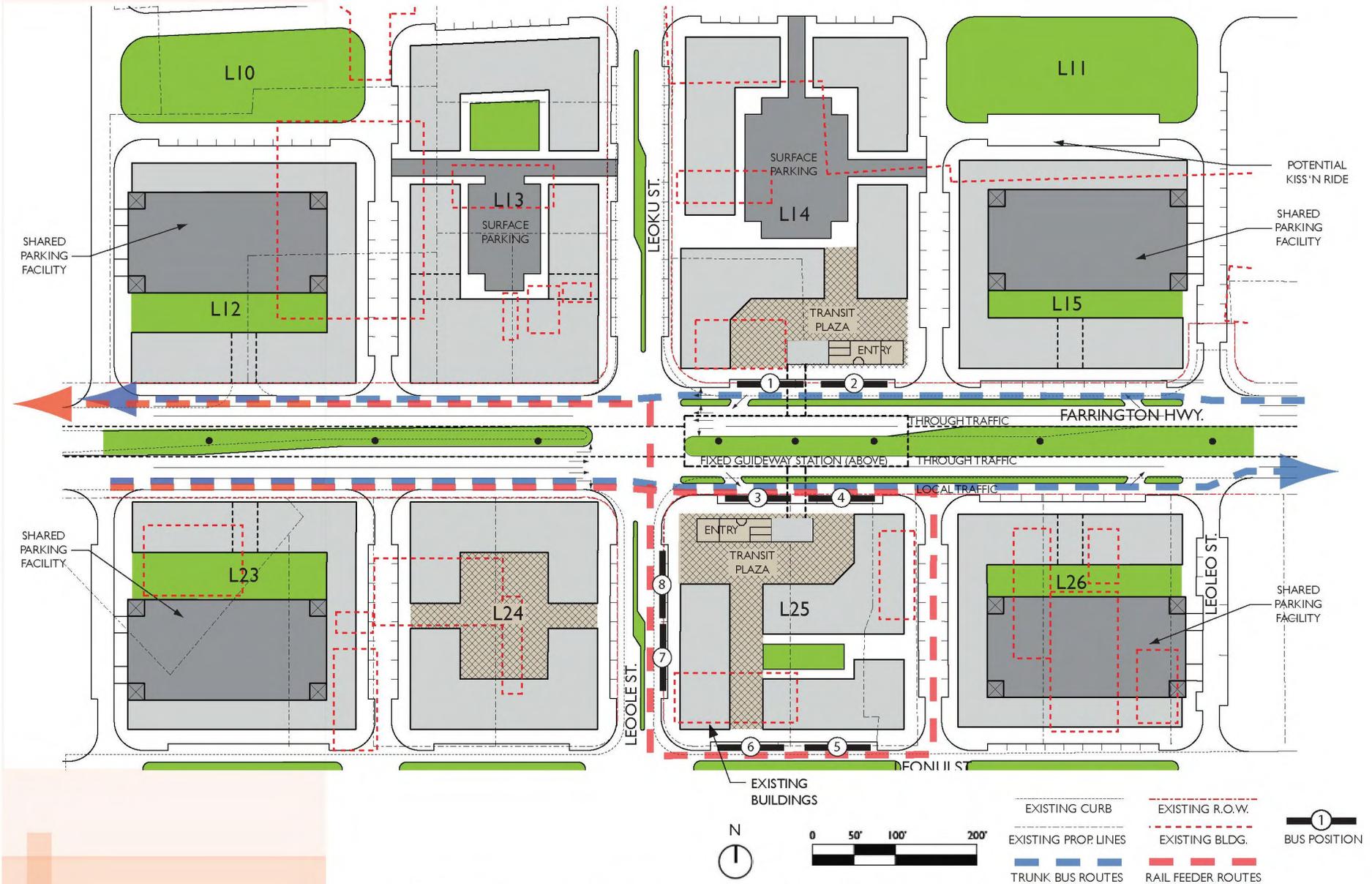


FIGURE 17 - Farrington / Leoku Station Boulevard Concept and Station Area Diagram

## 5. BOULEVARD CONCEPT

The Plan is proposing a boulevard condition between Leoku/Leole Streets and Leoleo Street. The concept described is flexible based on the exact location of the transit stations. The transit station stop will occur just diamond head of Leoku/Leole Street on Farrington Highway. The Transit Plazas will touch down on blocks L14 and L25 as shown in Figure 14.

By creating a short boulevard near the transit stations, local traffic can be separated from through traffic while at the same time providing slower speeds and a safer pedestrian environment adjacent to the stations. A boulevard treatment will also help to provide space for kiss-and-ride drop-offs and short-term convenience parking for retail uses. In order to implement the proposed boulevard condition, the existing ROW would need to be widened approximately 11' from Leoku Street to Leoleo Street. On the mauka side of Farrington, the ROW would need to be widened approximately 3' from the existing ROW to new parallel parking curb. On the makai side of Farrington, the ROW would need to be widened approximately 9' from the existing ROW to the new parallel parking curb. In the alternative shown, no existing buildings would have to be demolished in order to locate the stations or plazas. See Figures 11 and 12 for an existing and proposed cross-section of Farrington Highway and the boulevard concept.

### ***Farrington / Leoku Station Area Plan***

- A boulevard treatment on Farrington Highway can provide slower speeds and a safer pedestrian environment adjacent to the stations
- Through-traffic capacity can be maintained while creating local lanes adjacent to commercial development

# Waipahu

## Neighborhood TOD Plan



FIGURE 18 - Farrington / Leolu Parks and Open Space Diagram



## C. Parks and Open Space

Reconnecting the neighborhood to the waterfront is a major element of the Farrington / Leoku Station Area Plan. The Pearl Harbor Historic Trail and wetlands will become a major amenity for a new medium and high-density residential neighborhood adjacent to the shoreline. Several small mini parks will be located throughout the area that will act as green gathering spaces in a neighborhood that is currently lacking open space. The existing canal between Leoleo and Leokane Streets will be restored as a natural greenway providing drainage while becoming a positive element of the community. Green “fingers” will terminate streets running makai from Farrington, and will provide access to the waterfront and Pearl Harbor Historic Trail. In addition, view corridors will be established, helping to further tie the community to the Harbor.

The Plan recognizes the important character-defining feature of the existing trees within the median of Farrington Highway. With development of the elevated rail system in the median of Farrington Highway, the existing street trees will need to be relocated. The Plan recommends the following prioritization of tree relocation:

- 1) Within the Farrington Highway right-of-way - this could include the inner transit boulevard medians as well as within the planting strips adjacent to sidewalks
- 2) Within the right-of-way of other Waipahu neighborhood streets
- 3) Within existing or planned public parks and open space areas

### ***Farrington / Leoku Station Area Plan***

- Reconnecting the neighborhood to Pearl Harbor is a major element of the Plan
- Various other open spaces will help to create a green network



*A True Live/Work Neighborhood Should Have Several Small Parks*



*Paths Through Development Should Connect Larger Open Spaces*

# Waipahu

## Neighborhood TOD Plan

### **Farrington / Leoku Station Area Plan**

- New mini parks should be between one and two acres in size
- The transit plazas should be active community gathering spaces

#### 1. MINI PARKS

The Plan recommends a series of new one and two acre mini parks to act as neighborhood centers throughout the Farrington / Leoku Station Area. These parks can contain a wide variety of uses including playgrounds, picnic areas, fountains, dog runs, community gardens and shaded areas for relaxation and quiet reflection. Mini parks are typically ringed with houses, apartments, shops and community facilities such as churches and libraries. The active uses surrounding neighborhood parks help to increase the sense of safety and connectedness for area residents. Each resident in the TOD areas should eventually be within a short 2-3 block walk from a mini park.

#### 2. TRANSIT PLAZAS

The transit plazas should be located at the touchdown points of the elevated transit system, near the intersection of Farrington and Leoku Streets. These plazas will be active community gathering spaces and the new “entry doors” to the neighborhood. The plazas should be vibrant areas and should be used to host important community events and activities and should be of adequate size for gathering. Uses within the transit plazas should include outdoor cafes, musical performances and art shows. The transit plazas should be primarily hardscape in design and should be ringed by mixed-use buildings with retail on the ground floor and housing above. The retail surrounding the plazas will help to create an active, vibrant “village-like character”.



*Mini Parks Should Serve as Community Gathering Places*



*Transit Plazas Should be Primarily Hardscape in Nature*

### 3. DRAINAGE CHANNEL

Restoring and cleaning the drainage channel between Waipahu Street and Pearl Harbor is a key recommendation. The channel could be de-channelized and landscaped to create a positive community amenity and a direct open space link from the station area to the Pearl Harbor Historic Trail. The channel is currently fronted by light industrial uses that have no direct relationship to the waterway. As redevelopment occurs along the channel, new uses should be set back to provide public open space and the channel should be cleaned and/or restored to provide a more natural setting for community use.

### 4. PEARL HARBOR WATERFRONT

Currently, the Farrington / Leoku area turns its back to Pearl Harbor. The light industrial uses in the area have no relationship with the waterfront and public access and views are severely limited. The Pearl Harbor Historic Trail Master Plan effort detailed the potential of the waterfront and the Pearl Harbor Historic Trail to serve as regional amenities. This effort led to the potential designation of the Pearl Harbor Historic Trail as a “world-class heritage and recreational corridor that enhances communities from ‘Aiea to Nanakuli.” This Plan recognizes the importance of the Pearl Harbor Historic Trail and focuses on creating a new live/work neighborhood adjacent to the trail while creating new access points and view corridors to Pearl Harbor.

## **Farrington / Leoku Station Area Plan**

- The drainage canal could become a linear open space connection between Pearl Harbor and the transit station
- The Plan focuses on creating a live/work neighborhood adjacent to the Pearl Harbor waterfront



*The Drainage Canal Should be Restored as a Natural Area*



*The Pearl Harbor Waterfront Should be a Community Amenity*

# Waipahu

## Neighborhood TOD Plan



FIGURE 19 - Farrington / Leoku Illustrative Plan



## D. Land Use and Urban Form

The illustrative Plan for Farrington / Leoku is intended to show the community's desired land use patterns, urban design concepts, connectivity and open space improvements and is not meant to be parcel-specific. Urban design is key to a successful TOD, particularly in a place like the Farrington / Leoku neighborhood that does not currently have high pedestrian use. The appropriate scale, design, and siting of buildings will help to encourage the creation of a lively neighborhood center with shops and open space around the new transit station, while the careful design of the streets and the pedestrian realm will support the pedestrian and create a recognizable identity for the place.

The bullets to the right shows the approximate existing commercial/industrial square footages and unit counts that are within the community defined "areas of change." These "areas of change" are mostly within the ¼-mile radius of the transit station, although some areas are within the ½-mile radius.

Existing allowable floor area ratios (FAR) for the area are within a range of 0.9 - 3.5 (with open space bonus). The proposed redevelopment falls within this range, though height limits and allowable uses will need to be refined. The program for the Farrington / Leoku Plan is based on an overall FAR of 1.32 and is focused on the concept of retention of commercial/industrial square footages with a corresponding increase in the number of dwelling units within a 5-10 minute walk of the station.

The long-term balance of housing and employment uses are market-driven and will likely be adjusted over time. While commercial/industrial square footages generally remain stable, the buildings that house these businesses will be newly developed in a more urban, pedestrian-friendly form. The Plan creates a framework to allow for this long-term flexibility.

### **Farrington / Leoku Station Area Plan**

#### By 2030:

- Residential: net increase of approximately 3,000 units
- Commercial / industrial: net increase of approximately 49,000 square feet in new buildings, with about 75 percent developed as commercial space and 25 percent as industrial space
- Nearly 60 percent of newly developed space will be for residential uses, and approximately 40 percent will be commercial/industrial uses



*Light Industrial Uses Can be Maintained in Live/Work Areas*



*Mixed-use Development Will Provide Housing and Retail*

# Waipahu

## Neighborhood TOD Plan

### **Farrington / Leoku Station Area Plan**

- New housing will help support neighborhood services
- Affordable Housing should be redeveloped in the station area

#### 1. HOUSING

New high-density housing should be developed within ¼ mile of the transit stations. This housing will help support neighborhood retail and services while also providing ridership for the transit system. Higher-density housing should be in the range of 30 - 100 dwelling units per acre (du/ac). New residents will be able to live a less car-dependant lifestyle while being able to walk to shops, cultural facilities and parks. Higher density housing should be located between Waipahu Street and Farrington Highway, along Leokane Street, and at the foot of Leoleo Street. Higher-density housing should be primarily in the form of stacked flats with structured parking.

Outside of the ¼ mile TOD area, improvements focus on redeveloping several blocks of multi-family housing by recreating the affordable housing in context with a mixture of additional housing types for all incomes. Medium-density housing in these areas should be in the range of 12-30 du/ac. In the areas makai of Farrington Highway, medium-density housing should be located along the Pearl Harbor waterfront diamond head of Leoleo Street and along Pupukahi and Pupuphi Streets. In areas mauka of Farrington Highway, new medium-density housing should be located mauka of Leolua Street and along Leowahine Street. Medium-density housing should primarily in the form of townhouses and garden apartments.

For projects requiring a zone change, the City requires that ten percent of the homes in new projects be affordable to families earning 80 percent or less of median income, and another 20 percent of the homes must be affordable to families earning 81 percent to 120 percent of median income. The remaining 70 percent of the homes may be sold or rented at market prices.



*Medium-density Housing Should be Located along Pupukahi Street*



*Affordable Housing Should be Redeveloped in the Station Area*

## 2. MIXED-USE

Mixed-use development is characterized by the the combining of retail/commercial and/or service uses with residential or office use in the same building or on the same site. Mixed-use development helps to create vibrant, urban neighborhoods with a diverse collection of residents, shoppers and workers. Certain buildings in Waipahu will have a vertical mixture of uses as a single structure with the above floors used for residential or office use and a portion of the ground floor for retail/commercial or service uses.

Commercial mixed-use development is proposed along Farrington Highway from Leowaena Street to Leokane Street. This area has the most potential as a commercial and employment center given its current use and its location near the transit station.

Residential mixed-use development is proposed along the new Leole “Main Street” from Leonui Street to Pearl Harbor. Residential mixed-use areas are also designated along Leonui Street and Pupukupa Streets a block in from the transit station. By combining residential uses on the upper floors with retail or services uses below, a mixed-use village like character can be promoted.

### **Farrington / Leoku Station Area Plan**

- Mixed-use buildings will help to create vibrant, urban neighborhoods
- Commercial-mixed use can help the Farrington / Leoku area maintain it's commercial center character



*Mixed Use Development Should be Created Along Farrington Highway*



*Mixed Use Will Help to Create a Village-like Character*

# Waipahu

## Neighborhood TOD Plan

### **Farrington / Leoku Station Area Plan**

- Retail areas should contain a mix of complementary uses and services
- Shopping areas should orient to the street to help create vibrant outdoor spaces for community interaction

### 3. RETAIL

Retail buildings in the station area should contain a mix of complementary uses and services. Complementary uses are those that offer goods and services at different times of the day, and provide a consolidated “one-stop” area for people to live, work, shop and participate in entertainment and community activities in close proximity to one another. Areas along Farrington Highway diamond head of Leokane Street should retain their retail character. If mixed-use development isn’t viable in these areas, they have the potential to become more vibrant retail and restaurant zones.

The Farrington / Leoku station area should continue to have a mixture of local mom-and-pop stores and larger national chains. By orienting to the street, these shopping areas will create vibrant outdoor spaces for community interaction. Shops and restaurants should have minimal front yards and should provide outdoor cafes, attractive seating areas, shade canopies and storefront windows to ensure a pleasant pedestrian experience.



*Cafes can Serve as Neighborhood Gathering Spaces*



*Retail Parking should be Screened from Pedestrian View*

## 4. LIVE/WORK

The industrial area makai of Leonui Street covers over 50 acres and hosts over 1.8 million square feet of industrial space. Some of the industrial activities along Leoku Street will have to relocate in order to make room to redevelop the area into residential and commercial mixed-use.

Blocks makai of Farrington and diamond head and ewa of Leole Street have been designated as medium and high intensity live/work which will help to create a neighborhood with a mixture of employment and housing. The live/work blocks will help to maintain jobs in the area by allowing and promoting office, research and non-noxious light industrial uses in an urban neighborhood along with other unique uses such as loft apartments and condos, artist studios and galleries. Housing in this district will be mixed-income and could be tailored towards the workforce as well as the “creative class” of artists, artisans and students (possibly attending University of Hawaii West Oahu). This mixture of employment and housing will help improve and diversify the overall character and uses of the neighborhood.

## 5. EMPLOYMENT

The majority of Ewa residents continue to work in the PUC and this has caused massive traffic jams and long commute times. Areas directly adjacent to Fort Weaver Road along Farrington Highway have been designated as employment uses, thus helping Waipahu achieve a balance between jobs and housing. This employment center serves as a gateway into Waipahu, while enjoying proximity to the transit station and convenient access and visibility from Fort Weaver Road and the H-1 Freeway.

### **Farrington / Leoku Station Area Plan**

- Live/Work uses should be integrated into the existing light industrial neighborhood makai of Farrington Highway
- Employment uses should be focused at the Waipahu Gateway area



*New Light Industrial Uses Should fit a Mixed-Use Neighborhood*



*Employment Uses Should be Concentrated near Fort Weaver Road*



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A faded architectural rendering of a city street scene. In the foreground, a crosswalk with white stripes is visible on a dark road. Several people are walking across the crosswalk. In the background, there are multi-story buildings with various architectural styles, including one with a prominent tower and a circular window. There are trees and a traffic light on a pole to the left. The overall scene is bright and clear, suggesting a sunny day.

# Zoning Recommendations

# Waipahu

## Neighborhood TOD Plan

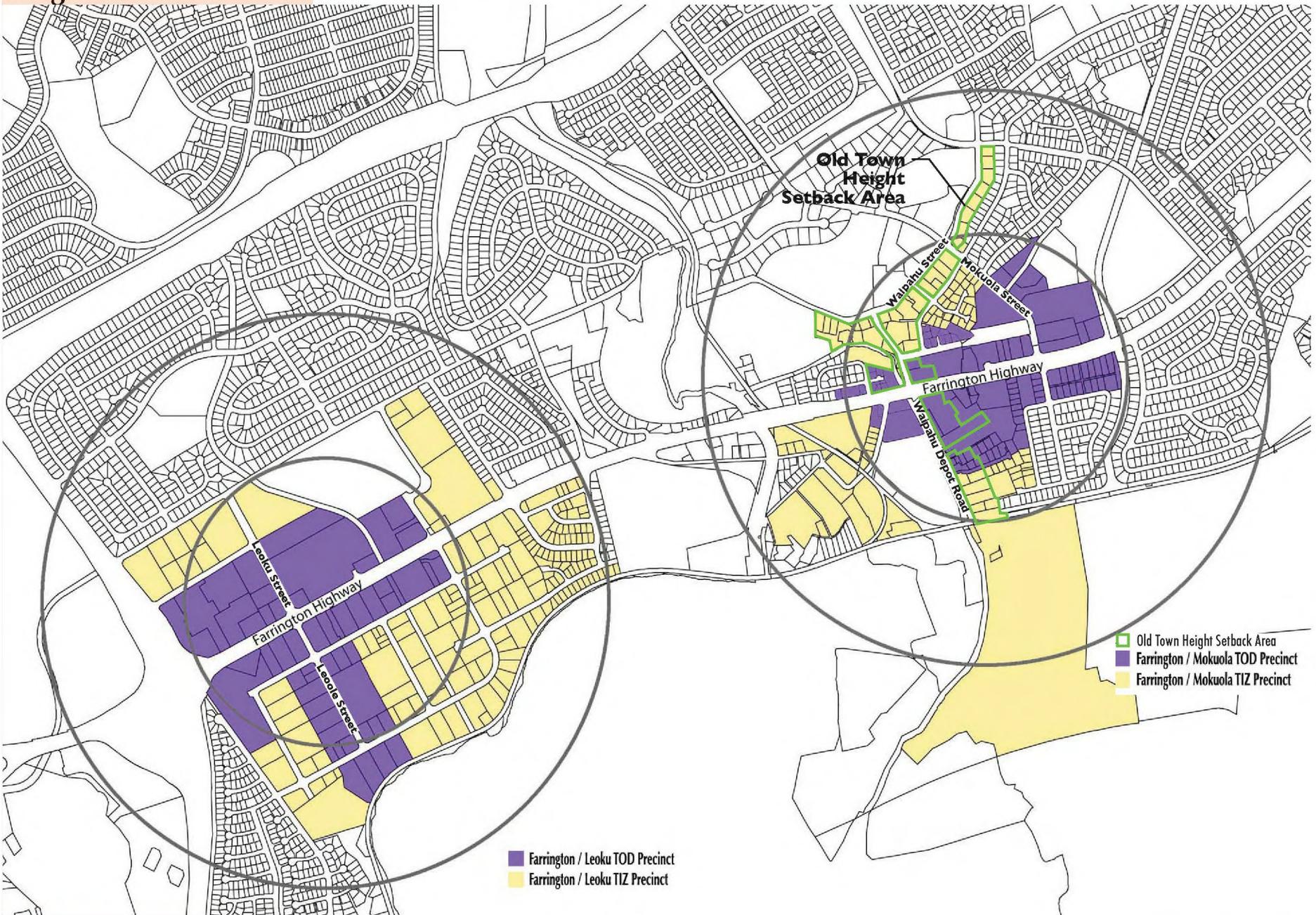
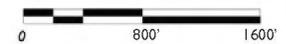


FIGURE 20 - TOD and TIZ Zoning Precincts



## A. TOD Special District

### 1. APPLICABILITY

Special District regulations are mandatory, not optional. The proposed TOD Special District regulations may supplement or modify the underlying zoning district regulations. If any TOD Special District regulation conflicts with any provision contained in Article 3 of the LUO (Establishment of Zoning Districts and Zoning District Regulations), the more restrictive regulation takes precedence. A property owner must follow the provisions of the TOD Special District in order to develop property. In doing so, the property may be subject to different permitted and conditional uses, modified densities and building heights, modified yards and modified parking requirements. To take advantage of such increased entitlements, additional design-related criteria may be required. All applications are subject to design review.

### 2. DISTRICT BOUNDARIES

The recommended Special District boundaries around each transit station take into account distance from the transit station, natural topographic and man-made barriers, extent of market interest in redevelopment, existing land uses and the overall benefits of transit including the potential to increase transit ridership. At the start of the Plan process, “areas of preservation” were established which included predominantly single-family neighborhoods along with existing historic buildings and community amenities such as the Filcom Center and the Leeward YMCA. Even though these buildings are within ½ mile of the transit stations, they are intended to retain their current uses and forms. Areas within a ½ mile of the transit stations that are likely to be redeveloped over time were designated “areas of change.”

The TOD Special District includes four subset precincts, each with its own regulations. The TOD or transit-oriented development precincts are generally within ¼ mile of the stations, or in areas with greater development potential. These areas will likely be redeveloped sooner and should include larger building forms and higher-intensity mixed-use, employment and residential projects.

The TIZ or transit-influenced zone precincts are located beyond the TOD core, between ¼ mile to ½ mile from the stations and should be less intense in nature. Properties within the TIZ Precincts will most likely redevelop over a longer time frame and should include smaller buildings that “step down” to surrounding lower density neighborhoods.

## **Zoning Recommendations**

- Special District regulations are mandatory, not optional
- TOD Precincts are generally within 1/4 mile of the stations
- TIZ Precincts are generally between 1/4 - 1/2 mile of the stations

### Zoning Recommendations

- Permitted and prohibited uses are similar to standards for the City's BMX-3 zone

### 3. PERMITTED LAND USES

The TOD area should contain a mix of complementary uses. Complementary land uses are those that offer goods and services at different times of the day, and provide a consolidated “one-stop” area for people to live, work, shop and participate in entertainment and community activities in close proximity to one another. Complementary land uses are located in a neighborhood that that has been designed to accommodate pedestrians, bikes, busses and trains, reduces dependence on the automobile, thereby the need for standard parking areas. This is consistent with the principle of Creating a Mixed-Use Village-Like Setting in the Core Areas.

Within the TOD Special District, permitted and prohibited uses are proposed to be similar to those set forth under the existing BMX-3 Community Business Mixed Use District. The TOD regulations would not eliminate the requirement for Plan Review Use (PRU) approval for certain uses, such as for colleges and universities, as specified in the LUO. To ensure appropriate form and design for a Mixed-Use Village-Like Setting, all permitted uses should apply the design guidelines of the Waipahu Town Plan and Waipahu Livable Communities Initiative.

Permitted in both TOD and TIZ Precincts:

- Dwellings, multifamily
- Group living facilities
- Special needs housing for the elderly
- Business Services
- Cabarets
- Catering Establishments
- Convenience Stores
- Dance or music schools
- Data processing facilities
- Eating establishments
- Financial institutions
- Home occupations
- Laboratories, medical
- Laboratories, research
- Medical clinics
- Neighborhood grocery stores
- Office buildings
- Offices, accessory
- Personal services
- Photographic services
- Photographic processing
- Photography studios
- Plant nurseries
- Real estate offices
- Retail, accessory
- Retail establishments
- Travel agencies
- Veterinary establishments
- Boarding facilities
- Consulates
- Duplex units
- Motion picture, and television production studios
- Art galleries and museums
- Colleges, business
- Day-care facilities
- Hospitals
- Meeting facilities
- Public uses and structures
- Schools, business
- Schools: elementary, intermediate and high
- Schools, language

- Schools, vocational, technical, industrial, trade
  - Schools, vocational, which do not involve the operation of
  - Woodwork shops, machine shops or other similar features
  - Theaters
  - Universities, colleges
  - Commercial parking lots and garages
  - Joint use parking facilities
  - Parking facilities
  - Broadcasting stations
  - Historic structure, use of
  - Bars, nightclubs, taverns
  - Automobile sales and rentals, including sales and distribution of automobile parts and supplies
  - Roomers/Rooming
  - Trade or convention center
  - Off-site parking facilities
  - Off-site joint development
- Permitted in TIZ Precincts:
- Amusement and recreation facilities, indoor
  - Self-storage facilities
  - Dwellings, detached, one-family
  - Dwellings, detached two-family
  - Centralized mail and package handling facilities
  - Food manufacturing and processing
  - Home improvement centers
  - Manufacturing, processing and packaging, light
  - Plant nurseries
  - Dwellings, owner's or caretaker's accessory
  - Repair establishments, minor
  - Warehousing
  - Wholesaling and distribution
  - Recreation facilities, outdoor
  - Automobile service stations
  - Car washing, mechanized
  - Heliports
  - Helistops
  - Antennas, receive-only
  - Utility installations, Type A
  - Utility installations, Type B

### **Zoning Recommendations**

- All permitted uses should apply the design guidelines of the Waipahu Town Plan and Waipahu Livable Communities Initiative

### **Zoning Recommendations**

#### 4. PROHIBITED LAND USES

Prohibited in both TOD and TIZ Precincts:

- All “agricultural” uses
- All “animal” uses
- Farm dwellings
- Vacation cabins
- Dwellings for cemetery caretakers
- Base Yards
- Explosive and toxic chemical manufacturing, storage and distribution
- Freight movers
- Heavy equipment sales and rentals
- Linen suppliers
- Manufacturing, processing and packaging, general
- Maritime-related vocational training, sales, construction
- Petroleum processing
- Port facilities
- Publishing plants for newspapers, books and magazines
- Repair establishments, major
- Resource extraction
- Salvage, scrap and junk storage and processing
- Storage yards
- Waste disposal and processing
- Wholesale and retail establishments dealing primarily in bulk materials delivered by or to ship, or by ship and truck in combination
- Amusement facilities, outdoor non motorized
- Amusement facilities, outdoor motorized
- Golf courses
- Cemeteries and columbaria
- Prisons
- Airports
- Truck terminals
- Antennas, broadcasting
- Wind machines

## Zoning Recommendations

- Current allowable FARs: 0.9 - 2.5 (or up to 3.5 with open space bonus)
- Underlying FARs should remain and the maximum FAR should be raised to 3.5 as a Community Benefits Bonus within the TOD Precinct
- Minimum FAR of 0.50 for TOD Precincts may be appropriate
- Maximum Building Area should not be regulated

### 5. FLOOR AREA RATIO

According to the Central Oahu SCP, allowable building density around transit hubs should accommodate 25-90 dwelling units per acre. This is consistent with densities proposed in the Waipahu Neighborhood TOD Plan.

Current existing underlying allowable floor area ratios (FARs) in the TOD Special District areas are within the range of 0.9 - 2.5 (or up to 3.5 with open space bonus). Overall intensities proposed in the Waipahu Neighborhood TOD Plan fall within this range. It is recommended that existing underlying FARs remain in both the TOD and TIZ Precincts.

Allowing a higher FAR in certain areas helps to promote the Plan principle of Providing Mixed-Income Housing in the station areas. The intent of the Special District FAR regulations is to focus more intense development in the TOD Precincts and less intensity in the TIZ Precincts. It is recommended that within the TOD Precinct, the underlying maximum FARs may be raised to 3.5 as a Community Benefits Bonus.

Existing properties have typically been developed at FARs well under the maximum standard with low-rise buildings and large surface parking lots. In order to promote quality transit-oriented development, minimum FAR of 0.5 for TOD Precincts may be appropriate.

### 6. MAXIMUM BUILDING AREA

Transit-oriented development is most efficient when buildings can optimize lot coverage in order to create active, urban street edges and to create opportunities for structured parking. Buildings set far back from the street within large open spaces or surface parking lots should be avoided. With this in mind, it is recommended that the Maximum Building Area (coverage) standard not be regulated for the Waipahu TOD Special Districts. This is consistent with the standard for the B-1, B-2, BMX-3 and BMX-4 zones.

### Zoning Recommendations

#### Maximum Building Heights:

- Farrington / Mokuola TOD Precinct - 60 feet
- Farrington / Mokuola TIZ Precinct - 45 feet
- Old Town Height Setback - 10 Feet upper story (over two stories)
- Farrington / Leoku TOD Precinct - 60 feet (up to 90 feet with Community Benefits Bonus)
- Farrington / Leoku TIZ Precinct - 60 feet

### 7. BUILDING HEIGHTS

New buildings in the station areas should generally be taller near the station and step down in height further from the station. Stations should serve as focal points and hubs for more intense development. The principle of Maintaining the Local Character of the Place dictates that building heights in the Farrington / Mokuola TOD Special District should be lower to reflect the existing context of the “Old Waipahu Town” and its smaller-scale development. The Farrington / Leoku area’s local character as a “commercial center” dictates higher allowable building heights to promote economic development, employment and new housing growth.

Recommended maximum building heights in the Farrington / Mokuola Station Area are as follows:

- Building heights in the TOD Precinct should not exceed 60 feet.
- Building heights in the TIZ Precinct should not exceed 45 feet.
- Where a zoning lot adjoins a zoning lot in an R5 residential district, the residential district height yard shall be applicable at the buildable area boundary line of the adjoining side of the TIZ Precinct zoning lot.
- Within the Old Town Height Setback Area as shown on Figure 20, the top floor of buildings over two stories should be stepped back a minimum of 10 feet in order to lessen the building’s perceived height from the sidewalk.

Recommended maximum building heights in the Farrington / Leoku Station Area are as follows:

- Building heights in the TOD Precinct should not exceed 60 feet or up to 90 feet in exchange for a Community Benefits Bonus
- Building heights in the Farrington / Leoku TIZ Precinct should not exceed 60 feet.

## 8. COMMUNITY BENEFITS BONUS

The use of a Community Benefits Bonus is one of several development tools that can be used both to shape the growth and redevelopment in the Waipahu Station areas, and to realize community values and goals. In their most basic form, Community Benefits Bonuses are a means by which new development is authorized to exceed a baseline level of FAR and/or building height in exchange for providing support for community goals. A well-defined, but flexible Community Benefits Bonus program for transit-oriented development in Waipahu has the potential to provide both a more predictable, efficient and equitable process for development interests and more direct and meaningful benefits to the community. Comparative research shows that Community Benefits Bonus programs tend to follow accepted trends of growth within a community and thus higher FARs and building heights are not discouraged but leveraged. Another advantage that a Community Benefits Bonus offers is the ability to balance a mix of services that support growth and sustainable development.

The primary purpose of the Community Benefits Bonus should be to support community principles in both the Waipahu neighborhood as well as the City as a whole. The provision of affordable and workforce housing in Waipahu and the principle of Providing Mixed-Income Housing In the Station Areas is a very significant goal for the community, and therefore should be included as a baseline for participation in any Community Benefits Bonus program. A major principle of the Plan is to Enhance the Green Network. Public open space becomes increasingly important as more people begin to make the station areas their home. The Community Benefits Bonus could be used to provide for new open spaces for public use in both the Farrington / Mokuola and Farrington / Leoku station areas.

### **Zoning Recommendations**

- Will help to shape growth and redevelopment and realize community values and goals
- Provides a more efficient development process and benefits to the community

### Zoning Recommendations

- A Community Benefits Bonus system should be review and updated over time to meet the changing needs and wants of the community

Other community benefits that may be achieved through this program could include:

- Child and elder care facilities
- Pedestrian connectivity and streetscape improvements
- Encouraging green building, including LEED certification
- Historic preservation
- Space for non-profit organizations
- Public art
- Cultural facilities
- Sound mitigation

Bonus systems are widely accepted and are an integral part of many present day zoning and planning initiatives in urban locales throughout the U.S. If well prepared and managed, they offer the opportunity for a city to achieve desirable public benefits/amenities. A comprehensive bonus program that is clearly spelled-out in the LUO and provides for flexibility are understandable and easier to implement than those of a more complex nature that may be more subjective in character. Municipal staff can administer the more simplified “as-of-right” bonus benefits/amenities more expeditiously while more complex amenities require more extensive development review. As the community’s needs evolve over time, the bonus system should be reviewed and updated to meet the changing needs and wants of the community.

Individual cities have developed different versions of Community Benefits Bonuses, usually premised on a community’s specific priorities and needs.

- Miami offers incentives to encourage street level retail
- Anchorage provides incentives for climate-controlled courtyards
- Cincinnati gives incentives for historic preservation
- San Francisco offers zoning bonuses to encourage rooftop observatories
- Seattle allows downtown residential buildings higher than 8 stories if developers contribute to an affordable housing fund at a certain cost per additional square footage/height
- Austin is developing a model for a community benefits bonus as a “menu” system where developers earn additional sf for their building s by providing certain predefined community benefits including parks and open space and other urban amenities
- Tysons Corner has developed a basic matrix for community benefits as a way to achieve a livable, walkable community
- San Diego is currently in the final stages of approving new municipal codes with incentives relating to workforce / affordable housing, urban open space, and employment uses

Bonus incentive awards need to relate to the quality and value of the amenities desired and / or needed by a community or specific area. If the program becomes complex, the criteria for determining bonus awards may result in greater subjectivity, raising the level of expertise and time required to administer the program. This could also lead to increased likelihood that the awards will not be as equitable as initially envisioned.

Some benefits/amenities are simpler to quantify, value and administer than others. Many cities separating the administrative function based on level of review necessary in granting the bonuses. Bonuses for easily quantifiable amenities can be made available on an “as-of-right” basis and approved by zoning the administration without extensive site plan review. The key is that the proposed project demonstrates it will incorporate the bonused benefit/amenity and meet minimum design guidelines. For those benefits/amenities requiring consideration as part of complex design criteria, bonus incentive approvals will need to undergo more extensive site plan review.

## **Zoning Recommendations**

- **If a Community Benefits Bonus program becomes too complex, the criteria for determining the bonus awards may result in greater subjectivity, making it difficult to administer**

### Zoning Recommendations

- 20% of all housing above 29 units shall be affordable in the TOD Precinct
- Developers should receive higher densities and building heights for providing 25% affordable housing

#### 9. AFFORDABLE HOUSING RECOMMENDATIONS

In some places, such as the City of Denver, the policy for affordable housing [for-sale only, and at 80 percent Area Median Income (AMI)] is implemented through re-zoning of properties to allow residential uses. The policy in Denver regulates that 20 percent of the units above 29 units must be affordable. The City through its BluePrint Denver Master Plan, encourages re-zoning around most of the transit stops to a high density mixed use zone that was crafted for this. The enablers are: density increase, significant parking reduction, open space reduction, etc. It rather easy to rezone near transit, and rather difficult to rezone in an area that is not transit served. The City of Boulder policy requires all new residential development [for sale only] above 10 units to require 20 percent affordable housing. This “inclusive zoning” is city wide and does not address the “enablers”.

It is recommended that the the City and County of Honolulu develop the following affordable housing requirements in a TOD Special District:

- 20 percent of all housing [for sale and rental] above 29 units shall be affordable @ 80 percent of the areas AMI.
- As a community benefits bonus for developers who provide 25percent affordable housing [80 percent of the areas AMI] an increase of FAR from 2.5 to 3.5; and a increase in building height from 60’ to 90’ (in the Leoku TOD Special District)

These bonuses will provide flexibility within the TOD Special District. This recommendation will also encourage the smaller developer and landowner [1 acre and less] to redevelop their property around transit without the burden of providing the social equity [affordable housing], thus making these smaller, incremental infill feasible.

10. PARKING REQUIREMENTS

The Plan recommends reduction in the required number of off-street parking spaces in order to reflect the lower auto ownership in transit-oriented districts, as well as the destructive impact on urban quality from tremendous amounts of poorly placed surface parking. The parking requirement should also be reduced to encourage transit ridership, lessen urban runoff, reduce the cost of development and make more efficient use of the land.

Reducing required parking also helps to promote the Plan principle of Providing Mixed-Income Housing in the station areas. Reduced parking can lower overall construction costs, which in turn can result in improved financial performance of projects, more affordable housing, and promote higher intensity development.

Recommended parking requirements in the TOD precincts are consistent with parking requirements in the existing BMX-4 central business mixed-use district.

Recommended parking requirements in the TOD and TIZ precincts are based on type of use. Requirements for housing, office and retail uses are lowered, while industrial remain consistent with existing standards.

Use	Parking Requirement
Multi-Family Dwellings	1 per unit
Auditoriums	1 per 300 sf
Business Services	1 per 500 sf
Eating and Drinking Establishments	1 per 300 sf of dining area over 1,500 sf plus 1 per 400 sf of kitchen and other areas
Financial Institutions	1 per 600 sf over 4,000 sf
Hotels	1 per 4 units
Medical Clinics	1 per 600 sf over 4,000 sf
Medical Laboratories	1 per 600 sf over 4,000 sf
Meeting Facilities	1 per 300 sf
Offices, Other	1 per 600 sf over 4,000 sf
Personal Services	1 per 600 sf over 4,000 sf
Retail, Other	1 per 600 sf over 4,000 sf
Sales	1 per 1,200 sf

**Zoning  
Recommendations**

- Parking requirements should be reduced in both the TOD and TIZ Precincts
- TOD Precinct requirements are consistent with BMX-4 zone

### Zoning Recommendations

Required parking in the TOD Precincts:

Required parking in the TIZ Precincts:

Use	Parking Requirement
Multi-Family Dwellings	Plus 1 guest parking stall per 10 units
• Less than 800 sf	1 space
• Between 800 sf – 1,200 sf	1.5 spaces
• 1,200 sf and over	2 spaces
Commerce and Business	1 per 500 sf
Business Services	1 per 500 sf
Convenience Stores / Food and Grocery Stores	1 per 400 sf
Data Processing Facilities	1 per 800 sf
Eating and Drinking Establishments	1 per 300 sf
Shopping Center	1 per 400 sf
Dwellings, Detached, Duplex	2 per unit plus 1 per 1,000 sf over 2,500 sf
Hotels	1 per unit
Industrial	1 per 1,500 sf
Repair Establishments, Minor	1 per 500 sf
Wholesaling and Distribution	1 per 1,000 sf
Recreation Facilities	1 per 200 sf
Art Galleries, Museums and Libraries	1 per 400 sf
Auditoriums, Meeting Facilities and Theaters	1 per 75 sf of assembly area
Day-Care Facilities	1 for each 10 care recipients of design capacity
Schools: Elementary and Intermediate	1 for each 20 students of design capacity, plus 1 per 400 sf
Schools: High, Language, Vocational, Business, Technical and Trade	1 for each 10 students of design capacity, plus 1 per 400 sf of office floor space
Automobile Service Stations	3 per repair stall
Broadcasting Stations	1 per 400 sf

## Zoning Recommendations

- Maximum parking standards equal to 125% of the minimum requirement may be appropriate
- On-street parking should count as required guest parking for multi-family, retail and restaurant uses

### 11. MAXIMUM PARKING STANDARDS

Existing commercial properties have typically been developed with an abundance of surface parking. In order to promote quality transit-oriented development, maximum parking standards may be appropriate. Typically, maximum parking standards are equal to 125 percent of the minimum required amount, based on research from other communities.

### 12. ON-STREET PARKING

It is recommended that on-street parking in both the TOD and TIZ precincts be counted towards the required guest parking spaces for multi-family housing as well as the required off-street spaces for retail and restaurant uses. These spaces would be on both public and private streets and would be available for all uses in the area.

On-street parking is essential to creating main street retail environments and in promoting the Plan principle of Creating a Mixed-Use Village-Like Setting in the Core Areas. By providing on-street parking along public and private streets, the more intense TOD uses in the station areas will have less need for on-site structured and surface parking.

On-street parking also helps to promote the Plan principle of Creating a Safe, Pedestrian-First Environment by providing a buffer between the sidewalk and pedestrian realm and the auto travel lanes.

### 13. SHARED PARKING AND PARKING DISTRICTS

Shared parking is publicly and/or privately-owned parking that is used by two or more separate land uses without conflict. The success of shared parking depends on the specific uses on the site and the interaction of uses. In particular, shared parking works best when adjacent land uses have different peak activity periods (e.g., an office building and cinema) It is recommended that the Plan principle of Creating a Mixed-Use Village-Like Setting in the Core Areas be promoted through the use of shared parking.

District parking is the large-scale application of shared parking, and is usually implemented in urban commercial and retail areas using multiple common parking facilities. District parking can be particularly beneficial to new development, as it can reduce the marginal costs of new construction.

### Zoning Recommendations

- Shared parking should be promoted
- District parking could provide publicly or privately managed spaces for commuter park and ride use
- Bicycle parking areas should hold the equivalent of 10% of the required auto parking

District parking can also provide public or privately managed spaces for commuter park and ride use. Many districts allow developers to contribute cash in lieu of providing parking themselves. It is recommended that a parking district be coordinated in both the Farrington / Leoku and Farrington Mokuola TOD Precinct Areas.

#### 14. BICYCLE PARKING

In order to help to foster an Inter-modal Transportation Network, bicycle parking should be provided in secure areas for workers, shoppers and residents in the station areas. Bicycle parking should be located at the transit stations and may include bike storage facilities and lockers. It is recommended that new development in the TOD precincts provide bicycle parking areas holding the equivalent of 10 percent of the required auto parking.

#### 15. FRONT YARDS

Yards should foster an attractive pedestrian environment while relating directly to the principle of creating a Mixed-Use Village-Like Setting in the Core Areas. The recommended front yard standards proposed for the Waipahu TOD Special Districts are generally consistent with existing standards set forth in the BMX-3 mixed-use district.

Front yards in the station areas should foster a strong pedestrian-oriented character. The recommended minimum front yards in both the TOD and TIZ precincts is 10' for buildings with residential, office or industrial on the ground floor, and 5' for buildings with retail or service uses on the ground floor.

- New buildings should generally maintain a frontage with the building face adjacent and parallel to the front yard along streets and should address or open directly on to the sidewalk. Small variations in yards should be used to create small open spaces, delineate pedestrian pathways and to emphasize main building entries.
- Front yards for buildings with retail uses on the ground floor should include additional pedestrian space and seating areas. It is recommended that outdoor dining and cafes be allowed in both the TOD and TIZ precincts within the front yards in order to encourage an active, vibrant pedestrian environment. Retail uses on the ground floor should have a high degree of transparency with storefront windows along with recessed building entries and glass doors.

## **Zoning Recommendations**

### Recommended Side yards:

- 5' for detached dwelling units
- 10' for attached dwelling units

### Recommended Rear yards:

- 5' for detached dwelling units
- 10' for attached dwelling units
- 0' for all other uses

### Minimum Common Open Space for residential development:

- 35%, unless adjacent to a park or plaza

- Front yards for buildings with residential uses on the ground floor should include landscaping and entry walks along with porches and stoops within the yard. Small transparent fences should be allowed to help delineate public and private space within the front yards.
- Front yards for buildings with industrial uses on the ground floor should include landscaping along with ground floor windows along the front facades in order to avoid blank walls along the street.
- Buildings within the station areas should avoid blank walls facing streets or pedestrian pathways.
- To avoid the appearance of top-heavy buildings, new development should generally step back on upper levels and include large lanais with transparent railings for both residential and office uses.

### 16. SIDE YARDS

The recommended minimum side yard in both the TOD and TIZ precincts is 5' for detached dwelling units, 10' for multi-family dwellings and 0' for all other uses. When a side yard adjoins a residential, apartment or apartment mixed use district, there shall be a side yard which conforms to the yard requirements for dwelling use of the adjoining district.

### 17. REAR YARDS

The recommended minimum rear yard in both the TOD and TIZ precincts is 5' for detached dwelling units, 10' for multi-family dwellings and 0' for all other uses. It is recommended that properties within the Farrington / Mokuola TIZ precinct include significant landscaping buffers in the rear yard when directly adjacent to single-family homes. When a rear yard adjoins a residential, apartment or apartment mixed use district, there shall be a rear yard which conforms to the yard requirements for dwelling use of the adjoining district.

### **Zoning Recommendations**

- Unless directly adjacent to a park or transit plaza, it is recommended that new residential developments provide a minimum of 35 percent common open space on-site

#### 18. MINIMUM COMMON OPEN SPACE

The Plan proposes a series of new open spaces in both station areas. These open spaces are intended to reflect the principle of Enhancing the “Green Network.” Parks help to establish an identity and focus for new developments as well as providing an important resource for the surrounding community. Parks, plazas, and other public spaces should be sited and designed to be versatile, secure and easily maintained.

The predominant form of new open space proposed in the Plan is the “mini park”. Mini parks are generally smaller than existing larger neighborhood parks such as Honowai and Hans L’Orange Parks and should provide both passive recreational space with benches, landscaping and tables along with children’s play areas.

Unless directly adjacent to a park or transit plaza, it is recommended that new residential developments provide a minimum of 35 percent common open space on-site.

**Zoning  
Recommendations**

- Unless superseded by these recommendations, existing design guidelines included in the Waipahu Town Plan and Waipahu Livable Communities Initiative should act as the design guidelines for the Waipahu TOD Special Districts

**B. Design Guidelines**

The goal of design guidelines is to expedite the planning review process by clearly stating the City’s desires for quality design of transit-oriented developments. Guidelines should be specific enough to be able to guide development, and flexible enough to encourage creative design solutions. The existing design guidelines included in the Waipahu Town Plan and Waipahu Livable Communities Initiative should act as the design guidelines for the Waipahu TOD Special Districts, with the exception of the following recommended changes:

1. WAIPAHU TOWN PLAN

General Urban Design Principle (page 5-1):

***The scale and sense of Waipahu as a small town shall be preserved.***

This is consistent with the Waipahu TOD Plan’s principle for Maintaining the Local Character of the Place and the the recognition of the Farrington/Mokuola station area as “Old Town Waipahu.” This urban design principle, however, should be modified to support the Waipahu TOD Plan’s vision for the Farrington/Leoku station area as a “Commercial Center” with a higher intensity of uses and as the gateway to Waipahu.

Old Town Commercial Area (page 5-10):

***Buildings shall be limited to two or three floors in height in keeping with the area’s historic scale and to preserve views of existing mill structures.***

In order to encourage reinvestment in the area, maximum allowable heights in the Farrington/Mokuola TOD and TIZ Precincts that are within the Old Town Commercial Area should be 60’ (five stories) and 45’ (four stories), respectively, if height setbacks at the street are provided for structures exceeding three stories in height. In addition, the Preferred Plan in the Waipahu Town Plan should be revised to add the two parcels on the east side of Waipahu Depot Road between Hikimoe Street and Farrington Highway to the Old Town Commercial Area.

#### 2. WAIPAHU LIVABLE COMMUNITIES INITIATIVE

Waipahu Town Core (page III-9):

***Limit building heights to two stories in accordance with provisions of the LUO.***

In order to facilitate reinvestment in the area, maximum allowable heights in the Farrington/Mokuola TOD and TIZ Precincts that are within the Old Town Commercial Area (as defined in the Waipahu Town Plan) should be 60' (five stories) and 45' (four stories), respectively, if height setbacks at the street are provided for structures exceeding three stories in height.

#### 3. CENTRAL OAHU SUSTAINABLE COMMUNITIES PLAN

Medium Density Apartment Guideline (page 3-59):

***Building heights should not exceed 60 feet.***

This guideline should be modified to state that maximum allowable heights in the Farrington/Mokuola TOD and TIZ Precincts that are within the Old Town Commercial Area (as defined in the Waipahu Town Plan) should be 60' (five stories) and 45' (four stories), respectively. Within the Old Town Height Setback Area as shown on Figure 20, the top floor of buildings over two stories should be stepped back a minimum of ten feet in order to lessen the building's perceived height from the sidewalk. In the Farrington/Leoku TOD Precinct, building heights should not exceed 60 feet or up to 90 feet in exchange for a Community Benefit Bonus.

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# Phasing and Implementation Strategy

# Waipahu

## Neighborhood TOD Plan



**EXISTING CONDITIONS**



**PHASE I**

- **TRANSIT STATIONS / PLAZAS**



**PHASE 2**

- **LARGER PROPERTIES (GREATER THAN 1/2 ACRE) PRIMARILY OWNED BY SINGLE LANDOWNERS NEAR THE STATION**
- **CURRENTLY VACANT PROPERTIES**



**PHASE 3**

- **LARGER PROPERTIES (GREATER THAN 1/2 ACRE) ALONG FARRINGTON HIGHWAY**
- **PROPERTIES WITH BUILDINGS BUILT PRIMARILY BETWEEN 1959 - 1970**



**PHASE 4**

- **PROPERTIES ALONG FARRINGTON HIGHWAY FARTHER FROM THE STATION**
- **PROPERTIES WITH BUILDINGS BUILT PRIMARILY BETWEEN 1970 - 1980**



**PHASE 5**

- **RESIDENTIAL DEVELOPMENT ON PERIPHERY OF STATION AREAS**
- **FINAL PLAN BUILD-OUT**

## A. Phasing Strategy

The following describes private redevelopment scenarios and identifies and prioritizes infrastructure and other public improvement projects needed to support the Waipahu Neighborhood TOD Plan. This includes an overall phasing, order-of-magnitude cost estimates, and identification of responsible agencies, if known, for public improvements. The phasing is meant to show desired future scenarios and is not a directive towards private property owners.

### 1. PHASE ONE

Phase One focuses on the public development of the elevated transit system, including the transit structure in the median of Farrington Highway, the two transit stations at Farrington / Leoku and Farrington / Mokuola and possibly the transit plazas surrounding the stations. Phase One of the Plan could be realized without any private redevelopment before or at the time of the station construction. With transit arriving in Waipahu, residents will have a new way to get to and from Downtown Honolulu and the Kapolei areas. Construction of the transit system may have a negative short-term impact on some businesses in the area, while the long-term increased transit access should benefit businesses within walking distance of the stations. Bus transit routes are likely to change with the arrival of rail transit and auto circulation around the stations may also be modified.

Infrastructure and Public Improvements:

- Transit Plazas – Estimated at \$ 4,000,000 (The development of transit plazas are not included in the current rapid transit project.)
- Landscaping Improvements on Farrington Highway– Unknown Cost
- Optional - Farrington Highway Boulevard Configuration– Estimated at \$ 22,700,000
- TOTAL ESTIMATE: \$26,700,000 (not including transit stations)

### 2. PHASE TWO

Phase Two focuses on private redevelopment of larger properties within ¼ mile of the transit stations. As shown in other places, redevelopment will typically occur in areas closest to the amenity of transit first and then filter out to the periphery of the station area. Private redevelopment is most likely to occur on currently vacant properties, large properties (greater than ½ acre) and properties owned by more progressive developers. Phase Two also should include new flood control measures at Farrington / Mokuola Station in

## ***Phasing and Implementation Strategy***

- Phase One: development of transit system and stations
- Phase Two: private redevelopment of larger properties within 1/4 mile of the transit stations along with flood control measures

# Waipahu

## Neighborhood TOD Plan



**EXISTING CONDITIONS**



**PHASE 1**  
 • **TRANSIT STATIONS / PLAZAS**



**PHASE 2**  
 • **LARGER PROPERTIES (GREATER THAN 1/2 ACRE) PRIMARILY OWNED BY SINGLE LANDOWNERS NEAR THE STATION**  
 • **CURRENTLY VACANT PROPERTIES**



**PHASE 3**  
 • **LARGER PROPERTIES (GREATER THAN 1/2 ACRE) ALONG FARRINGTON HIGHWAY**  
 • **LEOLE "MAIN STREET"**  
 • **PROPERTIES WITH BUILDINGS BUILT PRIMARILY BETWEEN 1959 - 1970**



**PHASE 4**  
 • **PROPERTIES ALONG FARRINGTON HIGHWAY FARTHER FROM THE STATION**  
 • **PROPERTIES WITH BUILDINGS BUILT PRIMARILY BETWEEN 1970 - 1980**



**PHASE 5**  
 • **RESIDENTIAL DEVELOPMENT ON PERIPHERY OF STATION AREAS**  
 • **FINAL PLAN BUILDOUT**

FIGURE 22 - Farrington / Leoku Phasing Strategies - Looking Mauka

order to create a viable, safe zone for redevelopment.

With new private redevelopment should come the public development of a few new parks in both station areas. These public amenities will be important in creating a true mixed-use neighborhood. Restoration of Kapakahi Stream in the Mokuola Station area has the ability to create a new neighborhood amenity and gathering place for the community. Phase Two is likely to occur within five to ten years of the opening of the transit system.

#### Infrastructure and Public Improvements:

- Flood Control in Farrington / Mokuola Station area – Estimated at \$ 20,000,000 - Oahu RC&D)
- Approximately 2,400 linear feet of new streets in Farrington / Leoku station area (could be public or private) – Estimated at \$4,800,000 (not including possible property acquisition costs)
- Approximately 800 linear feet of new streets in Farrington / Mokuola station area (could be public or private) – Estimated at \$1,600,000 (not including possible property acquisition costs)
- Approximately 30,000 square feet of new parks in Farrington / Leoku station area (could be publicly or privately financed) – Estimated at \$ 1,400,000 (not including possible property acquisition costs)
- Approximately 45,000 square feet of new parks in Farrington / Mokuola station area (could be publicly or privately financed) – Estimated at \$ 1,800,000 (not including possible property acquisition costs)
- Pouhala Marsh and Kapakahi Stream restoration and walkway – Estimated at \$3,800,000 (Watershed Based Plan for Kapakahi Stream 2006) City & County of Honolulu / Hawaii Nature Center / Oahu RC&D / State of Hawaii
- TOTAL ESTIMATE: \$33,400,000

### 3. PHASE THREE

Phase Three focuses on private redevelopment of larger properties along Farrington Highway with the most commercial development potential. At the same time, properties in both station areas with buildings that were built primarily between 1959 and 1970 have potential for private redevelopment. At the time of Phase Three, these buildings may be between 55 – 60 years old, past their average lifespan. When buildings reach this point, property owners may wish to redevelop with a mixture of uses and at higher densities as allowed under the Waipahu TOD Special Districts.

With new private redevelopment should come the continued public development of parks and possibly new streets in both station areas. These public amenities will be important in creating a true mixed-use neighborhood. Phase Three is likely to occur within 10 to 15 years of the opening of the transit system.

## ***Phasing and Implementation Strategy***

- **Phase Three: private redevelopment of properties that were built primarily between 1959 - 1970**
- **Phase Four: private redevelopment of properties that were built primarily between 1970 - 1980**

### **Phasing and Implementation Strategy**

- Phase Four: private redevelopment of properties that were built primarily between 1970 - 1980

#### Infrastructure and Public Improvements:

- Approximately 6,500 linear feet of new streets in Farrington / Leoku station area (could be public or private) – Estimated at \$13,000,000 (not including possible property acquisition costs)
- Approximately 3,200 linear feet of new streets in Farrington / Mokuola station area (could be public or private) – Estimated at \$6,400,000 (not including possible property acquisition costs)
- Kahuamoku Street Bridge over Waipahu Flood Control Channel – Estimated at \$8,000,000
- Pupukupa Street Bridge over Drainage Channel – Estimated at \$8,000,000
- Approximately 50,000 square feet of new parks in Farrington / Leoku station area (could be publicly or privately financed) – Estimated at \$2,300,000 (not including possible property acquisition costs)
- Approximately 220,000 square feet of new parks in Farrington / Mokuola station area (could be publicly or privately financed) – Estimated at \$10,100,000 (not including possible property acquisition costs)
- Creek daylighting in front of Festival Marketplace (could be publicly or privately financed) – Estimated at \$500,000
- TOTAL ESTIMATE: \$48,300,000

#### 4. PHASE FOUR

Phase Four focuses on private redevelopment of larger properties along Farrington Highway further from the stations. At the same time, properties in both station areas with buildings that were built primarily between 1970 and 1980 have potential for private redevelopment. At the time of Phase Four, these buildings may be between 50 – 55 years old, past their average lifespan. At this point, property owners may desire to redevelop in order to take advantage of development opportunities within the TOD Special District. Phase Four is likely to occur within 15 to 20 years of the opening of the transit system.

#### Infrastructure and Public Improvements:

- Approximately 1,700 linear feet of new streets in Farrington / Leoku station area (could be public or private) – Estimated at \$3,400,000 (not including possible property acquisition costs)
- Approximately 1,000 linear feet of new streets in Farrington / Mokuola station area (could be public or private) Estimated at \$2,000,000 (not including possible property acquisition costs)
- Approximately 90,000 square feet of new parks in Farrington / Leoku station area (could be publicly or privately financed) – Estimated at \$4,100,000 (not including possible property acquisition costs)
- TOTAL ESTIMATE: \$9,500,000

## 5. PHASE FIVE

Phase Five focuses on private redevelopment of smaller properties along the periphery of station areas, within ½ mile of the transit stations. The influence of the transit stations themselves may be less pronounced in these areas, but redevelopment nearer to the stations may have a stimulating effect on properties further away. Areas close to Pearl Harbor may see a greater likelihood of redevelopment once the Pearl Harbor Historic Trail is improved. With the Harbor as an amenity, waterfront residential neighborhoods can become more viable and desirable.

Phase Five is likely to see the continued public development of new parks and streets in both station areas. The parks may be more neighborhood-serving in nature, and may be developed in context with new private residential development. Phase Five is likely to occur within 20 to 25 years of the opening of the transit system.

### Infrastructure and Public Improvements:

- Approximately 5,000 linear feet of new streets in Farrington / Leoku station area (could be public or private) – Estimated at \$10,000,000 (not including possible property acquisition costs)
- Approximately 3,600 linear feet of new streets in Farrington / Mokuola station area (could be public or private) – Estimated at \$7,200,000 (not including possible property acquisition costs)
- Approximately 50,000 square feet of new parks in Farrington / Leoku station area (could be publicly or privately financed) – Estimated at \$2,300,000 (not including possible property acquisition costs)
- Approximately 50,000 square feet of new parks in Farrington / Mokuola station area (could be publicly or privately financed) – Estimated at \$2,300,000 (not including possible property acquisition costs)
- TOTAL ESTIMATE: \$21,800,000

## ***Phasing and Implementation Strategy***

- **Phase Three: private redevelopment of properties that were built primarily between 1959 - 1970**
- **Phase Four: private redevelopment of properties that were built primarily between 1970 - 1980**
- **Phase Five: private redevelopment of properties on periphery of station area**

### **Phasing and Implementation Strategy**

- At full development, a net increase of about 1,180 jobs is anticipated within the Waipahu transit station areas
- The most frequently used tools by transit agencies to leverage TOD include density bonuses and relaxation of parking standards

## **B. Expected Employment**

The new retail and office jobs created in the station areas are expected to range from entry-level positions that require few skills and provide incomes of less than \$25,000 per year, to management and highly skilled professional jobs paying over \$100,000 per year. At full development, a net increase of about 1,180 jobs is anticipated within the Waipahu transit station areas.

## **C. Implementation Strategies**

TOD implementation starts with a vision, cultivated from broad-based public input, and proceeds to strategic station-area planning backed by appropriate zoning and regulations, as well as policy incentives. This section is a summarization of sections from a report by the Urban Land Institute (ULI) entitled: *Transit-Oriented Development in the United States: Experiences, Challenges, and Prospects* (2004). This report includes a survey of transit agencies, local planning agencies, developers and banks and lenders on what they see as the most productive tools and strategies for TOD implementation.

### 1. TRANSIT AGENCIES - SURVEY

The national survey of U.S. transit agencies revealed that, besides standard zoning, the most frequently used tools introduced to leverage TOD are funding for station area planning and ancillary capital improvements; the introduction of density bonuses, sometimes used to encourage the production of affordable housing units; and relaxation of parking standards. Next in the order of frequency of usage have been land-based tools like land purchases on the open market and assistance with land assemblage. For the most part, redevelopment agencies have applied these tools, meaning that their role in leveraging TOD has been mainly limited to economically depressed or blighted neighborhood settings. Because of the higher risk involved, redevelopment tools have often been accompanied by other funding sources, sometimes with a dozen or more participants involved in the process.

Implementation strategies that are procedural in nature, like expediting entitlement reviews and excluding TODs from concurrency requirements, have been applied less often in practice and are also viewed by public-sector interests as less effective than other measures in jump-starting TOD.

## 2. LOCAL PLANNING AGENCIES - SURVEY

In terms of what Metropolitan Planning Organizations (MPOs), state Department Transportation (DOT) offices, and the federal government might do to help implement TODs, respondents from the local levels stated loudly and clearly that what they need most is money—specifically for strategic station area planning, infrastructure, and on-the-ground improvements. Smart-growth legislation that targets state infrastructure and urban renewal grants to transit station areas (which currently exists in the state of Maryland) is also looked upon favorably by local interests. Regulations like concurrency requirements, on the other hand, generally received low grades among survey respondents from the local level.

## 3. DEVELOPERS - SURVEY

Ultimately, TOD is an outcome of one or more developers putting up their hard earned money, or the money of lenders and investors, to create a new form of urbanism around transit stations. To a large degree, interviews by the ULI reveal that developers have a positive view of TOD as a viable and growing market niche. When asked to rate the overall financial record of TOD, interviewed developers on average scored it as a 5 on a scale of 1 to 7, indicating that they think it performs better than most products.

Developers were especially optimistic about the prospects of TOD in areas where traffic congestion continues to worsen and there is a pro-TOD political sentiment. This certainly seems to apply to Waipahu, where rush hour traffic on the H-1 has reached almost continual gridlock. While there were substantial areas of agreement among developers who were interviewed, a number held conflicting views of certain elements of TOD. One example is parking. On the one hand, many developers relate to the idea that parking standards should be lowered to the degree that significant numbers of residents, shoppers, and workers ride transit. On the other hand, many have been reared on the principle that parking is an effective marketing tool and can sometimes make or break a project. Regardless, most favor leaving the decision of how much parking to provide to the private sector. Developers feel that they know the market best and will take advantage of cost savings when justified.

On balance, many developers feel that being near major transit stops is advantageous to the degree that it provides rent premiums. Some also feel that being close to transit can improve the ability to secure equity finance, particularly for certain product types in pioneering locations (e.g., office development in suburban locations).

### ***Phasing and Implementation Strategy***

- Funds for station area planning, infrastructure and on-the-ground improvements are most important to local planning agencies
- According to developers, TOD performs better than most products
- Proximity to transit can improve the ability to secure equity finance

### **Phasing and Implementation Strategy**

- Banks and lenders typically look at each project based on its individual merits
- Factors that enhance the connection of a parcel to a rail station are likely to make TODs more attractive to lending institutions

Most developers realize that more is needed than spatial proximity, however. Making sure that the walk between a project and a station portal is safe and reasonably attractive matters to many. Putting in complementary land uses, like convenience shops and service retailers, is particularly important to TOD homebuilders. Nonetheless, developers realize that regardless of what they think, access to funds is often dependent upon the views of lenders. While many developers embrace TOD as a concept, when it comes to securing conventional debt financing, there was a general agreement that TOD offers little help. Loan decisions, they noted, are governed by fundamentals, not urban-planning concepts. Interviewed lenders echoed this sentiment.

#### 4. BANKS AND LENDERS - SURVEY

Most of the interviewed lenders had difficulty pinpointing the positive and negative factors that influence whether they invest in a TOD because banks, they contend, look at each project based on its individual merits. Dealing with the innate market characteristics of TOD— notably, mixed-use projects with the advantage of being near transit—is generally viewed as the best way to market the TOD product to the lending community. Factors that enhance the connection of a parcel to a rail station— such as direct and attractive pathways, well-lighted and secure portals, and a strong degree of public commitment backed by infrastructure improvements like under grounding utilities and upgrading road access—are likely to make TODs all the more attractive to lending institutions.

Interviews suggest that joint development projects are more difficult to finance than neighborhood-scale TODs. This is partly due to guilt by association—the fact that a project is directly tied, symbolically and figuratively, to a transit facility seems to detract from its value. The bureaucratic component of joint development projects, involving government institutions that are not always driven by the profit motive, makes some lenders uneasy as well.

#### **D. Financing New Parks, Streets and Urban Infrastructure**

Tools for raising park and open space revenues at the local level are diverse and expanding. In some cases, unusual options, such as the local income tax and the cell phone tax, are being tapped. In other cases, traditional revenue sources, such as the sales and property tax, are being broadened. In Nevada, for example, the state legislature recently authorized Carson City to impose a quarter-cent “quality of life” sales tax for park development and maintenance and open space acquisition.

## *Phasing and Implementation Strategy*

- Local park financing often takes the form of a “pay-as-you-go, measure, long-term borrowing or a combination of both

Depending on the options available, the needs of the community and the tolerance of the electorate, local public financing often takes the form of a “pay-as-you-go” measure, long-term borrowing or a combination of the two. With the pay-as-you-go approach, government spends revenues from general appropriations or a dedicated funding source. This funding source, which can include property assessments, sales tax set-asides, real estate transfer taxes, and even one-time environmental fines and budget surpluses, can be attractive to debt-resistant voters and public officials. Pay-as-you-go means year-by-year accountability and no borrowing costs. It also means relatively small annual revenues (sometimes too small to pay for large capital projects) and funding that can be difficult to sustain as the politics and leadership of a community changes.

Borrowing presents its own set of opportunities and obstacles. On the opportunities side, it can provide a community with the revenue and flexibility it needs up-front to fund large-scale park and open space projects, the cost of which is less today than it will be tomorrow. Bonds are typically paid off over twenty years with low, tax-exempt interest rates. Financing charges are part of the package, however, and convincing voters of the merits of incurring debt can be challenging. General obligation bonds usually require voter approval -- sometimes by two-thirds of the electorate.

Often, the two techniques are combined by bonding pay-as-you-go funds in order to bring in more up-front cash. These revenue bonds, which are less often subject to voter approval requirements than general obligation bonds, can combine the most attractive elements of both methods.

Many taxing tools are increasingly being supplemented with non-tax sources such as user fees and impact fees, as well as different types of special taxing districts. With these techniques, the level of service can be increased according to special needs or the willingness or ability of park users to pay.

### **E. Common TOD Financing Tools**

Successful TOD can only be achieved if supported by public policies and tools that channel development to transit station areas and encourage redevelopment and reuse of land for activities that generate pedestrian activity. Public investments in a transit area, particularly in underserved areas, send a signal to the private sector that the area has development potential and improves the physical and economic attractiveness of the area for private investment.

### **Phasing and Implementation Strategy**

- Public policies and tools need to channel development to transit stations
- Funding mechanisms commonly used for shared parking include bond financing and tax financing

A number of public incentives exist for encouraging development and redevelopment near transit. These include sharing infrastructure development costs, providing for brownfield remediation, and adopting District Improvement Financing (DIF) and Tax Incentive Financing (TIF) districts. The public sector can also market tools such as location efficient mortgages for people buying homes near transit. Many of these tools innovatively pool public resources for the purpose of funding projects that benefit communities. The following are a list of some of these possible incentives.

#### 1. FUNDING MECHANISMS FOR SHARED PARKING FACILITIES

Shared parking is publicly and/or privately-owned parking that is used by two or more separate land uses without conflict. Shared or district parking is an important element of the Waipahu Neighborhood TOD Plan and has the added benefit of potentially providing public or privately managed spaces for commuter park and ride use.

Funding mechanisms commonly used for shared parking facilities include:

- Bond Financing
  - Municipal Backing
  - No Backing
  - Institutional / Corporate Backing
  - Payment in lieu of taxes Backing
- Tax Financing
  - Additional Assessments on Private Property
  - Payment from Municipal Tax Revenues
- Other
  - Payment in lieu of parking
  - Hybrids – Bonds / Cash / Rents
  - Developer Incentives – Include public parking in private decks in exchange for lower overall parking requirement
  - Urban Enterprise Zone – Special Improvement District
  - Redevelopment Area Bond Redevelopment Area District

2. TAX INCREMENT FINANCING

Tax increment financing (TIF) “captures” the additional property taxes generated by private development projects to finance the up-front public development costs. These funds could provide the necessary amenities to help spur development in targeted locations.

3. COMMUNITY FACILITIES DISTRICT

Community Facilities Districts (CFD) are formed to finance the construction, reconstruction or acquisition of certain designated capital facilities (infrastructure) and/or to finance public services by levying special taxes which appear on the property tax bill of the parcels included in the CFD.

4. DISTRICT IMPROVEMENT FINANCING

District Improvement Financing (DIF) is an economic development tool that can provide towns and cities with a means to fund needed infrastructure improvements to attract business growth and/or housing development. A DIF allows a municipality to fund capital improvements using bond financing. The bonds are financed by the future real estate tax increases for an entire district. Choosing to commit to the DIF financing is a local decision. This mechanism does not create a new tax; rather, it is a way to direct and possibly accelerate the natural growth in real estate taxes from the development in a designated area to the payment for needed infrastructure.

### ***Phasing and Implementation Strategy***

#### 5. LOCATION EFFICIENT MORTGAGES

A Location Efficient Mortgage (LEM) is a new type of mortgage that rewards households with lower transportation expenses by allowing them to qualify for larger loan amounts. LEMs enable more households to purchase a home while giving incentives to live in areas that are well-served by transit. Enabling this program would allow a wider range of people to live in transit-supported neighborhoods, potentially increasing transit ridership.

#### 6. TAX ABATEMENT

Tax Abatement programs encourage new TOD development by forgiving the property tax payments for a period of time. Extending this program to designated areas around transit station areas, could foster housing development in these areas.

## F. Implementing Agencies

The following tables outline the implementation options described in the Plan and identify the City agencies that should be responsible for moving forward with the important public improvements.

Project Recommendation/ Implementation Options	Partnering Agencies							
	BWS	BFS	DDC	DFM	DPR	DPP	DTS	ENV
	● = Lead agency ○ = Supporting agency							
<b>MOKUOLA AREA FLOOD CONTROL</b>								
Fund and initiate studies to remove portions of Waipahu from the Floodway District. <b>Options:</b> <ul style="list-style-type: none"> <li>Extend a portion of the Waikele Stream concrete channel makai to the mangrove.</li> <li>Connect Kapakahi and Waikele Streams.</li> <li>Improve the flow of Kapakahi Stream by widening the drainage box under Farrington Highway in conjunction with daylighting a portion of Kapakahi Stream fronting the Waipahu Festival Marketplace.</li> </ul>			●	○		○		○
<b>WATER IMPROVEMENTS</b>								
Desalination facility adjacent to the Campbell Business Park as a new source of potable water.	●							
Mokuola Station Area: <ul style="list-style-type: none"> <li>Additional water source requirement of 0.50 MGD (implementation in two years or less).</li> <li>Additional water storage requirement of 0.75 MGD (no current plans for additional reservoir).</li> </ul>	●							
Leoku Station Area: <ul style="list-style-type: none"> <li>Additional water source requirement of 1.25 MGD (implementation in two years or less).</li> <li>Additional water storage requirement of 1.90 MGD (no current plans for additional reservoir).</li> </ul>	●							
<b>WASTEWATER IMPROVEMENTS</b>								
Major renovation of the Waipahu Pumping Station and an additional force main or replacement force main to convey sewage from the Pumping Station to the Honouliuli Wastewater Treatment Plant.			○					●
Upgrades to the Kunia Pumping Station (hardware modifications) to provide additional pumping capacity.			○					●
Need for relief gravity sewer from the Leoku Station area to the Kunia Pumping Station.			○					●

*FIGURE 23 - Implementing Agencies : Mokuola Flood Control, Water Improvements and Wastewater Improvements*

## Phasing and Implementation Strategy

Project Recommendation/ Implementation Options	Partnering Agencies							
	BWS	BFS	DDC	DFM	DPR	DPP	DTS	ENV
	● = Lead agency ○ = Supporting agency							
<b>STREETS AND CIRCULATION</b>								
New frontage roads (urban boulevards) along Farrington Highway within two blocks of the transit stations (one block in either direction). <b>Options:</b> <ul style="list-style-type: none"> <li>State Department of Transportation (supporting agency).</li> <li>Road widening setback.</li> <li>Non-buildable easement.</li> <li>City acquisition of land.</li> </ul>			○	○		○	●	
Create new local streets to improve connectivity and circulation. <b>Options:</b> <ul style="list-style-type: none"> <li>Non-buildable easement.</li> <li>City acquisition of land.</li> <li>Incentives for private assembly of land and construction.</li> </ul>			○	○		●	○	
Upgrade or construct bicycle and pedestrian paths in the TOD Special Districts: <ul style="list-style-type: none"> <li>On streets that connect directly to the transit stations.</li> <li>Between the Mokuola touchdown and the Hikimoe Street bus transit center.</li> <li>Off-street bicycle paths along stream corridors and the Pearl Harbor Historic Trail.</li> </ul> <b>Options:</b> <ul style="list-style-type: none"> <li>Construct on private land.</li> <li>Construct in the public right-of-way.</li> </ul>			○	○			●	
New congregate, off-site parking in both the Leoku and Mokuola TOD Special Districts. <b>Options:</b> <ul style="list-style-type: none"> <li>Parking Improvement District, similar to Kaimuki, Kailua, and Downtown.</li> <li>Private assembly of land and construction.</li> </ul>		○	○	○			●	
Diagonal parking to activate the Main Street concept on Leole Street, from Leonui Street to Leokane Street (three blocks). <b>Options:</b> <ul style="list-style-type: none"> <li>Add to existing right-of-way to create 60-foot widths.</li> <li>Accommodate in front yards on private properties.</li> </ul>		○	●			●	○	
Count on-street parking in the TOD Special Districts on both public and private streets toward satisfying Land Use Ordinance (LUO) requirements. <b>Options:</b> <ul style="list-style-type: none"> <li>Meter stalls to discourage long-term parking.</li> </ul>		○				●		

FIGURE 24 - Implementing Agencies : Streets and Circulation

## Phasing and Implementation Strategy

Project Recommendation/ Implementation Options	Partnering Agencies							
	BWS	BFS	DDC	DFM	DPR	DPP	DTS	ENV
	● = Lead agency ○ = Supporting agency							
<b>PARKS AND OPEN SPACE</b>								
New “mini parks,” smaller than existing neighborhood parks, would provide passive recreational space with benches, landscaping and tables, as well as children’s play areas. Parks would have a minimum dimension of 100’ in each direction in order to provide a functional community open space. <b>Options:</b> • City acquires land. • Private sector develops as a Community Benefit Bonus.			●	○	●	○		
Redevelop the existing canal between Leokane and Leoleo Streets as a natural greenway/bikepath by providing additional width and intermediate benches to accommodate a variety of flows.			●	○	●		●	○
<b>GATEWAY AND PLACE-MAKING FEATURES</b>								
Create a Gateway feature near the Leoku transit station. <b>Options:</b> • Mayor’s Office of Culture and Arts (supporting agency). • Use the transit project’s public art fund.			●	○				
Create a Waterfront Park at the makai terminus of Leoleo Street. <b>Options:</b> • City acquires land. • Private sector develops as a Community Benefit Bonus.			●	○	●	○		
<b>FRONT YARD AND SIDEWALK</b>								
Accommodate outdoor dining and pedestrian amenities in the public sidewalk area.				○		●		
<b>AFFORDABLE HOUSING</b>								
Maintain or increase the quantity of affordable housing in the station areas. <b>Options:</b> • City Department of Community Services (supporting agency). • Mandatory affordable housing for developments in TOD Special Districts. • Use of a Community Benefits Bonus as a means by which new development is allowed to exceed a baseline level of Floor Area Ratio (FAR) and/or building height in exchange for providing support for community goals, such as affordable housing. • Provide loans and grant incentives.		●				●	●	

*FIGURE 25 - Implementing Agencies : Parks and Open Space, Gateway and Place-Making Features, Front Yard and Sidewalk and Affordable Housing*

### **Phasing and Implementation Strategy**

#### **FINANCING ISSUES – BFS (Lead Agency)**

Consider public incentives as a means for implementing the above recommendations and for encouraging development and redevelopment in the TOD Special Districts:

- Tax increment financing
- Community facilities districts
- District improvement financing
- Parking improvement districts
- Business improvement districts
- Real property tax “rollback”
- Real property tax abatement or holiday
- State aid:
  - County revolving loan fund for infrastructure
  - Grants for TOD
  - Third party review grants
  - Accelerated depreciation for TOD projects
- Allow revenues from parking meters to be earmarked for streetscape improvements in Waipahu only
- Expand the boundaries of the existing Waipahu Enterprise Zone (old Oahu Sugar mill site).

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# Appendices

**TRANSIT-ORIENTED DEVELOPMENT, WAIPAHU:  
OVERVIEW OF MARKET ANALYSIS AND ECONOMIC IMPACTS**

Decision Analysts Hawai'i, Inc.  
June 2008

**1. LOCATIONAL AND OTHER ADVANTAGES FOR DEVELOPMENT IN WAIPAHU**

**a. Central Location and Access to Other Communities**

- Waipahu is centrally located within the urbanized portion of O'ahu (i.e., East Honolulu to 'Ewa and Central O'ahu).
- Waipahu businesses and residents have good access to Honolulu, 'Ewa, Central O'ahu and Windward O'ahu via H-1, H-2, H-3, Farrington Hwy, Kamehameha Hwy, Fort Weaver Rd, and Kunia Rd.
- The transit system will improve access to communities between the City of Kapolei and downtown Honolulu, and to Honolulu International Airport.
- Waipahu is an excellent location for:
  - Residents who work in Waipahu and who commute to jobs in 'Ewa, Honolulu, and other urban areas in Central O'ahu.
  - Students who commute to UH West O'ahu, Leeward Community College, and other schools.
  - Companies that serve Waipahu and surrounding communities (e.g., vehicle sales and servicing).
  - Light-industry serving island-wide markets (e.g., construction, manufacturing, and warehousing companies at Mill Town Center and the industrial areas below Farrington Hwy).

**b. Low Value of Existing Buildings**

- Most of the buildings along Farrington Hwy are good candidates for replacement, since most occupy only a fraction of their lots, are one-story, and currently are nearly 20 years old or older.

**c. Other Advantages for Development Near the Leoku Station**

- Bus service to the station will draw commuters from Royal Kunia, Village Park, West Loch Estates, 'Ewa Villages, 'Ewa Gentry, Ocean Pointe, 'Ewa Beach, and Iroquois Point. These commuters will also become potential customers for businesses near the station.
- Three organizations own most of the land near the station and fronting Farrington Hwy, and lots are relatively large. This will simplify the effort to assemble land for development.

- The proposed station is near St. Francis Medical Center – West, making Leoku an attractive location for doctors who desire a location near a major medical facility.

**d. Other Advantages for Development Near the Mokuola Station**

- Bus service to the station will draw commuters from Waikele and Waipi'o Gentry. These commuters will also become potential customers for businesses near the station.
- About 40% of the land near the station and fronting Farrington Hwy is owned by a few organizations, and lots are relatively large. This will simplify the effort to assemble land for development.

**2. ANTICIPATED DEVELOPMENT**

**a. Assumptions**

- Anticipated development near the two transit stations in Waipahu is based on the amount of building space within the community defined "areas of change" (blocks shown in color on the Refined Station Area Alternative Plans, January 2008). These "areas of change" are mostly within a 1/4-mile radius of the transit station, although some are within a 1/2-mile radius. Estimated building space is based on average floor area ratio (FAR), which is the ratio of the total floor area of a building to the land area. For the Leoku and Mokuola Stations, the assumed FARs are 1.32 and 1.04, respectively.
- It is further assumed that, at full development, about 57% and 69% of the space at the Leoku and Mokuola stations, respectively, will be used for homes, while the remainder will be used for commercial and industrial space.
- For the Leoku Station, the assumed split between commercial and industrial at full build-out is about 75% and 25%, respectively. The current split is about 51% commercial and 49% industrial.

<b>b. Homes (number)</b>	<u>Leoku</u>	<u>Mokuola</u>	<u>Total</u>
Anticipated	3,240	2,060	5,300
Less Existing	<u>- 220</u>	<u>- 540</u>	<u>- 760</u>
Increase	3,020	1,520	4,540
<b>c. Commercial/Industrial Space (million sq. ft.)</b>			
Anticipated	3.415	0.971	4.386
Less Existing	<u>- 3.366</u>	<u>- 0.971</u>	<u>- 4.337</u>
Increase	0.049	-	0.049
Commercial (retail and office)			0.666
Industrial			- 0.617

**d. Comments**

- As noted, the amount of commercial and industrial space at the two Waipahu stations will increase by an estimated 49,000 sq. ft. Most new businesses in the area will serve area residents and commuters. Existing industrial activities serve island-wide markets.
- Since some of the existing industrial space will be developed for mixed-use residential/commercial buildings, the amount of commercial space is expected to increase by about 666,000 sq. ft., while the amount of industrial space will decrease by about 617,000 sq. ft. For comparison, Waikale has 748,000 sq. ft.

**3. ABSORPTION RATES**

**a. Homes**

- Development of the new homes near the two Waipahu transit stations over a 20-year period would require absorption at about 227 new homes per year (4,540 new homes ÷ 20 years).
- Assuming that about 10 transit stations will have major residential components, and that they will have similar absorption rates, then about 1,135 new homes will be built annually near transit stations over a 20-year period (10 x 227/2).
- This amounts to about 28% of the 4,000 or so new homes projected annually for O'ahu for the 2010-to-2030 period. This percentage rate is consistent with that experienced for mainland communities that have new transit systems.

**b. Commercial Space**

- Development of the new commercial space near the two Waipahu transit stations over a 20-year period would require absorption at about 33,000 sq. ft. per year (666,000 sq. ft. ÷ 20 years), which is reasonable

**4. CHARACTERISTICS OF RESIDENTIAL REDEVELOPMENT**

**a. Resale Home Prices, Waipahu (9/06 to 8/07)**

	<u>Low</u>	<u>Median</u>	<u>High</u>
• Single-family (SF) Homes	\$425,000	\$619,000	\$860,000
• Multi-family (MF) Homes	\$118,500	\$183,000	\$230,000

• Waipahu's median SF home price is competitive with median prices in nearby communities, but the median MF home price is significantly lower:

	<u>SF Price</u>	<u>MF Price</u>
— 'Ewa	\$524,000	\$320,500
— Mililani	\$655,000	\$300,000
— Pearl City/Aiea	\$649,888	\$309,000

**b. Existing and Anticipated Types of New MF Homes**

- Waipahu's low MF home prices reflect the fact that most MF homes are small and fairly old (2 bedrooms and 1 bath of 580 to 710 sq. ft., and built in the 1960s).
- The new homes near the Waipahu transit station are expected to offer a wider choice of sizes, amenities, and prices than is currently the case for Waipahu's MF homes.
  - Homes are likely to range from small studio apartments for singles to 3 bedroom/2 bath MF homes for larger families.
  - Prices and rents are expected to range from affordable to luxury levels.

**c. Anticipated Prices of New MF Homes Near Waipahu Transit Stations (2007 prices)**

	<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.	\$310,000	\$340,000	\$390,000
• 3 bedrooms, 2 baths, 1,100 sq. ft.	\$350,000	\$380,000	\$430,000

• These prices are higher than existing MF home prices in Waipahu, largely because the homes would be new and many of them would be larger. However, the prices are consistent with new MF homes in nearby communities.

- 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 which are not near the stations.
- At the same time, building costs and prices of homes 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. The new households are expected to include:

- College-age students (singles, roommates, couples)
- Young couples, with and without children
- Established families, with and without children
- Retirees (singles and couples)
- Families at various income levels (low, moderate, high, etc.)
- Families with various types of workers (entry level, unskilled laborers, skilled laborers, administrators, managers, professionals, etc.)

**e. Affordability Benefit 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 the resulting savings in transportation costs can be applied to servicing a mortgage or paying rent on a home that may be larger and have more amenities than they would otherwise be able to afford.

**f. City Affordability Requirements**

- 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 another 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.
- If zoning changes are required for the anticipated development of 5,300 homes near the Waipahu transit stations, then the mix of homes would be as follows:
  - 530 homes (10%) affordable to families earning 80% or less of median income
  - 1,060 homes (20%) affordable to families earning 81% to 120% of median income
  - 3,710 homes (70%) sold or rented at market prices
- The majority of the 760 homes that would be replaced by new development near the Waipahu transit stations are probably priced at levels affordable to families earning 80% or less of median income. Thus, there could be a net decrease of 230 homes affordable at this level (530 new affordable homes minus 760 existing affordable homes). At a regional level, this decrease could be made up by developers of new projects in 'Ewa and Central O'ahu who will be required to supply a portion of their homes at affordable prices.

**g. HUD Affordable Guidelines, Honolulu, 2007**

	Percentage of Median Family Income, City and County of Honolulu		
	80%	100%	120%
• Income for:			
— Family of 2	\$47,700	\$58,800	\$70,560
— Family of 3	\$53,650	\$66,150	\$79,380
— Family of 4	\$59,600	\$73,500	\$88,200
— Family of 5	\$64,350	\$79,380	\$95,260
• Sale price of home for:			
— Family of 2	\$232,600	\$286,700	\$344,100
— Family of 3	\$261,600	\$322,600	\$387,100
— Family of 4	\$290,600	\$358,400	\$430,100
— Family of 5	\$313,800	\$387,100	\$464,500
• Monthly rent (including utilities) for:			
— 1-bedroom unit, family of 2	\$894	\$1,102	\$1,322
— 2-bedroom unit, family of 3	\$1,207	\$1,488	\$1,786
— 2-bedroom unit, family of 4	\$1,341	\$1,653	\$1,984
— 3-bedroom unit, family of 5	\$1,673	\$2,064	\$2,476

**h. Units Affordable for Low-Income Families**

- For low-income families (i.e., below 80% of median income), government assistance may be required to help families afford housing near the transit stations, or to provide affordable housing for 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 two Waipahu stations will increase. Inasmuch as the prices for existing homes generally will be lower than the prices of new homes, some renters and buyers new to the community may want to buy or rent existing homes. In turn, this higher demand could result in the rents and prices of existing homes being bid up to somewhat higher levels. Also, some

property owners may upgrade their units to increase their appeal to new renters and buyers, and new owners may make similar home improvements. In the process, some existing renters could be displaced if they cannot pay the higher prices, and some existing 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.

- Owners of existing homes that increase in value due to their proximity to the transit stations will realize corresponding increases in family wealth. These increases in value will far exceed the present value of the additional property taxes on the homes. If homeowners choose to sell their property, they will have more equity which can then be used for a down payment on a home elsewhere. Under the circumstances, it can be presumed that these homeowners will be better off 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 built near the transit stations for those projects that require a change in zoning. As mentioned above, about 10% of the units will have to be affordable for families earning 80% or less of median income, while another 20% will have to be affordable for families earning 81% to 120% of median income. In addition, over 50,000 homes are planned for Ewa and Central O'ahu, of which 15,000 homes (30%) will have to be priced to meet affordability requirements.

**j. Upscale Homes**

- For the most part, development of expensive upscale homes (costing nearly \$1 million or more) near the Waipahu transit stations, or redevelopment of existing homes to upscale homes, is not expected. Instead, upscale homes will be built in nearby Ocean Pointe, Kapolei West, Makaiwa Hills, and Ko 'Olina. These projects will offer large homes with high-quality features, ocean or golf-course views, an assortment of recreational amenities, and good access to fine restaurants and shopping centers. With minor exceptions, Waipahu residential projects would not be competitive in this upscale market.
- The exceptions are new homes in Waipahu that would feature (1) a *makai* location; (2) commanding views of Pearl Harbor, its wetlands, improved streams, or the Makalena Golf Course; (3) convenient access to the Pearl Harbor Historic Trail; (4) large units; and (5) high-quality features (appliances, fixtures, cabinets, counter-tops, flooring, etc.). Such homes could be sold or rented at prices significantly higher than the prices shown in Section 4.c.

**5. PARTIAL RELOCATION OF INDUSTRIAL ACTIVITIES, LEOKU STATION**

**a. Activities to be Relocated**

- The industrial area makai of Leonui Street covers over 50 acres and hosts over 1.8 million sq. ft. of industrial space. Some of the industrial activities along Leoku Street 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 smells, 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	0.617	million sq. ft.
• Land (at about 50% FAR)	35	acres

**c. Available Land in Existing and Planned Industrial Parks**

• Ewa Industrial Park (Ewa)	40	acres
• Gentry, Honouliuli (Ewa)	42	
• Harborside Center (West Kapolei)	251	
• Ho'opili (East Kapolei)	46	
• Irongate (West Kapolei)	66	
• JCIP (West Kapolei)	150	
• Kapolei Business Park (West Kapolei)	120	
• Mill Town Center (Waipahu)	15	
• Royal Kunia (Kunia)	123	
• Waiawa Ridge, Phase I (Waiawa)	16	
• West Kalaeloa Business Park (West Kapolei)	100	
• Total	969	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.

## 6. PROSPECTS FOR OTHER REDEVELOPMENT

### a. Leoku Station

- Along Farrington Highway
  - For the most part, no major difficulties are foreseen for market-driven redevelopment along both sides of Farrington Highway from low-intensity commercial to higher-intensity mixed-use commercial/residential. As mentioned in Section 1, many of the buildings are good candidates for replacement, since they occupy only fractions of their lots, are one story, and currently are nearly 20 years old or older. Also, only three organizations own most of the subject land, and lots are relatively large. This will simplify the effort to assemble land for development.
- *Mauka* of Waipahu Town Center
  - In the near term, existing medium-density residential projects are likely to be upgraded.
  - New roads will require eventual removal of two older apartment buildings.

### b. Mokuola Station

- Along Farrington Highway
  - For the larger parcels along both sides of Farrington Highway, no major difficulties are foreseen for market-driven redevelopment from low-intensity commercial to higher-intensity mixed-use commercial/residential, provided that flooding problems are addressed. As mentioned in Section 1, many of the buildings are good candidates for replacement, since they occupy only fractions of their lots, are one story, and currently are nearly 20 years old or older. Also, about 40% of the subject land is owned by a few organizations, and lots are relatively large. This will simplify the effort to assemble land for development.
  - Redevelopment of smaller properties may require joint development or consolidation of some parcels into larger ones, and considerable time for some properties.
- *Mauka* Areas
  - Redevelopment from low-density commercial and low- to medium-density residential to mixed-use commercial/residential and high-density residential may require joint development or consolidation of some parcels into larger ones, and considerable time for some properties.

- *Makai* Areas

- Redevelopment from apartments and industrial to mixed-use commercial/residential, high-density housing, parks, and new roads may require joint development or consolidation of some parcels into larger ones, and considerable time for some properties.

## 7. ECONOMIC BENEFITS AND IMPACTS, WAIPAHU

### a. Employment

- At full development, about 1,180 additional jobs could be provided near the Waipahu transit stations, including:
  - About 1,730 additional retail and office jobs (based on 2.6 jobs per 1,000 sq. ft. of commercial space).
  - Less the loss of about 550 industrial jobs (based on 0.9 job per 1,000 sq. ft. of industrial space).
- The new retail and office jobs are expected to range from entry-level positions that require few skills and provide incomes of less than \$25,000 per year, to management and highly skilled professional jobs paying over \$100,000 per year.

### b. Transportation

- For Waipahu residents, transportation benefits of the transit system will include:
  - Better access to jobs in communities along the transit line.
  - Faster rush-hour commutes.
  - Increased mobility for residents who may not drive or have access to a vehicle.
  - Reduced expenditures on transportation for families who can reduce vehicle ownership and/or use.
  - Reduced energy consumption for transportation.

### c. Housing

- Housing benefits and impacts will include:
  - An increased choice of MF homes in Waipahu beyond the fairly old and small 2-bedroom, 1-bath units that comprise most of the current market.
  - Higher housing values and rents near the transit stations, and related gentrification (see Section 4.h).

- 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.

**d. Commercial and Industrial**

- Benefits of commercial development near the transit stations will include a broader choice of goods, restaurants and services in Waipahu, including:
  - Convenience and specialty stores catering to area residents and commuters.
  - Fast food, ethnic, gourmet, and other restaurants.
  - Specialized medical doctors, dentists, veterinarian, accountants, attorneys, personal-service providers, etc.
- Other economic benefits and impacts will include:
  - Increased sales for stores and restaurants catering to area residents and commuters.
  - Higher rents in response to higher sales, and increased demand for commercial and industrial space.
  - The relocation of about 617,000 sq. ft. of industrial space from Waipahu to nearby industrial parks.

**e. Fiscal**

- TOD will affect the location of residential, commercial and industrial development, but will not significantly affect the amount of development on O'ahu. 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 to support TOD will depend on the circumstances.
  - If developers provide or pay for their fair share of infrastructure 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 will be higher than it would be to support development in 'Ewa and Central O'ahu.
- 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 and the property values will be 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 rent, 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 significantly affected 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 TOD allows reduced expenditures on police and fire services, and on maintenance of 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.

# **Transportation and Circulation Analysis**

Technical Memorandum

## **Waipahu Neighborhood TOD Plan**

June 27, 2008

Prepared by

Weslin Consulting Services, Inc.

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## I. Introduction

The proposed Waipahu Neighborhood Transit-Oriented Development (TOD) Plan includes land use and transportation modifications. This technical memorandum provides a transportation and circulation analysis of those modifications in the vicinity of two proposed fixed guideway stations located in the Waipahu neighborhood area. Both stations are along Farrington Highway.

One of the two Waipahu stations is an aerial structure on Farrington Highway just west of the intersection with Mokuola Street and is referred to as the "Mokuola Station". The other is an aerial structure just west of the Farrington intersection with Leoku Street and is referred to as the "Leoku Station".

This technical memorandum identifies innovative transportation elements associated with TODs, how those elements apply to the Waipahu Neighborhood TOD Plan and what further analysis is needed. This analysis primarily addresses the transportation infrastructure and services within one quarter mile of the two Waipahu stations.

## II. Station Area Access Planning

The right type of transportation planning can be successful in developing the best mix of access modes at each station and strengthen the ability to achieve the objectives of TOD. Such intensive transportation and TOD planning often invokes its own unique vocabulary. This section defines planning terminology and presents effective station area planning procedures to enhance the communication of what is intended by various terms.

### II.1. Terms and Definitions

Station area access and egress refers to the use of access modes to get to and from a station. Alternative access and egress modes include those other than the traditionally dominant access modes. The traditionally dominant modes are walk, bus and drive.

One of the objectives of this technical memorandum is to develop an understanding that the best outcomes for Waipahu are based on setting desirable and achievable policy based modal share access targets for each station. These targets become the basis for future land use and infrastructure investments. The targets are based on established trip generation and traffic analysis procedures with adjustments to

recognize the ability of TOD to positively influence travel behavior as sometimes best described using unfamiliar terms such as trip chaining. Such terms are defined in Appendix A. Appendix B provides examples of how these terms have been applied elsewhere to achieve specified modal share targets. The traffic impacts associated with Waipahu TOD developments are estimated assuming the same terms, definitions and practices are used.

### II.2. Station Area Transportation Planning

Station area planning should be a pre-requisite to developing and approving a Transit Oriented Development (TOD). Many mature rail systems in metropolitan areas such as San Francisco, Los Angeles, Atlanta, Boston and Washington, DC are actively rethinking how certain existing and future rail stations should function. They are in the process of taking advantage of keen developer interest in TODs consistent with the enhanced ability for people to use alternative modes to access the station. Those systems have sufficient historical data and operational experience to understand how to blend TOD potential with increased non-TOD related access to the station.

San Francisco has developed a recent series of reports, plans, guidelines, standards and studies related to station area planning such as:<sup>1</sup>

- MTC Transit Connectivity Report, January 2005 -- identifies connectivity features, priority connection locations and best practices.
- BART Station Access Guidelines, October 2003 -- provides principles for guiding wayfinding, walking paths, bicycle access and storage and "Last Mile" connections accommodating taxis, shuttles and car sharing.
- BART Station Access Plans 2002-2004 -- provide existing conditions, a community outreach process, access mode evaluations, mode share targets and a matrix of recommended access improvements needed to achieve those targets.

BART is developing station access plans as a policy initiative in response to peak period access constraints. "A key goal of the Plans is to ensure that access planning for BART stations will both consider and guide other capital investments, such as those promoting station area development."<sup>2</sup> Other transit agencies are going through this

<sup>1</sup> MTC Transit Connectivity Study, Technical Memorandum 1, Review of Other Planning Efforts; Wilbur Smith Associates, Kimley-Horn and Associates and Harley & Associates; July 25, 2005.

<sup>2</sup> El Corrito Plaza BART Station Access Plan; Bay Area Rapid Transit District Planning Department; August 2002; page 2.

same process. Clearly, station area access planning should precede any TOD proposal for the station area.

### **II.2.1. TOD Transportation Planning Principles**

TOD is not a new concept. In the early years of the 20th century, transit dominated travel in cities worldwide. Development was clustered near transit by necessity. Transit and land use were closely connected. Private transit operators often developed real estate and used the profits to subsidize transit operations. Some TOD projects are a significant source of revenue for the participating transit agency.<sup>3</sup>

The basic principles for developing around transit stations fell into disuse as accessibility for automobiles became the focus of development. Although Oahu suffered from the same infatuation with auto-oriented development, it did not neglect its transit system. As a result, some excellent proto-typical examples of TOD are found on Oahu -- Waikiki, Ala Moana Center, downtown Honolulu where transit access is very high. These Honolulu examples epitomize much of what others are trying to achieve when TOD is envisioned.

A number of major mainland cities with extensive transit networks -- including Atlanta, Boston, Chicago, and Seattle -- have been enjoying increases in overall population and even greater gains in downtown areas, where transit is most accessible. It is now possible in many cities to get by without a car on most days.<sup>4</sup>

Elsewhere, older and newer suburbs -- Richardson, outside Dallas; and Englewood, outside Denver -- have refocused their attention on developing, or redeveloping, around new transit stations. What does it take to make such developments work? It may not be as much new legislation as some careful modifications to existing traffic impact oriented and parking supply driven ordinances. An audit of current ordinances is needed to flag those that may inhibit the achievement of fundamental principles enabling TODs to be offered by developers.

The principles of TOD serve as reminders for communities, designers, and developers who may have forgotten them. These principles can serve as a checklist for the development of pedestrian-scale and bicycle-oriented communities suitable for public transportation.

<sup>3</sup> American Public Transportation Association, Transit Oriented Development web site; August 2006.

<sup>4</sup> Ten Principles for Successful Development Around Transit Stations; Robert Dunphy, Deborah Myerson, Michael Pawlukiewicz; The Urban Land Institute.

### **II.2.2. Station Area Development Potential and Access Requirements**

In most regions on the mainland, such as the fast-growing communities in the South and West, transit is limited to buses and possibly light rail. TOD opportunities must be scaled to the transit capacity and the local market. The type of development envisioned must be suitable for the primary transit mode serving the possible TOD. Honolulu boasts one of the preeminent bus systems in the world; therefore, only a comparable preeminent primary transit mode will evolve from the Honolulu High-Capacity Corridor Transit Project to surpass the capability of the current bus system.

The paramount requirement is that superior station area access must be developed for each station to assure that the catchment zone of the regional transit system station is optimally served. The catchment zone will be much larger than the area covered by the Waipahu Neighborhood TOD plans. It is vital that the TOD plans not inadvertently inhibit the best possible station access for all system patrons, not just those in the TOD area. The form of the TOD must follow the functional requirements of the transit system. Alternative access modes must be given priority.

Ideally, the development will be fully integrated with the primary transit mode and all other modes according to the station access needed to take full advantage of the large public investment in the fixed guideway system. Attractive development around transit can add to the positive aspects of the transit experience. If properly planned, development around a station can greatly strengthen the attractiveness of alternative transportation access and egress modes.

### **II.2.3. Station Area Parking**

The amount of parking around transit stations and required from development by ordinance must be carefully assessed. Too much parking required to fulfill current ordinances will likely make the area less friendly to alternative access and egress modes. Too little parking -- or the perception that there is too little parking -- can undermine the economic viability of projects built to take advantage of transit. Unless controlled by a residential parking zone program, insufficient parking at the station can force transit patrons to park in the surrounding neighborhoods, creating problems for nearby residents and businesses.

Parking is a big factor in determining the layout of the station area. How a transit station is connected with, or separated from, the surrounding community will largely determine the station's footprint, transit plaza orientation and relationship to public parking areas if provided at the station. To extend transit's reach into a wider, more auto-dependent travel region, terminal stations often serve as the primary location for public

parking lots. The Waipahu stations are not terminal stations. A greater share of transit riders are expected to arrive on foot, by bus or by bicycle than by car.

Older U.S. rail systems are now selling or using land previously used as park and ride lots to provide a foot print for more complementary land uses. The Metropolitan Atlanta Rapid Transit Authority (MARTA) is replacing parking lots at the Avondale, Chamblee and Lakewood-Fort McPherson stations with apartments, condominiums and retail uses.<sup>5</sup> At the Kensington station MARTA has six acres of land for sale or lease.<sup>6</sup>

The Waipahu Neighborhood TOD Plans must find the balance between providing parking and allocating sufficient land for the types of adjacent development that will generate walk-on users. Flexible parking standards provide some latitude in providing the optimal number of parking spaces. Of the many other tools that can be used to reduce the impact of parking, the principal ones are as follows:

- **Moved Parking** -- Contrary to common practice, in which parking is located immediately adjacent to the station, broader community goals are best served when parking is moved away from the platform. The land nearest the station is the best land for access to the station and development, so using it for parking means lost opportunity. Placing parking a five to seven-minute walk from the station opens prime real estate for development.
- **Shared Parking** -- Sharing the parking among patrons who make use of it at different times of the day or week is an excellent way to minimize the space devoted to parking. The San Diego transit system, for example, shares one of its commuter lots with a multiplex theater. Transit riders use the parking on weekdays, and movie patrons use it on evenings and weekends. Parking fees offer an opportunity for additional revenue.
- **Decked Parking** -- Structured parking is expensive. A garage planned next to the Amtrak station in Philadelphia is projected to cost \$33,000 a space. Charging for parking tends to be controversial for transit because it is perceived as a deterrent to riders.
- **Wrapped Parking** -- In place of the typical suburban sea of surface parking, creative designers can wrap a parking structure with retail shops, eateries, residences, and services, such as dry cleaners. This mixed-use approach makes the parking structure more

<sup>5</sup> Hubs of activity at MARTA stations; Atlanta Journal-Constitution; September 2, 2006.

<sup>6</sup> MARTA Stations at center of home growth; Atlanta Journal-Constitution; Janet Frankston; June 27, 2004.

attractive as an urban place, allows people who park there to take care of errands, makes the walk to and from the parking lot more interesting, and creates a built-in clientele for the businesses.

#### **II.2.4. Station Area Access Planning Principles**

The creation of a genuinely transit centered community requires attention to all alternative access modes. Each station has a different functional classification and varying access modal share targets. Station areas need to be designed as places where people want to go, not have to go. Among these principles are the following:

- Locate transit station entrances at transition plazas served by alternative access modes. The station connects an entire regional transit system to many surrounding communities and its design relationships must reflect its role.
- Delineate station area access needs that include the entire catchment zone for all possible alternative modes served by the station.
- Develop a shared parking plan for all uses within close proximity of the station.
- Identify alternative mode access facilities and delineate the pedestrian paths and bicycle tracks connecting these satellite facilities to the station.
- Create design standards for station area access including uniform, but possible unique wayfinding techniques.
- Provide bicycle sheds at the station for alternative transportation modes; namely bicycles, but including service to all varieties of pedestrian mobility devices.
- Promote pedestrian connections by creating compact blocks, pleasant walkways, and comfortable, well-marked, and continuous streetfront experiences.

Because development around transit benefits from higher density, it is important to avoid suburban-oriented traffic standards and land use ordinances. Typical suburban standards for parking and road access are excessive for development around transit and can undermine the site's alternative access and egress mode potential.

A good mix of alternative access modes and land uses generates a vibrant assortment of people going about their business at many hours of the day. This activity is at a human scale providing a pleasant overall setting when the linkages have connected the regional network with both adjacent land uses and those within a reasonable access distance from the station. Reducing parking, vehicle access and roadway requirements while encouraging wide, pleasantly landscaped pedestrian ways and bicycle tracks through carefully crafted station access plans can greatly enhance the establishment of attractive TODs.

The creation of an attractive community does not require that the same uses be mixed at each station. A transit corridor that offers a series of stations properly classified and planned to work harmoniously with one another will be most successful. An advantageous mix of uses can be used to integrate a number of separate activity nodes emanating from a single station, particularly when the various land uses are close together, easily accessible by a variety of modal choices, and the land uses and modal options all support each other.

It is possible, for example, to live at one station, work at another, and shop at a third, with transit making possible the connections among all three. It is fully anticipated that the two Waipahu stations will function with others in this manner.

### III. Waipahu Neighborhood Station Area Access Planning

This section of the technical memorandum identifies transportation elements associated with the two station locations in Waipahu, how those elements apply to the Waipahu Neighborhood TOD Plan and what further analysis is needed. This analysis primarily addresses the transportation infrastructure and services within one quarter mile of the two Waipahu stations.

Many parameters influence how the stations are located and designed. These include factors such as vertical and horizontal curve constraints, overall station spacing, land availability and regional transportation access. In many ways, this Waipahu Neighborhood TOD Plan is leading the way for the refinement of the Leoku and Mokuola stations.

Prototypical engineering drawings have been prepared to serve as a guideline to the architectural teams that will be working on each station. The prototypical engineering drawings that apply to Waipahu are the same for both stations. They are for an aerial station located in the median of Farrington Highway with side platforms and a mezzanine level. The overall station is about 270' x 50'.

The mezzanine level of the station is important for the Waipahu Neighborhood TOD Plan development process because it allows for the opportunity to connect development above ground level directly to the station. This gives the large numbers of transit riders safe and easy access to adjoining development without having to negotiate any conflicting street traffic. The mezzanine level will have escalators, elevators and stairs connecting up to the station platforms and down to ground level.

The Waipahu Neighborhood TOD Plan should address bus transfer operations at each station, preferably within an existing street right-of-way or on a site that is not fronting Farrington Highway. Each station requires a transit center and should support other access mode needs as described in the following sections. No park-and-ride provisions are included for either Waipahu station.

#### III.1. Leoku Station Area

The station proposed for Waipahu along Farrington Highway near the intersection with Leoku Street should be designed with certain features including timed bus connections, fixed guideway connections and other operational connections.

##### III.1.1. Timed Bus Connections

The transit center should accommodate four bus positions for 60-foot buses. These *TheBus* positions are for routes making timed connections. Each route requires a dedicated "off-street" position. Bus arrivals and departures all occur during the same time span to assure transfers by passengers. These transfers occur on a central platform to provide safe walk connections amongst all buses.

The four bus positions at the Leoku station transit center could be along a straight curb or in a sawtooth configuration. The total curb length required will be about 90 feet per single bus position without a sawtooth. The extra curb space is required so buses have proper clearance and sight distances to arrive and leave their positions. The sawtooth requires about 60 lineal feet with an eight foot wide tooth.

##### III.1.2. Fixed Guideway Connections

There will be a need to have two bus positions along each side of Farrington Highway immediately adjacent to the Leoku station for routes serving passengers connecting to the fixed guideway. These *TheBus* routes are not making timed connections and can often share "on-street" curb space. These *TheBus* routes each require "on-street" shared positions because service frequency is typically ten minutes or

less and emphasis is on no route deviations and minimal dwell time at stops. Twelve buses per hour per direction will be using these two on-street curb positions.

**III.1.3. Other Transit Connections**

Space will be required for *TheHandi-Van*. Vans will be making extended stops and need dedicated space. No more than two such vehicles are anticipated serving the Leoku station at the same time. The largest *TheHandi-Van* vehicle will be 25 feet in length. The total curb length required will vary between 75 and 100 feet depending upon site specific circumstances.

Other *TheBus* and *TheHandi-Van* operational needs must be included in the space available at the Leoku transit center. This includes two staging positions for peak period express buses. These may be 60-foot vehicles and require up to 240 feet of curb space. They will enter service at the Leoku station and can be positioned away from the station until they need to start service. They would use the on-street positions to board passengers. Two standard vehicle positions will also be required at the transit center for *TheBus* and *TheHandi-Van* supervisor vehicle and operator shift change vehicle parking.

**III.1.4. Kiss-and-Ride Connections**

About ninety feet of curb space for kiss-and-ride is anticipated on both sides of Farrington. This is considered to be a secondary priority to *TheBus* and *TheHandi-Van* and other alternative mode access requirements. There are no free public park-and-ride spaces planned for the Leoku station, but self-sustaining private sector shared parking is a possibility.

**III.1.5. Alternative Mode Connections**

The Leoku station may be best classified as an alternative mode access station. Pedestrian and bicycle access mode requirements are anticipated and facilities, such as bike racks at each station, are currently being studied as direct HHCTCP components. Furthermore, each station is being designed to accommodate the anticipated number of pedestrians. It is expected that individual station area plans, such as the Waipahu Neighborhood TOD Plan, will address these needs.

**III.2. Mokuola Station Area**

The Mokuola station is best classified as a transit transfer station. The on-street bus transit center along Hikimoe Street is retained. There are no additional on-street bus positions or other bus operations requirements such as found at the Leoku station since these already exist and do not need to be relocated. The Waipahu Neighborhood TOD Plan should emphasize a convenient and pedestrian-oriented connection between the Mokuola Station and the Hikimoe Street bus transit center.

Kiss-and-ride space will be needed at the Mokuola station. About ninety feet of curb space for kiss-and-ride is anticipated. This is considered to be a secondary priority to *TheBus* and *TheHandi-Van* and other alternative mode access requirements. There are no free public park-and-ride spaces to be provided as part of the HHCTC project at the Mokuola station, but self-sustaining private sector shared parking is a possibility.

Pedestrian and bicycle access mode requirements are anticipated at the Mokuola station. It is expected that individual station area plans, such as the Waipahu Neighborhood TOD Plan, will address such needs.

**IV. Modal Share Access and TOD Planning Relationships**

Transit passenger access and egress to and from all of *TheBus* routes islandwide is predominately by walking today as shown in the table below.

**Table: *TheBus* Access and Egress Modes In 2004 By Percent**

MODE	ACCESS	EGRESS
Walked	81.2 %	81.0 %
Another Bus	14.9 %	15.7 %
Drove	0.7 %	0.8 %
Bicycle	0.9 %	0.8 %
Vehicle Passenger	1.7 %	1.0 %
Other	0.6 %	0.7 %

The next largest access mode is another bus. Other access and egress modes account for less than four percent of all other access and egress activity. This is a similar result for a San Diego transit passenger survey where all other modes of access to the transit system accounted for about eight percent.<sup>7</sup>

<sup>7</sup> Ibid. page 19. Note: The San Diego survey observed 6% who drove alone to the San Diego Trolley and 30% who drove to the Coaster.



The refined alternative creates a new pedestrian oriented "main street." This main street environment will be focused along the existing Leoku Street and Leole Street one block mauka and four blocks makai of Farrington Highway respectively. Farrington Highway will keep its current role as a commercial center. The Waipahu Neighborhood TOD Plan should address potential conflict between vehicular turning movements at intersections and any intensification of pedestrian activity along the suggested mauka-makai corridor.

It may be that this is a phased proposition where the mauka-makai pedestrian emphasis is on the Leole-Leoku corridor in the near term with retrofitted zebra, pelican, toucan and/or pufin crossing techniques being used, but shifts to the proposed new streets one block to the east in the long-term. The emphasis on pedestrian and bicycle orientation on these streets could be developed in a classic European style as part of a pedestrianized zone near the station as illustrated by the examples in Appendix A.

The Leoku station refined alternative proposes a series of new streets on either side of Farrington Highway. These streets improve the overall connectivity network for autos, bicyclists and pedestrians while creating a more urban block network. Each of these individual street segments will require their own assessment. Perhaps some lend themselves to Woonerf zones or other forms of vehicle restricted or regulated access. For example, new street connections are shown between Leowaena and Kaihuopalaai. Some connection is warranted, but perhaps a new street is not. The Kaihuopalaai cul-de-sac has a gate that appears to be under the control of the city. It would allow pedestrians and bicyclists direct access to Farrington via a simple improved path along a utility right-of-way if the gate were opened. That may be all that is needed. Otherwise bicyclists and pedestrians are trapped inside the West Loch development and must go out to Fort Weaver Road to get to the station, a long and discouraging journey.

The bicycle path along Fort Weaver Road is an excellent facility, but it seems to vanish as it passes through the southeast corner of the Fort Weaver Road-Kunia Road-Farrington Highway interchange. Likewise, the mauka side of Farrington has signs designating it as having a bicycle route, but little evidence of any reasonable bicycle accommodation of any type exists. There is some evidence of sub-standard bicycle infrastructure along the west side of the Fort Weaver Road access road. These and other remnants of bicycle routes need to be significantly upgraded to euro-style bicycle lanes, paths and tracks. These facilities need to form a continuous network and directly connect to the station area footprint in any refined alternative for the Leoku station.

The "new streets" in the corridor between Farrington Highway and Pearl Harbor between Leoleo and Leole should be functionally classified as giving the bicycle highest priority. This could be done in a number of ways, but should be more than a bicycle lane. It should be a facility designed to European standards as perhaps a bicycle track or a

euro-style bicycle lane connecting directly with the Pearl Harbor Historic Trail and the West Loch Bike Path. This "new street" might also be a candidate for a Woonerf zone.

The catchment zone for the Leoku station will be quite large given the presence of the existing Fort Weaver Road bicycle path, the Pearl Harbor Historic Trail, the West Loch Bike Path and significantly upgraded bicycle infrastructure along Kunia Road and Farrington Highway. The confluence of so many bike improvements warrants other station area bicycle investments.

The station area bicycle improvements should include a bicycle station and bicycle shed located adjacent to the station area footprint on the makai side of the station within the transit plaza area. An additional bicycle shed should be located on the mauka side of the station so that bicyclists do not have to cross Farrington Highway to securely store their bicycle.

A major element of the refined alternative is an urban transit boulevard along Farrington Highway for two blocks on either side of the proposed station. The boulevard treatment will include separated lanes for local traffic and drop-offs along with landscaped medians, wide sidewalks and diagonal parking adjacent to new mixed use buildings. Additional options for Farrington include a boulevard with parallel parking and an avenue layout with parallel parking which is most similar to its current configuration. The relationship of parking to bicycle infrastructure along Farrington may need some refinement. A euro-style bicycle lane between the parallel parking and sidewalk might work well along the boulevard.

The urban transit boulevard is an excellent concept and will work well in the peak periods when commuters will be served by buses in these locations. The need for both on-street bus positions and a small off-street transit center works well with the boulevard concept and the small transit plazas. The small transit plazas are planned for both sides of Farrington at the station. These plazas will be active community gathering spaces and the new "front doors" to the neighborhood. The makai transit plaza needs to be developed in conjunction with the off-street bus transit center.

The approximate existing commercial/industrial square footage is 3,366,000 within the community defined "areas of change" (blocks shown in color on the Refined Station Area Alternatives Plans, January 2008, see figure on page 12). These "areas of change" are mostly within the ¼-mile radius of the transit station, although some areas are within the ½-mile radius. There are 220 existing units within the "areas of change." The program for the refined alternative is based on a 1.32 floor area ratio. Within a 5- to 10-minute walk of the station, commercial/industrial land use is expected to increase by approximately 49,000 square feet and 3,240 dwelling units are anticipated (3,020 new). Commercial/industrial square footage is projected to be 3,415,000, the buildings that

house these businesses will be newly developed in a more urban, pedestrian-friendly form.

The U.S. standard industry approach to assessing the impacts of increased development is to use the Institute of Transportation Engineer's recommended practices and trip generation rates.<sup>10</sup> Insufficient detail is known at this time about the specifics of what is proposed to conduct such a rigorous analysis. But, some observations can be made about the outcome of such an analysis using a sketch planning methodology.

The Waipahu Neighborhood TOD Plan proposal is to redevelop with a significant increase of dwelling units: from 220 to 3,240. The ITE vehicle trip generation rate for an apartment building (land use code 220) is 0.50 vehicles per dwelling unit for the weekday AM peak hour. This results in a net vehicle traffic increase of 1,510 vehicles. Given current peak hour conditions on Farrington Highway, Waipahu Road and other potentially impacted streets in the area, this traffic impact would probably be significant unless mitigated with an emphasis on reliance of the attractiveness and success of new alternative transportation mode programs.

Recent surveys indicate that TOD developments have significantly lower vehicle trip generation rates.<sup>11</sup> TODs generally produce about 50% fewer vehicle trips in the AM peak hour than reflected in the traditional ITE vehicle trip generation rates. These trips mostly shift to transit and access the transit station by walking or bicycle. Many of the trips become internalized resulting in shorter bicycle and pedestrian trips replacing longer single occupant vehicle trips. The positive impacts of TOD are even greater if the transportation infrastructure for alternative modes is properly planned and designed to accomplish the possible shift from those who would otherwise travel by private vehicle.

Further analysis will be possible when the HHCTCP DEIS is completed and travel demand forecasting results are available to identify access mode shares to the Leoku station, how the Waipahu Neighborhood TOD Plan compares with those results and what mode share targets might be reasonably established if certain transportation improvements are implemented such as those suggested in this technical memorandum. Setting the modal share targets for Waipahu will inevitably be more of a public policy development process than a technical analysis.

<sup>10</sup> ITE, A Recommended Practice – Traffic Access and Impact Studies for Site Development (Final Report), 1991, Washington, DC; Transportation Impact Analysis for Site Development: An ITE Proposed Recommended Practice, 2006; ITE Trip Generation, 7<sup>th</sup> edition, 2007; ITE Parking Generation, 3<sup>rd</sup> edition, 2004.

<sup>11</sup> Alder Consulting letter to the Commissioner of Public Works, City of New Rochelle, NY, February 26, 2007 and G. B. Arrington. The Results Are In: Residential TODs Produce 50% Fewer Car Trips, October 29, 2007.



Sections of excellent pedestrian and bicycle facilities exist near the Leoku station such as the Fort Weaver Road bike path (above and right).



Incomplete sections of pedestrian and bicycle facilities exist near the Leoku station such as the euro-style cycle track along the Kunia access road (left), but it abruptly ends on Farrington where a right turn lane has priority.



The West Loch bike path is an excellent facility but it ends at a locked gate within sight distance near Leooke Street (right).



**V.2. Mokuola Station Transportation and Circulation**

The following page presents the concept diagram for the refined station area alternative at the Mokuola station. The refined alternative focuses on strengthening the historic core of Waipahu through incremental redevelopment along Waipahu Depot Road and along both sides of Farrington Highway. These areas would retain their historic small-scale character while providing new retail, office and residential opportunities in a walkable, mixed-use setting.

Areas have been designated for high density residential development one block diamond head from Waipahu Depot Road. This will help to provide activity on the streets, customers for local shops and restaurants and ridership for the transit system.

The refined Mokuola station alternative proposes a series of "new streets" on either side of Farrington Highway. These new streets improve the overall connectivity network for autos, bicyclists and pedestrians while creating a more urban block network that is ideal for redevelopment. Each of these individual street segments will require their own assessment.

Some of the new streets may lend themselves to woonerf zones or other forms of vehicle restricted or regulated access. For example, the "new street" between the Farrington Highway frontage road and the bus transit center along Hikimoe should be pedestrianized, allowing no vehicles.

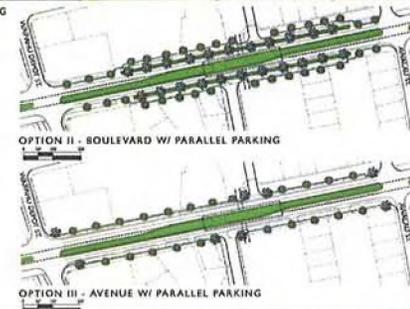
The catchment zone for the Mokuola station will be very large given the presence of the existing Pearl Harbor Historic Trail, the Mokuola bike lanes, the Waikale bicycle tracks and the anticipated upgraded bicycle infrastructure along Farrington Highway and Waipahu Depot Road. The Mokuola bike lanes end at Nalii and will need to be extended to the station.

The existing bicycle facilities and planned bicycle improvements will warrant other station area bicycle investments. These include a bicycle station and bicycle shed located on the mauka side of the station within the transit plaza area. An additional bicycle shed should be located on the makai side of the station so that bicyclists do not have to cross Farrington Highway to securely store their bicycle.

A major element of the refined alternative includes the creation of an urban boulevard along Farrington Highway for one block on either side of the proposed station. This boulevard includes separated lanes for local traffic, unloading zones, landscaped medians, wide sidewalks and diagonal parking adjacent to new mixed use buildings.



OPTION I - BOULEVARD W/ DIAGONAL PARKING



WAIPAHU NEIGHBORHOOD TOD PLAN  
HONOLULU, HI

REFINED STATION AREA ALTERNATIVE  
FARRINGTON/MOKUOLA STATION LAND USE & NEW STREETS



JANUARY 20, 2008

There will be no buses serving the section of Farrington Highway between Waipahu Depot Road and Mokuola. The buses all turn off of Farrington Highway onto Mokuola or Waipahu Depot Road to serve the bus transit center on Hikimoe.

Additional options for Farrington include a boulevard with parallel parking and an avenue layout with parallel parking which is most similar to its current configuration. Small transit plazas are planned for both sides of Farrington at the station. These plazas will be active community gathering spaces and the new "front doors" to the neighborhood.

A traffic impact analysis will be needed for the Mokuola Station area, however specific details on proposed development are not known at this time. Some observations can be made about the outcome of such an analysis using a sketch planning methodology.

The Waipahu Neighborhood TOD Plan includes an alternative for the Mokuola Station area with an increase from 540 to 2,060 dwelling units. The ITE vehicle trip generation rate for an apartment building (land use code 220) is 0.50 vehicles per dwelling unit for the weekday AM peak hour. This results in a net vehicle traffic increase of 760 vehicles.

With the additional increase of 560,400 square feet of commercial/industrial land use, the vehicle traffic increase could be substantial depending upon the exact nature of the specific land uses. Given current peak hour conditions on Farrington Highway, Waipahu Depot Road, Mokuola and other potentially impacted streets in the area, the vehicular traffic impact would probably be significant unless mitigated by emphasis on utilization of alternative transportation modes.

As stated previously, recent surveys indicate that TOD developments have significantly lower vehicle trip generation rates. Further analysis will be possible when the HHCTCP DEIS is completed and travel demand forecasting results are available to identify access mode shares to the Mokuola station, how the Waipahu Neighborhood TOD Plan compares with those results and what mode share targets might be established.



Sections of excellent pedestrian and bicycle facilities exist near the Mokuola station such as the euro-style cycle track in Waikele (left) and the Pearl Harbor Historic Trail (above).



Sections of sub-standard pedestrian and bicycle facilities exist near the Mokuola station such as the Farrington bicycle route (right). Mokuola's bike lane needs to be better maintained and enforced (below).



## APPENDIX A: Terms and Definitions

The following defines terms used in this technical memorandum

### A.1.1. Trip Chaining

Trip chaining traces an individual's daily movement by trip mode and by trip purpose. Trip chaining has two components:

- **Personal Travel Trip Chaining Demand** -- Refers to the places travelers want to visit and the sequence of those visits.
- **Trip Chaining Modal Accommodation** -- Refers to the capacity (and level of service in some instances) of the transportation system and its ability to provide safe and expedient passage to those making chained trips by alternative modes.

A front page example of trip chaining was provided on September 25, 2006 in the Seattle Times of how Trip Chain Modal Accommodation doesn't support at least one individual's Personal Travel Trip Chaining Demand. The headline read: "Denise Dougan, Kingston to Seattle: Car. Bus. Ferry. Feet. Bus. Train. Ferry. Bus. Car."<sup>12</sup> The article quoted the traveler as concluding, "No mystery to me why public transportation in the Puget Sound is not used by more people."<sup>13</sup>

### A.1.2. Pedestrian Modal Accommodation

Pedestrian modal accommodation involves a wide array of traditional and innovative techniques to offer priority treatments for those who walk. One distinct difference between U.S. and non-U.S. approaches is that our crosswalks, sidewalks and other pedestrian treatments tend to be highly standardized with an emphasis on how the pedestrian is accommodated to the degree possible after consideration is given to the minimum roadway and intersection requirements to support optimum vehicle flow.

Non-U.S. approaches to pedestrian traffic tend to be less standardized with an emphasis on how the roadway and intersection is designed, or should be redesigned, to

<sup>12</sup> The amazing race to work: Four commuters' stories; The Seattle Times; Mike Lindblom; September 25, 2006; page A-1.

<sup>13</sup> For a technical explanation of trip chaining see: A Simultaneous Model of Household Activity Participation and Trip Chain Generation; Thomas F. Golob; Institute of Transportation Studies, University of California; July 1997 or Examining Trip-Chaining Behavior, A comparison of Travel by Men and Women; Nancy McGucklin and Elaine Murakami; Federal Highway Administration.

give priority to the safety of the pedestrian with less evident regard for optimum vehicle flow. There are many variations to the following list of approaches found more often in non-U.S. applications, but with increasing use in the U.S., including Oahu.

- **Zebra Crossings** -- Refers to the use of stripes across the road with dashed lines used to mark the crosswalk on both sides. Best Oahu example is on Kalia Road in Waikiki. Examples in London add "Belisha Beacons" (poles with flashing orange lights) placed on each side of the crosswalk. These crossings are installed at selected mid-block locations (rarely at intersections as is the case on Kalia). At zebra crossings, pedestrians have the right of way, and drivers must yield (i.e., slow or stop) to pedestrians in the crosswalk. Zebra crossings are preceded by zigzag pavement markings next to the curb on the vehicle approach.
- **Pelican Crossings** -- Refers to crossings controlled by traffic signals and push-button pedestrian signals. Best Oahu example is on Punchbowl between Honolulu Hale and the state capital building. The push-button hardware lights up and conveys specific messages to pedestrians during each interval. A walking green man symbol and a standing red man are displayed. A flashing green man indicates pedestrian clearance. A flashing green man on the pedestrian approach concurrent with flashing amber and red balls on the vehicle approach precedes the green ball indication on the vehicle approach in some applications. Other applications use a countdown warning to advise pedestrians of the time remaining. Pelican crossings may have dashed or solid parallel lines to mark the crosswalk. They may have a mid-crossing island with an offset.
- **Toucan Crossings** -- Refers to shared crossings for pedestrians and bicyclists (cyclists "too can" cross together) at selected crossings at the intersection of roadways with pedestrian and bicycle paths. Common on Oahu, but without special provisions. The preferred layout includes a tactile warning surface, audible beepers or tactile rotating knobs, pushbuttons with WAIT displayed in each corner of the crossing, infrared lamp monitoring, and vehicle detection on all approaches. The desirable crosswalk width is twelve feet; the minimum acceptable width is ten feet. Signal indications include standing red man, walking green man, and green bicycle. The flashing amber with the red ball indication is not used for the vehicle approach. Crosswalk lines are delineated by various colored squares and lines to separate pedestrians and bicyclists whenever possible.



A Zebra Crossing is shown at the intersection of Kalia and Maluhia (left). Examples in Renton, Washington (below, left) and London (below, right) include "Belisha Beacons" poles with flashing lights triggered when the crosswalk is occupied.



London offers many examples of Pelican and Puffin Crossings. These also feature the use of fences to force pedestrians to use crosswalks





**Toucan Crossings**  
 examples are shown for  
 Kohn, Bonn, Antwerp,  
 Heidelberg, Strasbourg and  
 Brugge (clockwise starting  
 from the top right corner of  
 the page).



- Pufin Crossings** -- Refers to **Pedestrian User-Friendly Intersection (PUFIN)** crossings, generally installed at intersections, consist of traffic and pedestrian signals with red push-button devices and infrared or pressure mat detectors. After a pedestrian pushes the button (or stands on the mat), a detector verifies their presence. If a pedestrian is present at the end of a vehicle cycle, the red traffic signal is indicated to motorists, and pedestrians see the green man (i.e., WALK display). A separate motion detector extends the green interval (if needed) to ensure that slower pedestrians have time to cross safely. If a pedestrian pushes the button, but fails to wait for the green man symbol, the detector will sense that no pedestrian is waiting and will not stop motor vehicle traffic needlessly. Pufin crossings are recent developments and are said to improve pedestrian safety and reduce unnecessary vehicle delay. Since the motion detector can detect only those pedestrians walking within the crosswalk lines, physical barriers are used on the curbs to channel pedestrians into the crosswalks. At some crossings, tactile surfaces have been introduced that guide a visually impaired person to the crosswalk. Pufin crossings are currently used at 27 demonstration sites in England.
- Pedestrian Zones** -- Refers to areas involving several connected streets which can sometimes be used by cyclists during off-peak hours. These have been established on many downtown streets throughout Europe and are most often referred to as "Pedestrianized Zones". Not only are there fewer modal conflicts, but the presence of pedestrian and bicycle traffic helped eliminate crime and added an element of personal safety. The pedestrian zone sometimes allows bus, bike, goods delivery and taxi travel at certain times of the day only. The Fort Street Pedestrian Mall is not a pedestrian zone since it only involves one street. There are no examples of pedestrian zones on Oahu. Over ninety percent of all cities in Europe have pedestrian zones.
- Pedestrian/Bicycle Ways** -- Refers to exclusive roadways for both pedestrians and cyclists sometimes with separate lanes for bicycles designed within a wide right-of-way and with full grade separation when warranted by high conflicting traffic conditions. Eindhoven is the best example of grade separated pedestrian/bicycle ways.<sup>14</sup>

<sup>14</sup> A Field Report: The Philéas Transit System In Eindhoven, Netherlands; Wes Frysztacki, Weslin Consulting Services, Inc.; December 2007; pages 10-15.



**Pedestrian Zones** exist in almost all European cities. These examples are from Brussels, Malmo, Ghent, Copenhagen, Amsterdam, Bath, Koln and London (in clockwise order starting with the picture at the top left of the page). Cyclists must dismount in most pedestrian zones at certain times of the day. Goods delivery usually occurs in the morning until 11:00 a.m.



**Pedestrian/Bicycle Ways** in Eindhoven radiate from Central Station. The parked bicycles pictured to the left completely encircle the station. The violet red colored streets on the map are pedestrianized. Yellow streets include general purpose traffic and exclusive bus lanes. The public "Markt" located in the heart of the network of pedestrianized streets is toward the bottom of the map.

- **Woonerf Zone** -- Refers to a protected environment with street space shared equally among pedestrians, bicyclists and transit vehicles proceeding at a walking pace. Pedestrians and bicyclists have priority over motor vehicles in a Woonerf zone. Woonerf zones have no formal traffic signals or lane markings.
- **Pedestrian Friendly Design** -- Refers predominately to the aesthetic and urban design amenities associated with pedestrian facilities such as landscaping, lighting, benches, artwork, arbors, water features and pavement treatments. It normally does not refer to the functional traffic design needed to achieve safe and modal priority treatment for people to walk who might otherwise choose to drive a car.

**A.1.3. Bicycle Modal Accommodation**

There is a tremendous difference between how the United States views the bicycle mode as compared to the rest of the world. The following offers examples from outside of the U.S. and uses terminology to draw distinctions.<sup>15</sup>

- **Bicycle Lanes** -- Refers to the accommodation of the bicycle within the right-of-way originally established for vehicle traffic. A lane marked on the roadway is designated for bicycle use. Many excellent examples exist of where this has been done effectively on Oahu and throughout the world. However, some countries view bicycle lanes as a temporary measure, "a quick and cheap first stage whenever possible."<sup>16</sup> In the U.S. it is the highest standard for non-recreational cycling, in Europe it is the lowest standard for non-recreational cycling.
- **Community Bike Program** -- Refers to the type of program in Copenhagen, Amsterdam and Paris where bicycles are stationed at strategic locations throughout a zone and may be borrowed at one location and returned to another.

<sup>15</sup> This document uses definitions for planning and policy development purposes. More engineering based definitions and design specifications may be found in *Bike Lane Design Guide*; Chicago Department of Transportation.

<sup>16</sup> *Cycle Policy 2002 - 2012* (Danish title: *Cykelpolitik 2002-2012*); City of Copenhagen, Building and Construction Administration, Roads and Parks Department; page 22.



These pictures highlight a **Woonerf Zone** at the central square in Baden-Baden. Buses and pedestrians mingle with no traffic control signals or pavement markings. Transit vehicles must proceed through the zone at the speed of pedestrians who have the right-of-way. The use of this approach is increasing in Europe. This traffic treatment allows **Pedestrian Friendly Design** to flourish.



**Bicycle Lanes** are shown above in Vancouver (at the Burnaby Skytrain station), Hannover and London. North American practice is to place the bike lane on the road whereas European practice tends to favor placing bike lanes within sidewalks.

**Community Bike Programs** have existed in Copenhagen for decades as shown in the pictures below. The middle picture shows the lock that can be released with a single refundable coin deposit and a map of the city's cycle track system



- **Euro-Style Bicycle Lanes** -- Refers to the accommodation of the bicycle within the right-of-way originally established for vehicle traffic. A lane marked on the roadway is designated for bicycle use but the lane is positioned between the sidewalk and a parking lane instead of between a parking lane and a vehicle traffic lane. Also known as the "Copenhagen Treatment".
- **Bicycle Paths** --Refers to the accommodation of the bicycle in its own exclusive right-of-way or in a shared right-of-way established for low-speed recreational travel by people on bicycles. Bicycle paths are often created along abandoned rail right-of-way such as the Pearl Harbor Bike Path.
- **Bicycle Tracks or Cycle Tracks** --Refers to the accommodation of the bicycle in its own curb or barrier separated pathway within the overall street right-of-way. The pathway is designed for high-speed functional travel by people on bicycles. Cyclists on the pathway have right-of-way over other modes except where otherwise delineated by a variety of traffic lane markings and control techniques. Several excellent examples of this standard European treatment exist near Waipahu in the vicinity of the Waikele Shopping Center along Paiwa and Lumina Streets.
- **Bicycle Shed** -- Refers to a stand alone fully enclosed bicycle storage facility with key card control available in conjunction with special transportation pass programs.
- **Bicycle Stations** -- Refers to a facility where bicycles and other alternative transportation devices may be stored, repaired and rented. Larger facilities include rentals of electric cars, car sharing club counters, showers and other commuter services.
- **Bicycle Streets** -- Refers to a street for the exclusive use by bicyclists.
- **Bike Racks On Taxis** -- Refers to the requirement that any taxi using the premium taxi stand waiting area must be equipped with a bicycle rack.



**Euro-Style Bicycle Lanes** are shown in Budapest and Copenhagen (top left and right). The bicycle lane at the right in Bonn includes an advance holding box (in blue) for bicycles which are also given an advance green traffic signal.



Honolulu's Pearl Harbor Bike Path is a good example of a **Bicycle Path** (see pictures below).



The examples of **Cycle Tracks** on this page are from Copenhagen, Leiden, Eindhoven and Freiburg (clockwise starting from top left).

Several excellent examples of this standard European treatment exist near Waipahu in the vicinity of the Waikele Shopping Center along Paiwa and Lumiaina Streets. (See page 19).





Bicycle Sheds are shown in Amsterdam and Leiden (top left and right).



Bicycle Stations are shown in Long Beach (below) and Seattle (right).



Bike Streets exist in many European cities. These examples are from Brugge, Amsterdam, Hannover, Strasbourg and Zurich (in clockwise order starting with the picture at the top left of the page). Cyclists have the right of way, but must abide by traffic signals designed explicitly for cyclists.



#### A.1.4. Street Network Terminology

The Waipahu Neighborhood TOD Plan offers new streets. Today, both Waipahu station areas are dominated by mega blocks. These tend to concentrate vehicular traffic on a few streets and intersections. The concentration of traffic is in conflict with the ability to provide safe pedestrian and bicycle access.

Pedestrian environments may be achieved by creating smaller blocks with wide sidewalks. All modes have more choices in selecting their travel path and more opportunities are created for on street parking. The following offers examples of some of the terminology emanating from the experiences with designing land use with smaller blocks:

- **TND's** -- Traditional Neighborhood Development's have been associated with the urbanist movement advocating designs for reducing resident's reliance on the automobile by creating compact, mixed use and pedestrian-friendly development.
- **Internal Capture** -- The amount or percent of person trips not using a personal vehicle because the desired trip can now be made by an alternative mode within the development area.
- **Pass-By Trips** -- The amount or percent of vehicle traffic diverted into a development because the trips already existed on adjacent streets and are not generated by new development.
- **Modal Share** -- The amount or percent of trips made by all modes available to those person trips associated with a development or transportation facility.

#### A.1.5. Station Area Terminology

Different stations serve different functions. The plan of each station area needs to be different to properly serve the priority given to the access modes best suited to use each station. The process used to determine those priorities uses the following terminology:

- **Standard Access Modes** -- Refers to the access modes that have traditionally served the greatest portion of station area passenger demands. These are primarily auto and bus.

- **Standard Egress Modes** -- Refers to the egress modes that have traditionally served the greatest portion of station area passenger demands. These are primarily walk and bus.
- **Alternative Access and Egress Modes** -- Refers to the non-standard modes providing station area access and egress such as bicycle travel and car sharing programs.
- **Car Sharing** -- Refers to those programs with a membership who shares the use of a group of private vehicles.
- **Catchment Shed** -- Refers to the geographic area within which the vast majority of transit passengers are traveling, especially by private vehicle, to a particular station or from that station. This includes the resident location of those who drive and park at a station.
- **Catchment Zone** -- Refers to the geographic area within which the vast majority of those using non-private vehicle alternative access and egress modes are traveling to a particular station or from that station. This includes the resident location of those who would bike using bicycle tracks.
- **Modal Share Projection** -- Refers to the output of the Travel Demand Forecasting Model based upon trends, national modeling standards and forecasts of socio-economic characteristics.
- **Modal Share Targets** -- Refers to policy targets developed based upon review of modal share projections, a policy analysis of influencing factors likely to produce better outcomes and extensive community interaction regarding the desired future.
- **Modal Hierarchy** -- Refers to the policy of designating which modes have priority over others within a station access plan area.
- **Personal Transporters** -- Refers primarily to Segway human transporters and some electric bikes that can operate at a speed of no more than eight miles per hour. This term also includes roller blades and scooters when used in a non-recreational context.
- **Parking Management** -- Refers to the use of various parking policies to govern the supply and use of parking such as shared parking, unbundled parking and maximum parking requirements.



Car Sharing Programs or clubs as shown in Lucerne and Bellingham (top left and right).

Personal Transporters include the Segway as seen in Amsterdam (below). There are increasing sightings of these in Waikiki (right).



- **Shared Parking** -- A reduction of the minimum number of parking spaces required based upon the ability of mixed land uses with different peak parking demands to share parking spaces. Reduced parking creates higher alternative access mode expectations.
- **Unbundled Parking** -- Refers to the ability to allow tenants and homeowners to purchase parking separately, or not at all.
- **Traffic Cells** -- Refers to an arrangement of zones which limit automobile traffic movement. Vehicle traffic restrictions increase in the vicinity of a **Central Cell**. The central cell severely limits or prohibits vehicle traffic. The central cell may be a city center, public square, historical area, residential zone, park or transit station. Pedestrians and bicyclists are always given access. Traffic cell boundary techniques force vehicles to turn but allow bicycles and pedestrians to travel into the zone. The central cell is often a large pedestrianized zone where cyclists must often dismount.
- **Transition Plaza** -- Refers to an open area that connects and supports people transitioning from one mode to another.
- **Transportation Demand Management (TDM)** -- Refers to the collection of programs, policies and tactics designed to reduce the demand for private vehicle travel by influencing when people travel, how they travel and how far those people travel to access their desired destination.

**A.1.6. Transit Station Functional Classification**

Different stations serve different functions. This report uses the following transit station functional classification definitions:

- **Park And Ride Station** -- Refers to the accommodation of the private vehicle over other access modes at a particular station, but not to the exclusion of other modes.
- **Transit Transfer Station** -- Refers to the accommodation of *TheBus* operations, private shuttles and taxis over other alternative modes at a particular station, but not to the exclusion of other modes.
- **Alternative Mode Access Station** -- Refers to the accommodation of pedestrian and bicycle modes at a particular station and throughout the station area, but not to the exclusion of other modes.



Traffic cells are widely observed in Europe but contradict common U.S. auto-connectivity design techniques. All of these examples are from London and illustrate the following traffic cell boundary applications: two closed streets diverting vehicles, the central zone where congestion charging is invoked, a restricted neighborhood traffic only zone and a residential area prohibiting vehicle access into an adaptive wharf area reuse district (clockwise starting from the top right).



Traffic Cells of various types in Vancouver, Brussels, Gouda, Bonn, Eindhoven and Strasbourg (clockwise starting from the top right). Traffic cells or zones are widely observed in Europe but contradict common U.S. auto-connectivity design techniques.





**Central Cells**  
in Prague,  
Köln, Brugge,  
Krakow and  
Brussels  
(clockwise  
starting from  
the top left).



The Prague central cell excludes all motorized vehicles including tourist buses. Tour groups use the metro. (top left)

The Köln central cell was a complicated intersection designed to give priority to vehicles forty years ago. Over the years the pedestrianized zone has been continuously expanded. Today, the metro is underneath the plaza shown. (above)



The Krakow and Brussels central zones include popular historic districts. (left)

A cycle track and bus lane travel along a park which is an integral part of the central cell in Brugge. (below)



**Transition Plazas** located in Amsterdam, Bonn and at Amsterdam's new World Trade Center in Zuid (counterclockwise starting from the top left corner). The picture to the right is of the exit from the bike station. The escalator below is just for cyclists who are retrieving their cycle from storage located under the transition plaza located in the center of the World Trade Center.



**APPENDIX B: Station Area Access Planning**

The following Appendix provides case study examples on recent station area access planning in San Francisco, Vancouver and other locations. The case studies illustrate the role of modal share policy targets with regard to how TOD stations are planned. The examples demonstrate the proper attention given to both land use and the corresponding transportation circulation system supporting both access to those land uses and the stations.

**B.1. San Francisco Modal Share Targets**

BART was originally developed as a peak-period, commuter-oriented, park-and-ride system. Over the years, BART has been changing its policy direction and now gives much greater priority to alternative transportation access modes. BART's Strategic Plan provides policy direction that is continuously being applied, tested, scrutinized, debated and updated.<sup>17</sup>

The BART Strategic Plan requires access goals be set for the future as presented in the table below.<sup>18</sup> This is done on a systemwide basis and on a station by station basis within the process of developing a station area access and TOD plan for each station. Review of these plans indicates where alternative transportation modes have been given premium treatment, alternative transportation access mode shifts occur.

**Table: BART Systemwide Mode Share Targets (AM Peak)<sup>19</sup>**

MODE	ACCESS MODE DISTRIBUTION		
	1998 Actual	2005 Targets	2010 Targets
Walk	23.0 %	24.0 %	24.5 %
Bike	2.0 %	2.5 %	3.0 %
Transit	21.0 %	21.5 %	22.0 %
Drop-off, Carpool, Taxi	16.0 %	19.0 %	19.5 %
Drive Alone	38.0 %	33.0 %	31.0 %

<sup>17</sup> BART Strategic Plan; San Francisco Bay Area Rapid Transit District; adopted 1999, updated 2003.

<sup>18</sup> 24th Street Mission BART Station Access Plan; August 2002; San Francisco Bay Area Rapid Transit District Planning Department; August 2002; page 3.

<sup>19</sup> Targets do not include new ridership generated from the San Francisco Airport extension. Data source: Analysis prepared by Richard Willson, Ph.D., AICP.

For example, the El Cerrito Plaza BART station achieves a 4% bicycle access modal share due to the Ohlone Greenway. The station area access plan addresses how to improve further on the mode share by addressing specific transportation access problems such as pedestrian/bicycle and auto/bicycle conflicts near the station.<sup>20</sup>

BART has established an overall 2010 bicycle mode share of 3.0%. It also has a target for drive alone access of 31% by 2010, down from 38% in 1998. These station area access plan mode share targets are a pre-condition to replacing parking with TODs. They are not forecasts. They are policy-driven. If parking is to be reduced at a station to consider a TOD, it is incumbent upon the transit system to assure drive access is replaced with highly attractive alternative transportation access modes. One of the four parts of BART's TOD policy is to "Reduce the access mode share of the automobile by enhancing multi-modal access to and from BART stations..."<sup>21</sup>

BART's efforts to influence access mode shift is working. Bicycle usage at the 16th and Mission station is higher than the systemwide average reflecting the existence of bicycle storage facilities in the designated transit fare paid area and proximity to the very successful bike lanes constructed on Valencia Street in recent years.<sup>22</sup>

BART's land occupied by surface parking lots is a prime candidate for TOD. This prospect has great appeal to the agency because of the revenue potential. BART has learned not to jump the gun on TOD. It has investigated how to design the best planning process for replacement parking and alternative mode development using process principles such as: "BART will consider replacement parking as an integral element of BART's system and station area access process."<sup>23</sup>

BART's policy-driven station area access and TOD planning process is a good model for Oahu. It recognizes that "There is no one-size-fits-all formula for developing around a BART station. Each station area community is unique with its own character and transportation needs. However, there are certain transportation and development priorities that every BART station area should generally share, including convenient access to the station and a mix of land uses that make the station area a dynamic and livable place. Successful transit-oriented development incorporates these priorities in a way that respects and strengthens the positive aspects of a community's identity."<sup>24</sup>

<sup>20</sup> El Cerrito Plaza BART Station Access Plan; San Francisco Bay Area Rapid Transit District Planning Department; August 2002; page 7.

<sup>21</sup> BART Board of Directors Transit-Oriented Development Policy; adopted July 14, 2005.

<sup>22</sup> 16th and Mission BART Station Access Plan; San Francisco Bay Area Rapid Transit District Planning Department; August 2002; page 10.

<sup>23</sup> Replacement Parking for Joint Development: An Access Policy Methodology; prepared by Richard Willson, Ph.D., AICP; prepared for San Francisco Bay Area Rapid Transit District Departments of Planning and Real Estate; April 18, 2005; page 6.

<sup>24</sup> BART Transit-Oriented Development Guidelines; San Francisco Bay Area Rapid Transit District; June 2003; Section 3, introduction.

**B.2. Vancouver, B.C. Modal Share Target Planning**

Station area access and TOD planning should be done in the context of accomplishing broader objectives. Each station area plan should consider the mobility of people within the station area catchment zone who may never use the station, but whose travel behavior is supported by the transportation improvements achieved by the station area plan.

An example of this type of planning is Vancouver B.C.'s Southeast False Creek which emulates how to achieve those qualities visitors admire when visiting Vancouver. The Southeast False Creek (SEFC) area comprises a total of 80 acres of former industrial land near downtown Vancouver. The Vancouver City Council directed that the City explore using SEFC as a model for "sustainable development" in 1991.<sup>25</sup>

One of the objectives of SEFC was not just to shift mode share, but to eliminate travel. In 1995 the Vancouver City Council approved policies for artist live-work studios, allowing for the development of units combining artist studios with a residential unit. This policy supported a trend that found that 6.7% of the labor force worked at home in 1991, nearly twice the rate of ten years ago.<sup>26</sup>

Another SEFC objective was to place greater emphasis on the utilization of walking and bicycling to complete a trip. New policies were identified such as making the overall width of the walkway-bikeway 60 feet and requiring grade separation of those modes in high traffic areas.<sup>27</sup>

Extensive transportation studies have been conducted for SEFC to demonstrate the probable relationship between various degrees of Transportation Demand Management (TDM) tactics and infrastructure improvements for alternative modes. The target mode shares for a range of scenarios with increasing levels of policy-driven emphasis on alternative modes are shown in the table on the next page.<sup>28</sup>

<sup>25</sup> Southeast False Creek Policy Statement; adopted by Vancouver City Council, October 1999; City of Vancouver Planning Department, pages 3 and 4.

<sup>26</sup> Ibid, page 15.

<sup>27</sup> Ibid, page 51.

<sup>28</sup> Southeast False Creek Transportation Study; City of Vancouver, British Columbia; November 2002; page 39.

**Table: Vancouver, B.C. Stations Selected For Alternative Access and Egress Mode Share Target Potential Analysis**

MODE	MODE DISTRIBUTION IN 2021			
	Model Forecast	Regional TDM Targets	Regional TDM & Local TDM Targets	
			Short-Term Strategies Only	Short- & Long-Term Strategies
Walk	7 %	7 %	9 %	9 %
Bike	3 %	3 %	6 %	6 %
Transit	35 %	39 %	41 %	44 %
Drive	53 %	49 %	41 %	38 %
Ferry	2 %	2 %	3 %	3 %

**B.3. Station Access Policy Issues**

Many transit systems have given station area access planning their highest priority. A presentation was made to the Washington Metropolitan Area Transit Authority Board of Directors by their staff regarding an array of station access issues. Modal shares for thirteen stations were examined and issues about how to better resolve conflicts amongst modes were identified. One conclusion reached was that "each station studied has its own access needs..." Outstanding policy issues included: "What's the right hierarchy of access needs?" "How should design standards for different access modes be balanced when they come into conflict with one another?"<sup>29</sup>

A Boston MBTA report observed "Pedestrians and bicyclists are easily deterred if barriers exist, either physical or psychological. The idea of improving access to transit by foot and by bicycle is rooted in the principle of customer service. People should not have to struggle or feel unsafe getting from home to the station. Instead, residents living near stations should be provided with an inviting connection. The costs of making links between residential neighborhoods and transit stations safe, convenient, and pleasant are generally very low. The benefits, however, are substantial."<sup>30</sup>

<sup>29</sup> Station Access Capacity Assessment; Washington Metropolitan Area Transit Authority; presented to the Board of Directors by the Department of Planning and Information Technology; January 5, 2006. Slides 11 and 14.

<sup>30</sup> Improving Pedestrian and Bicyclist Access to Selected Transit Stations; a report produced by the Central Transportation Planning Staff for the Massachusetts Highway Department and the Massachusetts Bay Transportation Authority; September 2005; pages 1 and 5.

U.S. transportation experts have a growing admiration for what other countries have been accomplishing over the past several decades. In the Tokyo region bicycles accounted for 4% of rail access in 1975, 11% in 1980 and 13% in 1985.<sup>31</sup> Although private vehicles are abundant in countries such as France and the Netherlands and although those countries have extensive transit systems, the role of pedestrian and bicycle travel far surpasses what is achieved in the U.S. as shown in the table below.<sup>32</sup>

**Table: National Modal Share Comparisons**

MODE	COUNTRY		
	United States	France	Netherlands
Walk & Bike	10 %	35 %	48 %
Transit	3 %	11 %	5 %
Drive	82 %	47 %	45 %

Other countries are mastering the connectivity required amongst all modes to make them attractive. Even in the 1960s and early 1970s, when bicycle use was declining in the Netherlands due to large highway investment, bicycle access to rail was growing. The bicycle is used as transport to the station for more than 35% of all rail trips. One in ten uses a bicycle to travel from the station to their destination.<sup>33</sup>

Part of the success of bicycle use in other countries is the priority given to make bicycle travel more attractive than driving a car. One example is the use of traffic cells which permits automobile traffic to move only radially from a city center while allowing bicycles to move circumferentially. Another example is the emphasis on providing separated paths, especially as the speed of candidate roadways increases, versus the emphasis in North America of providing simply a bicycle lane.<sup>34</sup>

Specific examples of modal share policy-driven planning results are Amsterdam, Copenhagen and Hannover as shown in the table below. These are cities representing different countries with a population very comparable in size to the City and County of

<sup>31</sup> Bicycle Access To Public Transportation: Learning From Abroad; by Michael Replogle; Institute for Transportation Engineers Journal, December 1992.

<sup>32</sup> Bicycle Use and Safety in Paris, Boston and Amsterdam; Transportation Quarterly, Fall 1998; volume 52(4):61-78; J. Scott Osberg, Ph.D. and Sarah C. Stiles, Ph.D., JD; page 16.

<sup>33</sup> Bicycle Access To Public Transportation: Learning From Abroad; by Michael Replogle; Institute for Transportation Engineers Journal, December 1992.

<sup>34</sup> Bicycle Facility Selection - A Comparison of Approaches; prepared by Michael King for the Pedestrian and Bicycle Information Center, Highway Safety Research Center, University of North Carolina Chapel Hill; August 2002; pages 7, 8, 21 and 22.

Honolulu and with environmental goals and achievements worthy of emulation. Their success illustrates the TOD planning process role in developing effective station sites.

**Table: City Modal Share Comparisons**

MODE	CITY		
	Amsterdam	Copenhagen	Hannover
Walk	24 %	27 %	33 %
Bike	21 %	20 %	17 %
Transit	23 %	20 %	20 %
Drive	32 %	33 %	30 %
Population	700,000	580,000	506,000

Amsterdam is flat with many bicycle facilities along roads and in their own right-of-way. Recent surveys indicate a quarter of all transport in Amsterdam takes place by bicycle. The percentage even rises to 40% in the City Center.

Amsterdam has several strong policies driving transportation. One is that all transport policies are geared to transforming the bicycle into a fully-fledged mode of transport; a rival to the motor car.<sup>35</sup> Such a policy is viable for the Waipahu Neighborhood TOD Plan.

A third of the Amsterdam population takes a car when traveling a distance of 1.5 to 3.0 miles. The municipality is setting policies to encourage those now traveling by car for those trips to use a bicycle. Capital investments include new cycle through routes and park-and-bike programs. Projects are being implemented to target dangerous intersections to make them more cyclist-friendly. A series of guarded bicycle sheds are being developed to improve upon bicycle security. These types of tactics are transferable to Waipahu.

Amsterdam's success is due to continual policy-driven planning dating back to the 1970s. First, there were separate bike paths and streets designated exclusively for bicycles. Cars were given increasingly less space. Removal of bottlenecks has been an ongoing challenge addressed continuously and successfully over many decades. This

<sup>35</sup> The Amsterdam Bicycle Policy; June 2003.

has resulted in high alternative mode shares at both the home and activity ends of trips over many years as shown in the following table.<sup>36</sup>

**Table: Amsterdam Modal Share At The Home and Activity End of Trips by Year**

MODE	MODE SHARE AT HOME END				
	1975	1978	1988	1992	1994
Walk	35 %	25 %	25 %	26 %	27 %
Bike	30 %	39 %	45 %	37 %	35 %
Transit	20 %	21 %	18 %	27 %	27 %
Drive	15 %	12 %	11 %	9 %	11 %
Other	0 %	3 %	1 %	1 %	0 %
MODE	MODE SHARE AT ACTIVITY END				
	1975	1978	1988	1992	1994
Walk	55 %	52 %	52 %	41 %	46 %
Bike	5 %	12 %	14 %	11 %	10 %
Transit	30 %	29 %	23 %	36 %	36 %
Drive	10 %	7 %	11 %	7 %	7 %
Other	0 %	0 %	1 %	5 %	1 %

In Amsterdam the quality of the overall transportation network is judged by the performance of the weakest link in the overall chain of trips a person makes. The way nodes and links function in the context of a network is emphasized. Components of a network are viewed as complements to other components, not as substitutes. Systematic attention is paid to the quest for an optimal combination of transport nodes and links taking into account the strengths and weaknesses of each mode.<sup>37</sup> The Waipahu Neighborhood TOD Plan makes such an approach possible.

Throughout Europe, but particularly in the Netherlands and especially in Amsterdam, rail and bicycle are a very common combination. In 1991, 44% of all travelers went to the local rail station by bicycle and 14% used a bicycle at a station to complete their trip.

<sup>36</sup> How Do People Get To The Railway Station; A Spatial Analysis Of The First and Last Part of Multimodal Trips; M. J. N. Keijer and P. Rietveld; Research Memorandum 1999-9; Vrije University; Amsterdam, the Netherlands; 1998; pages 8 and 9.

<sup>37</sup> The autumn of the Bicycle Master Plan: after the plans, the products; Tom Welleman, Dutch Ministry of Transport, Public Works and Water Management, The Hague, the Netherlands.

Amsterdam has deployed a number of innovative free bike programs over the years to serve bicycle trips such as the White Bike scheme. Such a program might be deployed at both Waipahu stations wherein common bikes are used to go down hill to the station from places such as Royal Kunia and Waikale. The bike is left on a trailer at the station which is then relocated back to the neighborhood each day. The downhill bicyclists can elect to either bike back up hill, use a bus and place the bike on the bus rack or just get a new bike at the relocated trailer where the original free public bike was obtained.

The combination of bicycle networks and innovative bicycle programs including increasing efforts to provide safe travel and secure storage have constantly reinforced the government's commitment to the populace that bicycle travel is the highest priority form of travel.<sup>38</sup> All new roads in Copenhagen for the past eighty years have included some form of bicycle facility.<sup>39</sup>

Copenhagen had a comprehensive system of cycle tracks by the end of the 1970s. It also has a successful White Bike program. White Bikes are secured in racks and require a deposit which is refunded when the bike is returned.

Copenhagen continues to monitor its bicycle facilities and programs. The table on the following page provides some of the types of data collected and depicts some positive trends. High bicycle volumes have conflicted with traffic and caused many serious cyclist accidents, especially at signalized intersection.

In recent years, serious casualties have been reduced while bicycle use, including for work trips, continues to increase.<sup>40</sup> Oahu can learn much from the experiences of these other locations. The modal share target for Copenhagen is to have 40% of all people traveling to work by bicycle by the year 2010.<sup>41</sup> What modal share targets are reasonable for Waipahu?

<sup>38</sup> Cycling in Amsterdam, Developments and Policies; Pex Langenberg, Head of Strategy & Policy, Department of Infrastructure, Traffic and Transport; City of Amsterdam, the Netherlands.

<sup>39</sup> A Review of Bicycle Policy and Planning Developments in Western Europe and North America - A Literature Search; Government of South Australia, Director-General Transport, South Australia; July 1995; page 35.

<sup>40</sup> Copenhagen - City of Cyclists, Bicycle Account - 2004; page 7.

<sup>41</sup> Cycle Policy 2002 - 2012 (Danish title: Cykelpolitik 2002-2012); City of Copenhagen, Building and Construction Administration, Roads and Parks Department; page 35

**Table: Copenhagen Modal Share And Other Current Statistics**

STATISTICS	1995	1996	1998	2000	2002	2004
Percent who bicycle to work	31	30	30	34	32	36
Serious cyclist casualties	231	252	173	146	152	124
Serious cyclist casualties at signalized intersections	81	88	54	57	52	38
Serious cyclist casualties per one million cycle km	0.79	0.74	0.52	0.38	0.38	0.30

February 28, 2008

City and County of Honolulu

The following information provides an overview of the infrastructure implications of the Refined Station Alternatives. Water, Sewer and Drainage implications for each station are discussed below.

**Introduction**

**Water**

- ♦ The Board of Water Supply (BWS) provides service to the project areas. The Board of Water Supply system contains three (3) components. These are source, storage and transmission.
- ♦ It is anticipated that the BWS will need to develop new sources to meet the source requirement and that TOD along with other development will be one of the primary reasons that BWS initiates its desalinization facility adjacent to the Campbell Business Park.
- ♦ The floor area ratio (FAR) projections for the TOD areas are far below that allowed by the current zoning for the area and TOD will not produce population growth beyond that previously used for utility master planning purposes.

**Sewer**

- ♦ The City and County of Honolulu Department of Environmental Services provides sewer service to the area. New connections to the wastewater system are processed by the City and County of Honolulu Department of Planning and Permitting-Wastewater Branch.
- ♦ As identified for water, the floor area ratio (FAR) projections for the TOD areas are far below that allowed by the current zoning for the area and TOD will not produce population growth beyond that used in the West Mamala Bay Facility Plan for utility master planning purposes.

**Leoku Station**

**Water**

- ♦ The existing land uses and zoning around the Leoku Station require pipe sizes suitable for fire flows up to 4,000 gpm. The Farrington Highway corridor contains pipe sizes that are capable of accommodating this flow requirement. Therefore, it is anticipated that backbone transmission system is generally adequate.

- ◆ However, at the Leoku Station area, once out of the Farrington Highway corridor, the local distribution lines are primary 6-inch and 8-inch and increasing distribution line sizes and/or parallel mains should be anticipated. The new minimum line size is anticipated to be 12-inch.
- ◆ Table 1 provides an estimate of increased water demands based on increased population related to TOD. The commercial density and housing increases reflect growth within a ½ mile radius of the station (includes only the designated "areas of change") and are based on an overall FAR of 1.32. One of the infrastructure implications is that additional source and storage components must be provided. The Leoku Station additional source requirement is estimated to be 1.25 MGD and the additional storage requirement must match the maximum day flow (average daily flow x 1.5) of 1.9 MGD.
- ◆ It is anticipated that additional storage will be located at or near existing BWS reservoirs. The Leoku Station will generate an increased storage requirement of 1.9 MGD.
- ◆ The BWS assesses Water System Facility Charges (WSFC) for all new development requiring water service. The charges are assessed to allow the Board to develop new source, storage and transmission elements to serve new development. The increased water usage converted to equivalent multi-family dwelling units will generate approximately \$12.75 million in WSFC for replenishment of the BWS water system.

#### **Sewer**

- ◆ Table 1 provides an estimate of increased wastewater demands based on increased population related to TOD. The commercial density and housing increases reflect growth within a ½ mile radius of the station (includes only the designated "areas of change") and are based on an overall FAR of 1.32. The Leoku Station net increase in average daily wastewater generation is projected to be 0.68 MGD.
- ◆ The Leoku Station, while having a modest increase in flow, will most likely generate the need for relief gravity sewer from the center core of the ¼ mile radius to the Kunia Sewage Pumping Station. Upgrades to the Kunia Pumping Station are anticipated to be hardware modifications such as changing out of pumps to provide additional pumping capacity. The force main from the Kunia Pumping Station and gravity sewer leading to the downstream Waipahu Pumping Station appear to have sufficient capacity to serve the Leoku Station TOD needs.
- ◆ All sewage generated by the Leoku Station will be treated at the Honouliuli WWTP. The increased population will generate wastewater flows

approximately equal to 2,125 equivalent single family residences (ESDU) and generate \$11.1 million in Wastewater System Facility Charges (2008/09 rate) for wastewater system expansion.

#### **Drainage**

- ◆ The Leoku Station is located in a "developed" land use area. All lands have essentially been touched by urban development. There are no significant issues of increased runoff aggravating downstream conditions. However, there may be some localized existing drainage problems that will need to be addressed during the TOD redevelopment process.
- ◆ The Leoku Station and surrounding areas are identified as being in Zone D of the Flood Insurance Rate Map (FIRM) system. Zone D is defined as areas in which flood hazards are undetermined, but possible. There are no FIRM requirements for development in Zone D. All development in a Zone D area would be subject to compliance with the Rules Relating to Storm Drainage Standards of the City and County of Honolulu.
- ◆ It is anticipated that the existing Canal between Leokane and Leoleo Streets could be redeveloped as a natural greenway. This would require additional width and intermediate benches to accommodate a variety of flows. The center most and deepest sections would be designed to carry smaller flows on a frequent basis and the over bank benches would be used primarily for recreational purposes but able to convey water from infrequent large intensity storms. The widening of the canal section will allow for lower velocities in the channel. The lower velocities will allow the sections to be less "hardened" and more aesthetically appealing.

#### **Mokuola Station**

##### **Water**

- ◆ The existing land uses and zoning around the Mokuola Station require pipe sizes suitable for fire flows up to 2,000 gpm. Larger distribution lines are located in Waipahu Street (16-inch), Managers Drive/Mokuola Street (20, 16 and 12-inch) and Waipahu Street (12-inch). However, there are numerous smaller 6-inch or smaller lines in the Mokuola Station area. Upgrading distribution lines to a minimum of 8-inch and/or 12-inch should be anticipated.
- ◆ Table 1 provides an estimate of increased water demands based on increased population related to TOD. The commercial density and housing increases reflect growth within a ½ mile radius of the station (includes only the designated "areas of change") and are based on an overall FAR of 1.04. One of the infrastructure implications is that additional source and storage components must be provided. The Mokuola Station additional source requirement is estimated to be 0.50 MGD and the storage requirement must match the maximum day flow (average daily flow x 1.5) of 0.75 MGD.

- ♦ It is anticipated that additional storage will be located at or near existing BWS reservoirs. The Mokuola Station will generate an increased storage requirement of 0.75 MGD.
- ♦ The BWS assesses WSFC for all new development requiring water service. The charges are assessed to allow the Board to develop new source, storage and transmission elements to serve new development. The increased water usage converted to equivalent multi-family dwelling units will generate approximately \$12.75 million in WSFC for replenishment of the BWS water system.

#### Sewer

- ♦ Table 1 provides an estimate of increased wastewater demands based on increased population related to TOD. The population increases reflect growth within a ½ mile radius of the station (includes only the designated "areas of change") and are based on an overall FAR of 1.04. The Mokuola Station net increase in average daily wastewater generation is projected to be 0.34 MGD.
- ♦ The Mokuola Station will generate a modest increase in flow for the existing collection system. The gravity collection sewers in the Mokuola Station area are relatively good size (8, 12, 15, 24-inch) and can reasonably be expected to absorb the additional flows and transport the flow to the Waipahu Pumping Station.
- ♦ All sewage generated by the Mokuola Station will be treated at the Honouliuli WWTP. The increased population will generate wastewater flows approximately equal to 1,063 equivalent single family residences (ESDU) and generate \$5.5 million in Wastewater System Facility Charges (2008/09 rate) for wastewater system expansion.
- ♦ There are regional considerations that must be addressed with respect to the Waipahu Sewage Pumping Station. This sewage pumping station acts as a hub for all sewage flows entering the Honouliuli WWTP from as far away as Halawa Valley and Mililani/Waipio. The West Mamala Bay Facilities Plan area (Figure 2-11 attached) shows the Honouliuli WWTP service area stretching east to Halawa Valley. The Waipahu Pumping Station will be directly impacted by increased flow from the Leoku Station and the Mokuola Station. The City's fixed guideway project includes two stations in the Pearl City area. The increased flow from these stations would also impact the Waipahu Pumping Station. Ultimate assessment of the Waipahu Pumping Station must be based on the impact of all TODs and other development in the Wastewater Facility Plan boundary area.

If the demands of the Leoku Station and Mokuola Station are duplicated at the two Pearl City TOD sites, there is a realistic possibility that major

renovation will be required at the Waipahu Pumping Station and an additional force main or replacement force main will be required to convey sewage from the pumping station to the Honouliuli WWTP.

#### Drainage

- ♦ The Mokuola Station has significant drainage issues. The site is in zone AE (Floodway) of the Flood Insurance Rate Map (FIRM) system. The floodway must remain free of (new) encroachments since it actively conveys flood waters from the confluence of Waikele Stream, Kapakahi Stream and the Wailani Flood Control Channel. The combined carrying capacity of the three drainage ways (with Waikele Stream being the primary contributor) is inadequate for a 100-year storm event (1% annual occurrence) which may result in water spilling out of the defined channels and into the area defined as floodway.
- ♦ The City and County of Honolulu, through a separate contract, is evaluating the potential to revise the FIRM for the area to remove areas from the floodway and transfer it into shallow flooding zones (AO zones). The analysis to date has not been able to produce the desired result. The only meaningful method to remove the floodway within the ¼ mile radius appears to be the construction of a levee along the Waikele Stream corridor. (The City previously analyzed the levee [Park Engineering, 2004] but determined the cost [\$22 million] was excessive. TOD was not a part of the economic evaluation for the Park Engineering study).
- ♦ The levee option will most likely remove all of the Mokuola Station TOD area from the floodway and put it into areas outside the floodplain or at worst put the area into floodplain where fill is allowed. The levee option essentially contains the flow of Waikele Stream within the Waikele Stream channel and will not allow major spillage over its eastern bank into the TOD area. This levee option will greatly enhance TOD with respect to drainage issues. FIRM revision is dependent on the completion of detailed drainage studies, physical construction of the levee elements and the processing of a letter of map revision (LOMR) with the City and FEMA.
- ♦ New construction in the defined floodway can only be accomplished by obtaining a Flood Hazard Variance. The variance requires technical support which includes the preparation of a "No-Rise" Certification. The certification mandates that proposed improvements will not increase the flooding elevation. From a "big picture" perspective, new development in the floodway district will be highly restricted to the point where it may be unfeasible to provide the required technical back-up. In concept, all structures within the floodway will have to consider at-grade parking with habitable and commercial space above. The at-grade parking will be open air with vertical columns supporting the structure above.

- ◆ Renovation of existing structures in the floodway district can occur as long as the work does not exceed 50% of the current building value.

**Infrastructure Implementation**

**Water**

- ◆ BWS source, storage and major off-site regional transmission requirements for TOD projects will be paid for directly by individual projects by means of payment of the applicable portion of the Board's Water Service Facility Charges. The Board will in turn use fees to upgrade its facilities on a regional basis.
- ◆ Individual TOD projects will be required to include, as a part of project construction, localized water distribution and transmission system upgrades, as determined by the Board, when individual TOD projects are identified. These distribution system and transmission system upgrades will be primarily aimed at increasing pipe sizes serving the individual projects with connection(s) to the existing BWS system to provide the required fire flow.
- ◆ The Board does not anticipate undertaking any BWS sponsored pipe system improvement projects at the "local" level to upgrade fire protection in advance projects coming on-line.
- ◆ The Board plans to develop an integrated program to coordinate localized distribution system improvements once the TOD area and network of new streets moves past the "Alternatives" development stage.

**Sewer**

- ◆ The Department of Environmental Services intends to identify, schedule and implement improvements that are considered "regional in nature". This is part of an ongoing process related to other factors including: 1) Project development in the area other than TOD, 2) Consent Decree requirements related to the Honouliuli WWTP and Collection System and 3) Stipulated Order provisions also related to the Honouliuli WWTP and Collection System. These types of improvements would include pump station upgrades, force main upgrades and major transmission system upgrades. Should there be a need to implement one of the regional improvements in advance of its schedule; individual developers would be afforded the opportunity at the developer's expense. The developer's Wastewater System Facility Charges (WSFC) would be credited to the expenditure.
- ◆ Localized sewer improvements would be the responsibility of the individual developers. These types of improvements would consist of smaller diameter relief sewers (8, 10, 12 and 15-inch typically) required to provide increased sewer capacity between the TOD areas and the two main pump stations

serving these areas. Developers that provide localized sewer improvements can have their (WSFC) credited toward the expenditure.

**Drainage**

- ◆ Individual TOD projects will need to prepare as a part of their project development documents, a Drainage Master Plan. The plan will need to demonstrate compliance with the County's "Rules Relating to Storm Drainage Standards" with respect to hydraulic capacity of existing pipe systems in the area as well as storm water quality. Individual projects should anticipate the use of structural methods to comply with the storm water quality provisions of the Standards. Localized improvements, borne at the expense of the developer should be anticipated within both the Leoku and Mokuola TOD sites.
- ◆ The Mokuola TOD site requires substantial improvement to alleviate flooding causing a significant portion of the TOD site to be designated as "Floodway". It appears that channel and levy improvements bounding Waikele Stream are the only viable alternative. Preliminary cost projections for the channel and levy improvements are projected at \$22 million. The City has an independent consultant evaluating the alternatives and this analysis is on-going.



## Waipahu Neighborhood TOD Plan

### Workshop 1 Notes

9/25/07

#### Farrington / Leoku Station Area: Tim's Table

##### Community Comments

##### Constraints:

1. Parking will be a problem for folks coming from Eva Beach to the Transit Station unless there is a parking facility.
2. Remove barriers from the West Loch neighborhood to the Leoku Station
3. There is no public access to the water, you can't even see it
4. The water is polluted, but local people do fish for Tilapia where the canal meets the harbor.
5. The entire area within a 1/4 mile of the station is not pedestrian friendly
6. Jobs should be kept in the station area
7. There is no Green or gathering space within the 1/4 mile station area
8. The Farrington Trees are important. What will happen to them?
9. Farrington and the surrounding streets need to become pedestrian friendly
10. There must be burial sites around this area.
11. The area within the 1/4 Station Area is ugly, it all should be redone
12. Lot's of poor people and old people live near the station, what will happen to them?
13. Any kind of redevelopment here is going to create more traffic.
14. There is no shade on our streets and what sidewalks we have.

##### Opportunities:

1. We need jobs, housing, places to eat and places to gather.
2. Places with housing over shops would be nice.
3. Put a day care / child care near the station for working parents
4. Replace all lost affordable housing within the Station Area
5. Mix of uses is good.
6. Make this a people place
7. Create view corridors to the harbor
8. Student housing in this area would be good because of its rail access to UHWO and Leeward College and UH Manoa
9. Let light industry stay in the area Makai of Farrington, and create new business here such as electric cars.
10. Bring back entertainment such as the Sky Slide
11. With higher densities, new schools will be needed within the community
12. Create more bikeways and connect to the Pearl Harbor Historic Trail
13. Place a small park in this area
14. Create more housing choices
15. Bring buildings close to the fixed guideway station.
16. Make the pedestrians more important

17. Tame Farrington to make it easier for folks to walk across
18. Replace the trees and landscaping lost in the medium
19. Green the fixed guideway structure with native plants
20. Bring new jobs to the area
21. Make it urban but not high-rise
22. Create height limits in this area so as not to overwhelm the area
23. A movie theatre and things for young people to do would be nice
24. Don't make just high end housing, but more mixed income.
25. The canal is a pit but and opportunity to connect to the water
26. We need to connect and celebrate the Marsh
27. Move the large box shopping across Fort Weaver Rd, and make this station something urban, not a strip center
28. Create more shade if we are going to make it more pedestrian
29. Street lighting will be important to make it safe

#### Leoku Station Area: Electra's Table

##### Top Issues

- Preserve & Maintain Character of Neighborhoods
  - Fire station, DQ, Highway Inn, City Mill, Zippys (Special) Disco mart, Locally owned businesses, Leeward drive, Westgate center
  - Need to keep special places
  - Keep small businesses but redevelop
  - Do not inhibit the lifestyle of current residents
  - Preserve Hawaiian town character
  - Quality of life
- Improve quality of life
  - Traffic- Improve problem of Congestion/ commute/ connectivity
    - Transit separated from road
    - Park n ride could help- need it for transit- many people cannot walk to this area
    - Other option is to increase the connections from the bus transit center to transit station no need to park n ride if you have better circulation for buses to the neighborhoods
    - Circulator shuttle to Civic Center
    - Traffic and Congestion- Farrington is artery coming in from Kapolei – people get up at 4 am put their kids in the car- drive their children to their parents for childcare to get to work on time because of the traffic- People move to this area because they can afford a single family home to improve their quality of life but then the traffic completely degrades their quality of life.
    - Intermodal connections- want to be able to use transit- something separate from the highway. Anything to make the commute better

- or to move jobs into the area so there are not so many people on the roads. Congestion worse- young families move here because of affordability in Central and EWA regions – newer developments. Give up on their quality of life
      - Roads cannot handle the traffic there are not enough connections.
      - The roads are too narrow for street parking
      - Want options- different way to get to town
      - Traffic is impacting the quality of life
      - Transportation – maybe a trolley
      - Improve on traffic- local
      - Shuttle circulates to the civic center- difficult to get places (trolley like Mililani)
    - Need Intermediate schools and High schools
      - Schools- need to increase funding to new schools to support any new development
      - There are many many grade schools but only one intermediate school and one high school- need more schools- not many options for kids either they drop out when they get to intermediate school or they go to private school
      - NEW high school and new intermediate school
    - Get rid of current unwanted land uses
      - Auto repair shops and tow shops can go, many are vacant – cars parked all along the streets (tow companies)
      - Vacant Industrial areas- Safety issue in this area- Crime
      - People not very connected to industrial area- except for a few hearts on the map
  - Desired land uses that do not exist in this area
    - Need a place for senior citizens and a place for children
    - Need fine dining
    - Intermediate and high schools
    - Affordable housing
    - Parks
  - Affordable Housing- Maintain/ Add and improve existing
    - More Options for Young Families and Seniors
    - Multi generational families- Density has actually increased
    - Affordable homes are very important- to keep families close and community connected
    - Need options for housing
    - Affordable Housing
    - High rate of home ownership
    - Maintain affordability
- Improve conditions of units
- Environmental Concerns
  - NO connection to Pearl Harbor
  - Water in Pearl harbor is so polluted
  - Reclaim waterfront- Pearl harbor
  - Remake connections to it- right now there is a fence and there is visual connection-
  - So no visual connection and no physical connections.
  - Now overgrown with mangroves and homeless live in this area. Concern about Tsunamis that the mangroves when they are removed actually make the damage far worse – buffer is removed when mangroves move. Would like to see connection to Pearl Harbor remade and mangroves forests reestablished for protection
  - Clean up area to Pearl Harbor- Westlock area
  - Clean canal
- More Connection to Green and Nature
  - There are NO PARKS in this area at all
  - Landscaped median is the only community project in the area that the community feels like they own- the project took 10 years and the community is very proud of it. It is the first beautiful thing that they have been able to implement
  - More green areas possibly parks- local
  - Better access to Pearl harbor
- Walking & Biking Places
  - Old infrastructure- sidewalks and bike lanes need to be updated
  - There are no bike lanes
  - Sidewalk improvements not paid for by homeowners
- Remember History of Area
  - Most of the area lacks a narrative in this area- use to be sugar cane fields- when the plantations closed it left a vacuum which was filled by mostly industrial- there is a story at the main town core of Waipahu Depot Road- but nothing at this site. The community members want a better story here than the one they have now- most of the construction is relatively new and poorly built. (1960's)
  - Horse and buggy ride that circulated for kids down to the waterfront- for seniors and tourists too- educational historical maintain learn
  - Railroad tracks- revitalize and reconnect
  - Train could be a restaurant
  - Connect and remember historical context- plantation, railroad, pearl harbor, canal, bomb, sugarcane
  - Maintain culture blend old with new
  - Save character

**Farrington / Mokuola Station Area: Cheney's Table**

Community Comments

**Constraints:**

**Farrington Highway**

1. Afraid construction of fixed guideway will block lanes and aid to more congestion for many years...how will this be addressed and alleviated.
2. Afraid widening of Farrington will happen...already too wide.
3. Safer crosswalks are needed...how will this be addressed?
4. Taking down Palms in median will be a problem. Community worked so hard for many years to get this done. Where will they go, how will they be incorporated?
5. 20' high transit system...will you be able to walk along, under, beside it? Will it feel safe? How?
6. Tree lining of Farrington on both sides is very important, esp. near Mokuola Station.

**Other comments:**

1. Affordable housing – Afraid this type of development could do the opposite (gentrify) the area. This needs to be addressed NOW.
2. Big, high-rise buildings would not work here...imposing on the heritage/culture that is left.
3. Moving station to Waipahu Depot makes sense...where the people should be.
4. Fix Waipahu Recreation Swimming Pool...it is always broken.
5. More park-like setting adjacent to Recreation Center and Pool.
6. Single-family houses should be kept...how to treat the new areas around them?
7. Afraid property values will go down.
8. No connections to Pearl Harbor (views, pedestrian, bike).
9. What happens to the existing business when transit is being built...won't they suffer?
10. Local businesses along Farrington are important...worried about their well being in the community. They are an important part of Waipahu...don't destroy!
11. Safe places for children are needed.
12. Connections to schools are very important...especially High School...why isn't the stop there? Very congested, transit stop could alleviate this.

**Opportunities:**

**Special Places:**

1. Philipino Center – icon for the community and their heritage.
2. YMCA – smokestack is a symbol for the community and their heritage.
3. Golden Coin restaurant – good eats!
4. Hans L'Orange Park – baseball tourney brings people from all over the world. Park next to it needs some fixing up.
5. Community Center w/ pool – Fix pool. Place for elderly and children.
6. Civic building / Library – keep civic places.

7. Bus station area with church should be kept in same location (unless station is moved to Waipahu Depot St.)
8. Waipahu Cultural Garden – source of tourism within Waipahu...heritage ties/museum...very important.
9. Pouhala marsh...don't disturb.
10. Waipahu Depot as 'Main St.'...big trees!
11. Big canopy tree-lined streets in neighborhoods...keep it cooler, safer.
12. SIDEWALKS!!!
13. Affordable Housing is so important. Great opportunity here...put it close to transit; they will be the users and feel some ownership of the station.
14. Bike connections are important. Waipahu Depot especially. Pearl Harbor Historic trail is used currently, but needs work.
15. Making Kapakahi Stream an amenity.
16. Connections to Pearl Harbor (at least views).
17. Bring back heritage (plantation, sugar mill, philipino, etc.)
18. Shared parking at bus station makes sense (small park 'n ride, share with church and shopping areas) – structure could serve as the bus station as well.
19. Increase restaurants and retail near Mokuola station to complement the Civic/Library Center.
20. Timed multi-modal connections are key to making this work (synergy). Kids could take transit to station and transfer to shuttle/bus service to schools in Waipahu.

**Farrington / Mokuola Station Area: Adam's Table**

Community Comments

Opportunities

- The aesthetics of the stations and the elevated system are very important. The stations should be attractive, unique places, not just "utilitarian."
- Park & Ride, will it be at the Mokuola Station, and if so, how will it interface with the neighborhood?
- Possibility for shops, coffee stands directly under station platform. Make the station a mixed-use place.
- Should investigate moving the station one block to Waipahu Depot Street to emphasize the importance of this area and to connect existing community resources.
- A neighborhood police station would be ideal near the existing civic center.
- Bikeways should link the neighborhood together. Possibilities for bikeway along makai side of Farrington. Connection to Pearl Harbor Trail is extremely important.

- Entertainment uses would be great within the station area, Movie Theater, performing arts etc. These uses are lacking in Waipahu.
- Neighborhoods mauka of the high school are densely populated and can provide very high transit rider ship as long as they can easily access the station.
- Waipahu Depot Street needs to be given special treatment as a walk able main street as defined in the Town Plan.
- The OR&L Railway line to the Hawaiian Plantation Town is an opportunity for a bikeway.
- Great emphasis for affordable housing was suggested by the groups but it is also important to have affordable rents/ leasing for businesses. This is the reason why Waipahu has the great diversity of businesses in the area.
- Must put in a City and County satellite city hall! We lost it years ago and want one back!
- Make using the circulator bus from the neighborhoods as convenient as possible. No long walks. Get off the bus and a few steps to an elevator or escalator and on the train.
- Health theme area or pavilion. Waipahu has many doctors, dentists, rehab centers but are spread out all along Farrington hwy.
- Incorporate the use of solar panels to power the stations (lighting, elevators, escalators etc.).
- Promote or mandate all new development use solar panels, solar water heating and follow LEED building standards. Just like the cafeteria where the meeting was held, it is a LEED certified building.

### Constraints

- Existing landscaping in Farrington Median. A \$10 million project, which was developed through a community process and recently completed. Can landscaping be preserved in some way with aerial transit?
- Lack of sidewalks in many of the residential areas surrounding the station. Where sidewalks exist, many are in disrepair.
- The safety of pedestrians crossing Farrington Highway to the station is a major concern.
- How many riders are forecasted to use the station? Pedestrians? Buses? Cars?

- There are major drainage issues throughout the station area, especially on the Makai side of Farrington Diamond Head of Mokuola.
- How much \$ is dedicated to neighborhood / public improvements in the transit corridor budget?
- Utility lines will need to be under grounded in many areas along the transit corridor.
- There is a concern that when property values are raised in the station area, property taxes will go up which will be a hardship for residents.
- The new high-rise affordable housing is getting mixed reviews from residents; many think it is out of scale, while at the same time knowing that affordable housing is necessary.

**WAIPAHU NEIGHBORHOOD TOD PLAN**  
**Community Workshop #2**  
**Summary of Comments**

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The second Community Workshop was held on November 14, 2007 at the Waipahu Elementary School from 6:30 pm to 9:00 pm. Approximately 50 people were in attendance.

**STATION LOCATIONS**

Mark Scheibe of PB America briefly described factors that were considered in determining the location of the Waipahu transit stations:

1. Relatively flat area with no curves in the roadway.
2. Good access, particularly bus connections.
3. Previous planning documents, e.g., the Waipahu Livable Communities Plan.
4. Community input.

**SMALL GROUP DISCUSSIONS**

Following a PowerPoint presentation, workshop participants were divided into four groups to discuss and provide their input and perspectives on the three Draft Station Area Alternatives that were presented for each area transit station area. The following notes summarize the comments:

**LEOKU STATION AREA – TIM'S TABLE**

- Combine Alternatives A (The Gateway), B (The Center) and C (Canal Walk).

***Density/Intensity & Mix of Uses***

- Leoku Street is the appropriate location for the retail/commercial center. Significant mid-rise buildings should be located at the Leoku station Gateway entries (Fort Weaver Road and the Canal). A central boulevard treatment could be located at the intersection of Farrington and Leoku to accommodate the elevated fixed guideway and land use considerations. Limit this boulevard treatment to one block in each direction to give this transit place a special feeling.
- The current industrial neighborhood makai of Farrington should incrementally change to a high-density, mixed-use residential neighborhood over time.
- The Main Street concept for Leoku Street could be 4 to 6 stories and tapering off to 2 to 4 stories in the surrounding blocks. Mid-rise (8-12 stories) should anchor the Gateway sites.

***Connectivity***

- The group liked the Main Street concept and strong connection to the water, but a smaller, pedestrian-only walk next to the canal would be more appropriate. The canal should be cleaned up and made green, with a public path and live/work uses along it.
- Bike paths should be extended with connections to the Pearl Harbor Historic Trail and along the water throughout the makai neighborhood, with connections to a newly created bike network mauka of Farrington Highway.
- Strong bus/shuttle system connecting to Ewa is important.
- Break up the super blocks mauka and makai of Farrington to allow for more pedestrian orientation.

***Open Space***

- Green spaces (small parks, plazas and gathering spaces) should be added to areas within walking distance of the surrounding residential community.
- Plant trees and create sidewalks on all old and new streets.

***Parking*** -- Shared parking for transit use that doubles for retail use would be beneficial for everyone. This would best be located mauka of Farrington Highway adjacent to Fort Weaver Road. A park-n-ride facility located mauka of Farrington Highway would support a more pedestrian-oriented district makai of Farrington Highway and would serve transit riders from Ewa Beach.

***Affordable Housing*** -- Improvement in Pupu area is needed. Spread out and integrate affordable housing throughout station area.

**LEOKU STATION AREA – RICK'S TABLE**

- Combine Alternatives B (The Center) and C (Canal Walk).

***Density/Intensity & Mix of Uses***

- Mixed-Use Village:
  - 4-6 stories with commercial focus along Farrington Highway.
  - 3-4 stories with residential and commercial along "Main Street".
  - 2-3 stories with residential focus mixed throughout.
  - Maybe a few smaller, nicely designed towers

- Include amenities such as:
  - Daycare
  - Marketplace
  - Office services

#### **Connectivity**

- The group liked the Main Street concept and strong connection to the water, but Main Street is not appropriate on the canal. The canal should still be cleaned up and made green, but not with retail/Main Street along it. Leoku Street is the appropriate location for the retail/commercial center.
- Strong bus/shuttle system connecting to Ewa.
- Pedestrian Orientation! Consider narrow service streets that allow trucks and commercial vehicles through.

**Industrial Relocation** – Industrial is easier to change than residential. This group thinks that industrial should be moved elsewhere.

**Open Space** – Add gathering spaces and parks for residents.

**Parking** – Shared parking for transit use that doubles for retail use would be beneficial for everyone.

**Affordable Housing** – Improvement in Pupu area is needed. Should spread out and integrate affordable housing throughout station area.

#### **MOKUOLA STATION AREA – CHENEY’S TABLE**

- Combine Alternatives B (Farrington as Great Street) and C (Old Town).

#### **Density/Intensity & Mix of Uses**

- There was agreement that having some intense land use activities along Farrington would be good.
- Perhaps having the higher intensity uses away from the station (like in Alt. C – Old Town) is good because there would be less congestion/conflict around the station area.
- Perhaps high intensity uses directly adjacent to the station is a good idea for increased ridership and people stopping at Waipahu to shop, dine, walk, etc.
- Have higher intensity land uses along the connection between transit station and bus station (change color on graphic to be red).

#### **Connectivity**

- The station could stay at Mokuola Street or move to Waipahu Depot Road as long as there is a strong connection between the station and Old Town. If the station moves, the bus station should be kept within close proximity for the interaction and relation they have to each other. Also, that connection between the transit station and the bus station should be of high intensity land uses to accent the importance of the connection.
- Station interface with buses and timing is very important because people will depend on transportation and it should be reliable.
- Moving the station closer to Waipahu Depot Road makes sense because even though you want to make it “walkable,” shorter walking distances are preferable, especially for the elderly and when the weather is hot.
- Alternative B – Farrington as the “Great Street” – tends to guide people to other amenities like Hans L’Orange Park, YMCA, Civic Center, and Filcom Center. This alternative is good in that it directs people to pass by these important community amenities.
- Moving the station closer to Waipahu Depot Road is supported by the Waipahu Town Plan. Alternative C (Old Town) is closest to the Waipahu Town Plan.
- Perhaps adding another station at Waipahu High School makes sense. You could then tie in college students too.
- Understanding the traffic patterns and how the station will be accessed is necessary.
- Bus transit station should be in close proximity to the fixed guideway station.
- Make sure station areas are ADA accessible.

#### **Open Space**

- If Kapakahi Stream is cleaned and opened to the public, we should pay close attention to the steep grade down to the water and make sure it is safe.
- Cleaning up Kapakahi Stream is a good idea. People in the community will take ownership of it.
- We need to bring back the heritage of the water to Waipahu by cleaning the streams and bringing Pearl Harbor back to the community instead of turning our backs on it.

#### **Local Impact**

- Will this development impact local businesses, especially local mom-and-pop shops that make up part of Waipahu’s unique character?

- It would be nice to think of this station as “downtown” Waipahu with the Civic Center, YMCA, Library, Main Street, etc. This comment goes along with Alternative C – Old Town with Main Street.
- Perhaps existing local businesses could be given property tax breaks.

#### **MOKUOLA STATION AREA – ADAM’S TABLE**

**Density/Intensity & Mix of Uses** – Perhaps an elderly care center would be appropriate.

#### **Connectivity**

- More bike paths!
- Pedestrian-friendly environment is very important, especially in the long run (20 years from now).
- Improve existing bike trails.

#### **Open Space**

- Clean the canal!
- To build or not to build on marshland?
- Preserve the Farrington Highway median landscaping as much as possible.

#### **Local Impact**

- Will the elevated rail have noise issues?
- Will the retail environment be dictated only by peak traffic?
- What are the negative impacts?
  - Tax incentives per density.
  - Economic impact on existing residents and businesses.

#### **Parking**

- There is concern about parking location for tenants – parking structure will be needed for this density.
- In some areas there is conflict with parking on both sides of the street and with through-traffic.

**Historic Preservation** – Keep historic awnings on Waipahu Depot Road – significant to the history of Old Town.

#### **WAIPAHU NEIGHBORHOOD TOD PLAN**

#### **Community Workshop #3**

#### **Summary of Comments**

The third Community Workshop was held on April 23, 2008 at the Waipahu Elementary School Cafeteria from 6:30 pm to 9:00 pm. Workshop #3 focused on the Preferred Station Area Plans for the Waipahu Neighborhood TOD Plan. Approximately 48 people were in attendance. The Mayor gave an opening statement to start off the workshop.

#### **SMALL GROUP DISCUSSIONS**

Following a PowerPoint presentation, workshop participants were divided into two groups to discuss and provide their input and perspectives on the Preferred Station Area Plan that was presented for each transit station area. The following notes summarize the comments that were recorded from each group:

#### **Leoku Station Area**

- The gateway area can have **taller buildings**, while buildings in other parts of Leoku should be lower in scale.
- The giant “gateway tower” buildings are scary, they should be **low-rise**, scaled more to the heritage of the **plantation lifestyle** of Waipahu.
- The gateway area should have a “**plantation ambience**” character.
- There is concern about the **mid-rise, tiered** building design.
- How can the development be **managed** through the master plan, zoning code and special district incentives?
- Creating **pocket parks and natural stream areas** are a positive characteristic of the Plan.
- Would like to create a stronger **connection to the Pearl Harbor Historic Trail**, and more of a buffer zone between structures and the waterfront.
- Adding 3,000 new residential units could yield 1,000 more elementary students which could necessitate the building of **2 new elementary schools** (total 24 acres) in the neighborhood.
- A **new high school** could be necessary in the future.
- **Urban school standards** should be used in creating new schools.
- Community is interested in **financing and economic considerations** for the planned development.

- **Affordable housing** is a priority in the Leoku Station area. New development should not lessen affordable housing in the area.
- There may be **relocation issues** for some of the existing businesses.
- This station is on the outskirts of town and would have **less congestion**.
- **Transit parking** should be included near the stations.
- Having parking structures located **under parks** should be considered.
- The street ROW should include access for **all modes**, should be pedestrian-friendly and should include shared parking.
- Dedicated **bicycle parking** should be located at the station.
- A **police sub-station** at the transit station would help provide safety in the area.
- The property at **819 Farrington Hwy** should not be used as the touchdown point for the transit station. The landowner preferred to have the transit station and touchdown shifted or configured in a way that would not require use of this property.
- **Greening the rail-line** area with trees and eco-roofs should be considered.
- The community would like to see **schematic drawings of the station**.
- The **perspective sketches** are beautiful, but look more like southern California or Arizona, rather than Hawaii.

#### Mokuola Station Area

- How long will it take to **"build out"** the plan?
- How many of the large landowners around the station would be **willing to redevelop**?
- Will landowners be **forced to redevelop**?
- The transit station will **increase land values** in the area, which could result in higher property taxes and sewer fees. How will landowners be able to afford this?
- How will the construction of the transit line affect **existing businesses**?
- **Existing businesses owners** along the route need to be **notified** about any changes.
- Some businesses may **lose property** for access to the station.

- The transit infrastructure and station has the potential to **negatively affect mom-and-pop shops**. Why not put station by Waipahu High School so it won't affect local businesses?
- How will the transit system affect **employee parking** in the area?
- We shouldn't make improvements to **Kapakahi stream**, and should use the money in other places. The stream is **too shallow** with insufficient water flow.
- **Waikele stream floods** with a heavy rain.
- How can **both sides of Farrington** be connected?
- Hilo has a great example of an **oceanfront boulevard**.
- There may be **security issues** at any new parks in the area.
- The community really wants to SEE a rendering of **what Farrington would look like** with transit.
- **Foliage and trees** along the Farrington median should be **preserved if possible**. Raising the transit line to go above trees should be considered, similar to how the transit line is planned to go over the H-1 Freeway to reach the University of Hawaii Manoa campus.
- Will there be planning done for **each station** in the system?
- It feels like the Waipahu community is being used as **guinea pigs** for this type of development.
- The location of the station should be closer to **Waipahu Depot Road**.
- How will the transit system be **phased**, how expensive will fares be?
- We need to just **move ahead** with the transit and stop wasting precious time and public funds. City Council can't seem to make a decision.

# VAN METER WILLIAMS POLLACK

ARCHITECTURE • URBAN DESIGN

October 3, 2007

## Project: Waipahu TOD (project #0723)/ Advisory Committee Meeting #1

- o The following notes are a synopsis of the decisions and directions agreed upon in the meeting held at Waipahu Elementary School Library on September 26, 2007 from 7:00 pm to 9:00 pm.
- o Meeting Attendees:
  - **Advisory Committee** – Eddie Agas, Sr., Maureen Andrade, Scott Arakaki, Keith Hayashi, Connie Herolaga, Steven Kothenbeutel, David Masaki, Thomas Maus, Saxon Nishioka, Richard Oshiro, Patricia Pedersen, Mel Ramos, Susan Todani.
  - **VMWP** – Tim Van Meter, Adam Rosa, Electra Libre Fowler, Cheney Ferguson.
  - **DPP** – Kathy Sokugawa, Dina Wong
- o The meeting opened with the consultant presenting a draft list of over-arching principles (see below) which was created based on input received from Community Workshop #1.

### 'CELEBRATE WAIPAHU'

#### WAIPAHU STATION AREAS – LEOKU & MOKUOLA

##### STATION AREA PRINCIPLES

(Drafted: 09.26.07)

- 1) MAINTAIN THE LOCAL CHARACTER OF THE PLACE
  - a. *Mokuola* – 'Old Town'
  - b. *Leoku* – 'Commercial Center'
- 2) ENHANCE THE 'GREEN NETWORK'
  - a. Streets
  - b. Parks
  - c. Water
  - d. Paths/Trails

#### 3) CREATE A SAFE PEDESTRIAN FIRST ENVIRONMENT

#### 4) PROVIDE MIXED-INCOME HOUSING

- a. *Maintain quantity* of current affordable housing.
- b. Provide a variety of housing *types*.

#### 5) INTER-MODAL TRANSPORTATION NETWORK

- a. Fixed Guideway
- b. Park 'n Ride
- c. Buses
- d. Bicycles
- e. Pearl Harbor Historic Trail

#### 6) CREATE A MIXED-USE, VILLAGE-LIKE SETTING IN THE 'CORE' AREA (1/4 mi. radius around station location).

### 1) GENERAL: STATION LOCATIONS STATUS

- o Station Locations...how locked in are they?
  - We have *some* influence on where they are placed, but for the time being, they are locked in their current locations.
  - Moving Mokuola Station to Waipahu Depot Road?
    - Kathy Sokugawa stated that the station is set at Mokuola for now and will be for the short-term (we can't have a station alternative for every station). If there is consensus among the community to move the station to Waipahu Depot Road, the location might be able to change.
    - Things are happening along Waipahu Depot Road, e.g., the Festival Marketplace and the new Toyota dealership. Moving the station would affect the Toyota dealership which has brought jobs and is a stable community business.
    - The Mill Town Center will become a core of non-hospitality jobs in Waipahu and thus a transit station at Mokuola would make sense. It was further noted that Mokuola Street links directly with Waikale.
    - Keeping the station at Mokuola would revitalize the Civic Center... this is where the jobs are.
    - There is more housing within the Mokuola station ½-mile radius compared to the ½-mile radius around Waipahu Depot Road.

- Mokuola is more 'regional' – could maximize bus system to work with station as Mokuola is more of a 'vein' for existing regional bus transit...connecting it to transit station makes sense.
- Bus ridership seems higher closer to the High School because of the bus transit center...probably why DTS chose Mokuola.
- Waipahu Depot Road goes to the water and thus there are opportunities to open up the waterfront vista. On the mauka end, Waipahu Depot Road leads to the Waipahu Cultural Garden Park/Hawaii Plantation Village which represents the "Old Town."
- Question the pedestrian ability of Mokuola compared to Waipahu Depot.
- People places vs. car places – Mokuola is designed and ready to accommodate the automobile.
- Will ridership change related to station location (Mokuola vs. Waipahu Depot)? This should be studied more in-depth.

## 2) ENHANCING THE 'GREEN' NETWORK (DRAFT PRINCIPLE #2)

- It was noted that Goro Arakawa is looking into turning the Waipahu Depot brownfield (former landfill site), south of Farrington Highway, into a passive park.
- Kapakahi Stream potential – comparison to Boulder Creek in Boulder, CO. Could incorporate a walk/bike path and make it a beautiful place. Trail could connect to Pearl Harbor Historic Trail and be used for pedestrian transportation means as well as leisure.
- City and County has a comprehensive bike plan. We need to find this and make sure our connections make sense with their short and long-term plans.

## 3) PROVIDE MIXED-INCOME HOUSING (DRAFT PRINCIPLE #4)

- Current project going up near Mokuola station ('Twin towers'). Need to make sure standards are set that help enhance the character of the place. The people supported it because they *need* affordable housing NOW.

## 4) INTERMODAL TRANSPORTATION NETWORK (DRAFT PRINCIPLE #5)

- Preparation for Ewa Beach residents to use Leoku station with a park 'n ride?
  - Could look at having a park 'n ride at Ewa Beach and direct bus service from Ewa Beach to Leoku Station.

- Problem must be looked at...Ewa Beach people WILL be using this station.
- There needs to be improved bus connections for Ewa Beach residents.
- Pedestrian-first environment, *but* parking is a KEY component, and cannot be ignored. People will drive here. Furthermore, existing businesses would be negatively impacted without a park 'n ride.
- Centralized parking is essential for creating a pedestrian-oriented environment. Shared parking arrangements should be looked at. Creation of parking 'districts' where multiple uses can utilize the structure at different times of the day should also be considered. If shared parking arrangements are made, it starts paying for itself right away. Park 'n ride facilities could be shared with businesses and other uses during non-peak commuter times.
- The Filcom Center and Mill Town Center have a lack of adequate parking.

## 5) FIXED GUIDEWAY AESTHETICS

- What is the fixed guideway going to look like? (this was a BIG QUESTION, especially in Adam's group at the Community Workshop.)
  - Need to open it up as much as possible...put glass sides on top instead of concrete.
  - Greening the large concrete posts, such as trellises with native plants to grow and create a green oasis instead of concrete. This would help retain the character of the Farrington median that the community has worked so hard on.
- Limit platform distances and make them architectural...make it a nice experience driving through the walkway, as well as the procession of walking from the station, crossing Farrington Highway, and proceeding to commercial/retail destinations.

## 6) DRAFT PRINCIPLES – EDITS & ADDITIONS

- 'Mix of Uses': As in the definition of T.O.D., it states a *village-like setting*. Should this be added as a draft principle or is it just assumed?
  - This was assumed, but perhaps it should be added for clarification purposes.
  - The village setting refers to not only a mix of uses within individual projects, but also to a mix of uses that are located within a core area.
  - 'Integration' of uses will create synergy...how do the uses relate to each other?
  - Makai of Farrington/Leoku is a light industrial area, will this conflict with residential use?

- The group confirmed that #6 should be added: A mix of uses/village-like setting in the 'CORE' (¼-mile radius interpreted as the 'core'...outside this will be support and more about *intensity* than mixed-use). **Note: correct wording to be determined later.**
- 'Celebrate Waipahu' as an overarching theme.
  - Need marketing/principles to help capture the history, character, and uniqueness of Waipahu. Why would the outsider want to come to Waipahu? What's the story we want to tell?
  - Patricia Pedersen shared a story about the soccer game goodies handed out to thousands and only 20+/- were redeemed at the most anticipated place, McDonald's....this shows people's perceived perception of Waipahu.
  - Need to change this outside perception because it is NOT true... Waipahu people are proud of their heritage and have shown that the mix of cultures can and will get along.
  - There is a 'uniqueness' about this place because of the mix of cultures here.
  - The low-income areas makai of Farrington Highway are comprised largely of ethnic transitional population, e.g., Samoan, Micronesian.
  - "We take care of our children"...that is the plantation heritage way!
  - Involving the children of Waipahu would be helpful...they are the future, and they need to have a say in what happens to Waipahu. Great artists and other talents could be used at the stations. They would feel 'ownership' of it and take care of it if they had a say in it. Give them a place to make art instead of unwanted graffiti everywhere.
  - At build-out, could the companies involve the high school students as a type of work/study?
  - Property values *have gone up* in the past 5 years.

## VAN METER WILLIAMS POLLACK

ARCHITECTURE • URBAN DESIGN

November 19, 2007

### Project: Waipahu TOD (project #0723)/ Advisory Committee Meeting #2

- The following notes are a synopsis of the decisions and directions agreed upon in the meeting held at the Waipahu Elementary School, on November 15, 2007.
- Meeting Attendees:
  - **Advisory Committee:** Darrlyn Bunda, Myrna Feliciano, Keith Hayashi, Pastor Fernie Nicolas, Pastor Darlene Paahana, Pastor David Paahana, Patricia Pedersen, Brad Santiago, Kevin Kinvig
  - **VMWP:** Tim Van Meter, Adam Rosa, Rick Williams, Cheney Ferguson
  - **DPP:** Kathy Sokugawa, Dina Wong
- ***VMWP comments are bold and italicized in this manner.***

#### 1. MOKUOLA DRAFT ALTERNATIVES COMMENTS:

- From Workshop #2, there appears to be consensus that people like the "Old Town" concept and portions of the "Great Street" alternative. Refined alternatives, to be presented in January, will include boulevard and avenue treatments to Farrington Highway at the station area (see attached).
- Creek walk is good...the community has already planned to have a walk along Kapakahi stream from the Festival Marketplace to the Plantation Village.
- Kapakahi Stream was much worse four years ago - full of junk, debris, oil barrels, etc.
- Kapakahi Stream and Waipahu Depot Road could potentially provide a link to the Waipio Peninsula Soccer Park.
- Efforts are underway to revitalize the marsh.
- Both boulevard and avenue options are good and unique to Hawaii, but would like to focus on which will create the biggest economic boom for the community. ***This should be considered when deciding whether to move the station location west approximately 400 feet.***

1529 Market Street  
Second Floor  
Denver, CO 80202  
303.298.1480

1626 Wazee St.  
Suite 2A  
Denver, CO 80202  
303.298.1480

## 2. LEOKU DRAFT ALTERNATIVES COMMENTS:

- Refined alternatives, to be presented in January, will consist of boulevard and avenue treatments of Farrington Highway at the station area (see attached).
- The industrial area makai of Farrington Highway is an ugly area, nobody is able to see and enjoy the waterfront.
- A comparison was made between Waipahu and Kakaako. Light industrial businesses in Kakaako have been displaced. Where did they move to? The area now has luxury condos which the majority of local residents cannot afford.
- Waipahu's industrial area provides meaningful career opportunities. This is important because it often requires multiple families to purchase a \$600-\$700,000 home.
- Although there may be options for businesses in Waipahu to relocate, the price would need to be financially within reach of the existing establishments.
- Kathy Sokugawa noted that future plans call for significant industrial acreage in Kapolei, approximately 20 acres in Royal Kunia, and about 20 acres in Waiawa Gentry. Mill Town Center also includes an area zoned I-2 Intensive Industrial District.
- ***VMWP's economic consultant will assess if relocation of Waipahu's industrial area should be part of the refined alternatives, including consideration of where the existing businesses could potentially relocate.***
- ***VMWP's economic consultant will determine approximately how many of the workers in Waipahu's industrial area are residents of Waipahu compared to those whom commute to the area in order to better understand/justify relocating the businesses.***
- ***Studies have shown that workers in industrial establishments typically do not commute to work via transit (single-occupancy pick-up trucks are usually the norm for these workers).***
- A park 'n ride facility off of Farrington Highway would be desirable.
- Important that the trees to be removed along Farrington Highway median are replaced. Need to get them back!
- Are we missing important historical artifacts? How do we avoid surprises, e.g. discovering bones?

## 3. OPPORTUNITIES AND CHALLENGES

***VMWP presented a list of opportunities and challenges to TOD around the station areas (see below).***

### **OPPORTUNITIES:**

- PLACEMAKING
  - Identity/Branding
  - Gathering Places
    - Parks
    - Plazas
  - Main Street
  - Transit Boulevard
  - Connections to Water
  - Mix of Uses
- INCREASING CHOICES
  - Transit
  - Housing
  - Retailing
  - Employment
  - Recreation
- SOCIAL
  - Mixed Income
  - Increased Connections
  - Engage Children
  - "Free" Seniors
  - Positive Identity
  - Sense of Pride
- ENVIRONMENTAL
  - Clean Water
  - Reduce local car trips (VMT)
  - Cooler Town
  - Greener Town
  - Reduced Parking

- HEALTH
  - Increase Walking
  - Cleaner Air
  - Compact Development
- ECONOMICS
  - Regional Draw and Spending
  - Sales Taxes
  - Increase Income Levels
  - Increase Opportunity

**CHALLENGES:**

- PRIVATE LAND FOR PUBLIC GOOD
  - Boulevard Treatment
  - New Parks
  - New Streets
  - Canal Walk
  - Park 'n Ride
- INTEGRATING TRANSPORTATION
  - DOT (Farrington Re-design)
  - DTS (Fixed Guideway, Station Designs, Park 'n Rides)
  - Fixed Guideway Structure
- PUBLIC REGULATIONS
  - Street Standards
  - Parking Standards
  - School Size Standards
  - Open Space Standards
  - Building Standards
- ENVIRONMENTAL
  - De-channelizing the Canals
  - Marsh and Harbor Water Quality
  - Floodway (Mokuola)

- DEVELOPMENT
  - Land Assembly
  - Infrastructure
  - Public Financing
  - Phasing with Industrial in-place
  - Affordable Housing
    - Replacement
    - Additional

**4. OTHER COMMENTS:**

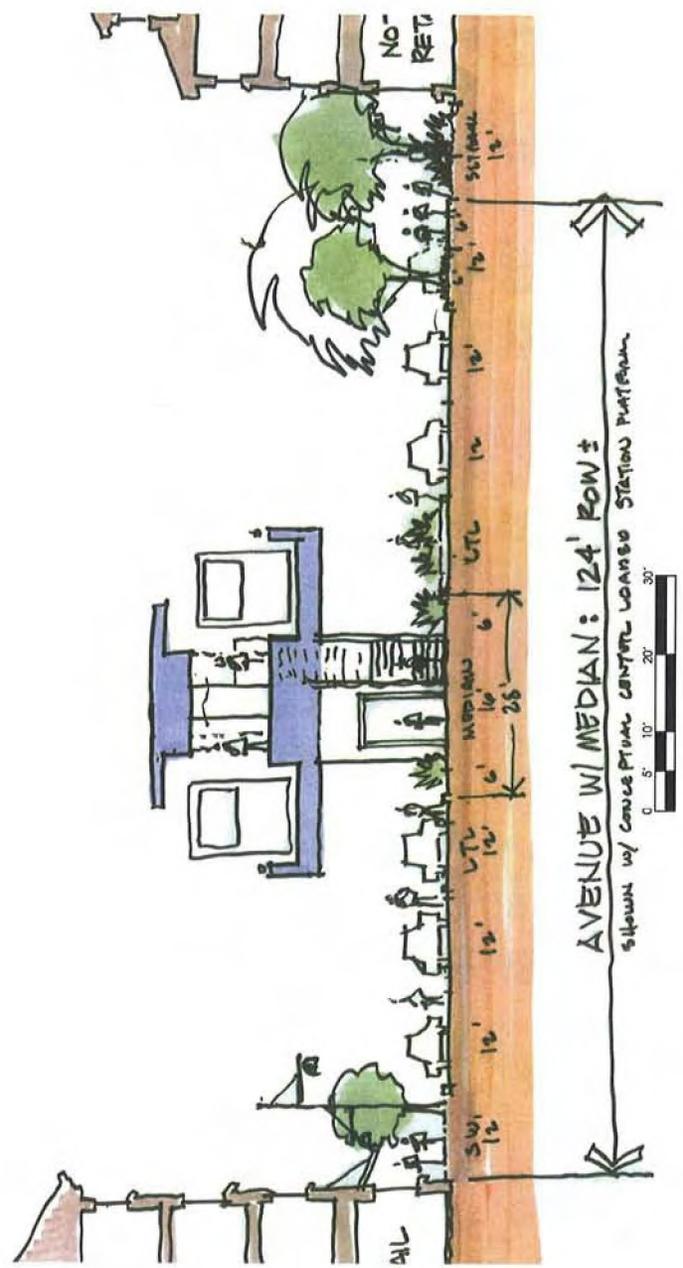
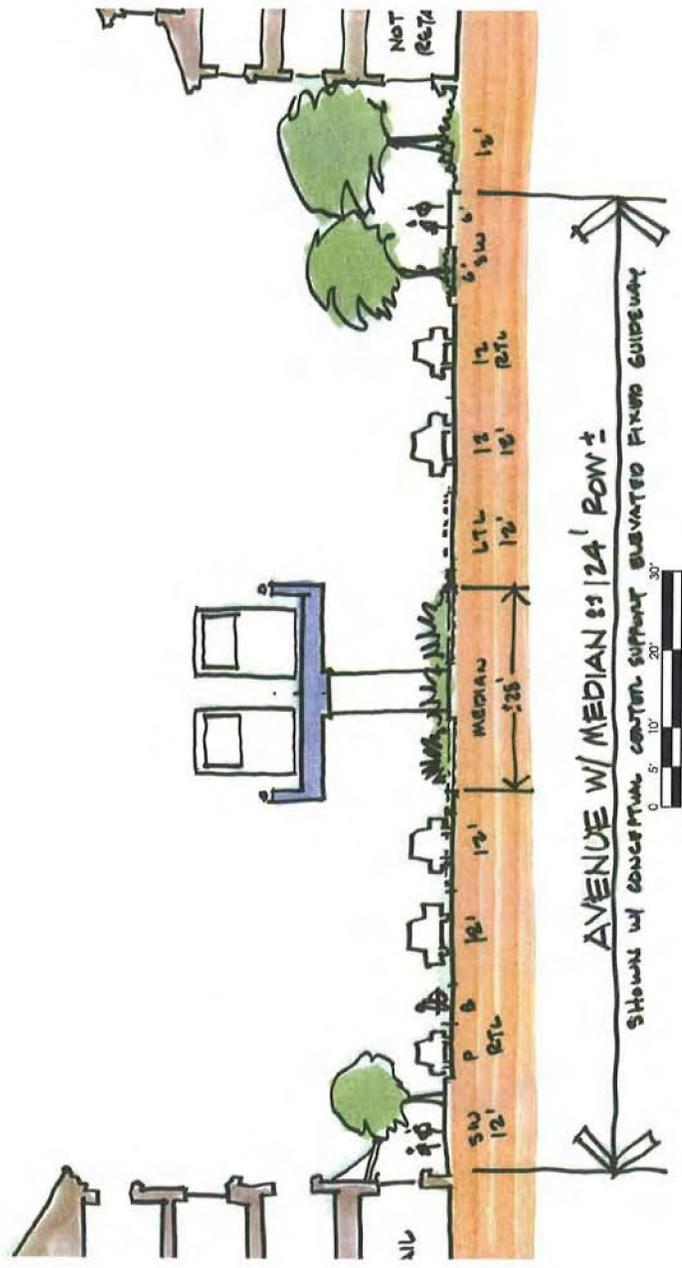
- Developer incentives are needed. It is difficult now to get development projects to financially pencil-out.
- Community involvement and input is needed in developing land use regulations and developer incentives.
- What will happen to existing businesses? Will rent be too expensive to afford?
- ***VMWP noted that the use of Tax Increment Financing (TIF) could potentially be used as a financing mechanism to help pay for public improvements. TIF is a tool to use future gains in property taxes to finance the current improvements that will create those gains.***
- We need to be aware that from previous trials for a transit system, people are going to show up when it starts being built to protest. If this happens, will it stop production or will they be ignored?
- Kathy Sokugawa assigned "homework" for the Advisory Committee members:
  - Visit DPP's website: <http://honolulu.dpp.org/Planning/>
  - Click on 'Get on Board!'
  - View the July 14<sup>th</sup> TOD conference presentations by Marilee Utter and Debbie Bischoff, both are very good and informative.

These notes are the recollection of the author. Any discrepancies or errors should be sent to VMWP within 14 days or the above will be assumed to be correct.

Sincerely,

Cheney B. Ferguson





**Advisory Committee Meeting 3  
Meeting Notes**

March 12, 2008

**WAIPAHU NEIGHBORHOOD  
TOD PLAN**

City and County of Honolulu

The following is a brief summary of the comments from the Advisory Committee Meeting #3 held on January 30, 2008. Meeting #3 focused on the Refined Alternatives for the Waipahu Neighborhood TOD Plan. *Comments from Van Meter Williams Pollack and the City Department of Planning and Permitting are shown in italics.*

- Several Committee members expressed the need for **free parking** for Waipahu residents specifically for transit. Many Waipahu residents currently take the bus into town so they don't have to pay for **expensive parking** at their workplaces. The perceived outcome of a lack of public parking may be illegal parking and use of on-street parking to meet transit ridership demand, impacting neighborhood streets.
- *VMWP proposed the concept of **shared parking**. Several Committee members noted that Waipahu is an older community and residents would question having to pay for shared parking. The EIS process will analyze the potential impacts and mitigative measures pertaining to parking.*
- A Committee member suggested the possibility of **transit parking under the elevated guideway structure**. *This would be difficult to implement based on the current system design being above Farrington Highway's right-of-way and circulation.*
- Members were interested in seeing how the **permitted uses** in the TOD Plan would be **phased over time** and how do we ensure that new developments would be compatible with existing uses. A Committee member also asked about how the **Pupu area** would be addressed. Another member asked about how to encourage conversion of existing uses that are not the highest-and-best use. *Permitted uses will be refined within the TOD zoning regulations as a result of the Plan. Phasing will happen over time as a result of market forces and may also be stimulated by regulatory changes such as allowable height, parking and open space requirements.*
- Committee members agreed that the Plan needs to be **flexible to allow change over time**. *The Plan is being created as a framework for the community's vision that will allow for flexibility in development patterns and intensity.*
- A Committee member emphasized that the Plan should aim to maintain the existing number of **affordable housing units**.

- The Plan should focus on creating vibrant, commercial activity first and the housing component will follow. **Commercial revitalization** should be an outcome of the transit-oriented development. This is a major opportunity for Waipahu.
- Members discussed the idea of having **shops and services** such as day care, coffee shop, directly at the station or on the mezzanine level to serve commuters (similar to New York).
- A member asked how **parks would be created** on private property. Another member asked if eminent domain would be used to purchase properties for use as parks and how the landowners would be compensated. *Property may be purchased by the City for new parks, or they may be created in context with new developments, especially in larger redevelopment efforts.*
- **Greening the transit structure** with vines and other plants should be explored for aesthetic purposes and also to deter graffiti.
- Members found it hard to envision what the transit line would look like from existing views along Farrington Highway, especially in areas of extreme grade change between the two stations.
- **Ground-level sketches** of proposed changes are needed in order to get a true understanding of impacts and to have a better perspective of what buildings may look like.
- **Photos of the existing station areas** should be incorporated into the next Public Workshop.
- A suggestion was also made to have **photo examples of buildings** that reflect the character of Waipahu and that would complement the Waipahu TOD Plan. The Waipahu Festival Marketplace and the Hawaii Plantation Villages were mentioned as examples. Not all of the photo examples need to be from Waipahu.
- A member asked if the Plan would contain **design guidelines**. New development in Waipahu should incorporate the **historic look and feel** of the neighborhood. In particular, buildings along Waipahu Depot Road need to better reflect the **current scale and character** of the area. The Waipahu Festival Marketplace and other existing historic buildings are a good example of the character desired and should be a model for the design guidelines. One member mentioned that she was accepting of 5-story buildings at Mokuola.
- Members wanted to see a greater emphasis on how the Mokuola alternative would help to "**strengthen the historic core**," particularly along Waipahu Depot Road. This includes connections to the **Hawaii Plantation Village**, Waipahu's

"museum," and other existing neighborhood resources. The Hawaii Plantation Village should be considered a centerpiece or anchor to Waipahu. Another member noted that there were plans to construct a pathway from the Waipahu Festival Marketplace to the Hawaii Plantation Village.

- Members indicated the need to **reflect the Waipahu character** and the **plantation town history** through the **station design**. The station should be elegant, simple, and distinctive without being too "fancy."
- Committee members were interested in knowing more about **the proposed levee improvements**, where they would occur and how they would affect the neighborhood. This is recognized as a major hurdle to TOD in the Mokuola area. Why would anyone invest in an area currently designated as floodway? *Tax increment financing (TIF) could possibly be considered as a way to pay for the levee.*

#### Advisory Committee Meeting 4 Meeting Notes

WAIPAHU NEIGHBORHOOD  
TOD PLAN

May 23, 2008

City and County of Honolulu

The following is a brief summary of the comments from the Advisory Committee Meeting #4 held on April 22, 2008 at the Waipahu Elementary School Library. Meeting #4 focused on the Preferred Station Area Plans for the Waipahu Neighborhood TOD Plan. *Comments from Van Meter Williams Pollack and the City Department of Planning and Permitting are shown in italics.*

#### Leoku Station Area

- There is opportunity for **denser development** at the Leoku station area versus Mokuola.
- The Plan needs to show more **green space** for the enjoyment of residents and de-emphasize the new development, there are too many buildings and the area looks "cluttered."
- Would the **marsh** be usable? Could it be a gathering place?
- How do the gateway buildings fit into the Waipahu Town Plan? Several members **objected to the proposed heights** of these buildings and felt this concern was stated previously. They would prefer to have three to five-story buildings, noting that Waipahu is not downtown but historically it was a plantation town.
- Consider creating an **underground parking** with a park or open space on top, similar to the Fasi Municipal Building and Beretania Street police station parking structures.
- How do you prevent this area from turning into a Salt Lake or Makiki, characterized by mostly higher-density housing? What would attract people to Waipahu? *DPP responded that the creation of a **Special District** would be the implementing tool to guide development. For the Plan to be successful, the support and investment from developers and landowners are essential.*

#### Mokuola Station Area

- Likes the **village-like setting** shown in the sketch.
- Isn't this a **flood area**? What happens if the transit station cannot be built here due to structural reasons? It was noted that some buildings in the area have experienced shifting foundations. Residences on Nalii Street have had sinkholes in their yards as a result of nearby pile-driving.

- The **soil conditions** have not changed. It will take heavy investment in site preparation and there will be structure/design challenges to address during construction.
- Where would the **levee** be built?
- *VMWP noted that there would be a net gain of approximately 49,000 square feet of **commercial and industrial square feet**. One member thought this number seemed low given the projected increase in residential units.*
- **Kamehameha Schools** real estate holdings in Waipahu are relatively small. They own the American Savings Bank building at Waipahu Depot Road.

#### Both Station Areas

- Several members said that **parking**, preferably free parking, would be needed near the stations for both Waipahu and Ewa Beach residents.
- Who would use the **structured parking**?
- What kind of **commercial activities** are envisioned? What kind of uses? *VMWP noted that commercial development would include live/work space, service, office, and retail uses.*
- How will the Plan be realized? Support and investment from developers and landowners needs to occur early on. Requirements of the **Special District** should be discussed as soon as possible. Developers and landowners need predictability of what to expect in the next ten to 15 years.
- How "fixed" are the **land designations** in this Plan, especially once it is adopted by Council? Is it set in concrete or is there some flexibility? *VMWP responded that this Plan is more about form rather than specific land use. DPP noted that the Plan becomes more defined once zoning is addressed in the Special District.*
- What happens if a parcel is changed to **park use**? *DPP responded that the landowner would be compensated for condemnation, if condemnation is required.*
- Members thought that the design team should change the term "**final build out**" since the phrase and illustrations could be misinterpreted. A suggestion was made to call it "massing model."
- In the presentation for Workshop #3, the **sketches and imagery** from a pedestrian perspective should be emphasized, and the plans and birds-eye views deemphasized.

- Will the Plan include **illustrations and design guidelines**? *VMWP responded that the Plan will create a framework for design guidelines, but would not have specifics. There are already guidelines in the existing plans which are applicable.*
- **TOD at other station areas** could impact Waipahu, e.g., West Oahu? The overall plan or grand scheme of TOD along the transit route could affect development potential in Waipahu. *VMWP noted that Waipahu TOD areas **shouldn't directly compete** with other station areas along the line. The station areas should complement each other.*
- When will we explore **incentives and disincentives** to developers and landowners? *VMWP responded that this would be looked at in the next phase of the project which covers zoning and implementation.*
- There was some discussion on the **ballot initiative** to stop rail and how it could affect the transit project.

The following is a brief summary of the questions and comments from the Advisory Committee (AC) Meeting #5 held on July 16, 2008 at the Waipahu Elementary School Cafeteria. Van Meter Williams Pollack (VMWP) presented the draft zoning recommendations and implementation strategies being considered for the Waipahu Neighborhood TOD Plan. *Comments from VMWP, the City Department of Planning and Permitting (DPP), and the City Department of Transportation Services (DTS) are shown in italics.*

#### Land Uses

- Once the Plan is in place, would zone changes be allowed, e.g., from B-2 Community Business District to A-2 Medium Density Apartment District? *VMWP answered that under the TOD Special Districts, significant zone changes for the most part would not be needed since a fair mix of uses is already permitted.*
- The Zoning Recommendations Memo (July 8, 2008) did not include churches listed under permitted uses, why not? *VMWP noted that institutional uses, such as churches, would be added as a permitted use. Churches are an integral part of a community and are considered good neighbors. (Note: The Land Use Ordinance (LUO) classifies churches as "meeting facilities").*
- What is the definition of a major repair establishment? *DPP responded that, according to the LUO, a major repair establishment primarily provides restoration, reconstruction and general mending and repair services. Furthermore, a major repair establishment includes those repair activities which are likely to have some impact on the environment and adjacent land uses by virtue of their appearance, noise, size, traffic generation or operational characteristics.*
- Under the TOD Plan, what happens to existing uses? *VMWP responded that existing uses are "grandfathered" in, but that redevelopment of the property must follow the TOD Special District regulations. (Note: The LUO considers such uses which were previously lawful as "nonconforming uses").*
- The TOD Special District regulations need to protect existing uses from unforeseen casualties, such as a fire.

#### Floor Area Ratio

- The Waipahu Town Center is developed to a Floor Area Ratio (FAR) of approximately 0.25. It would probably not be economically feasible to impose a minimum FAR of 1.0 in the TOD Precinct. Imposing a minimum FAR would likely

result in "landbanking," i.e., not building anything until the timing is right. A minimum FAR of 0.5 would be more realistic, but even then, presents a hardship if it must be met with building permit requests for minor additions and/or renovations.

#### Building Heights

- There was disagreement over the recommendation which allows a maximum height of 90 feet in the Farrington/Leoku TOD Precinct, with consideration given to allowing up to 120 feet as an incentive for providing a Community Benefits Bonus. An AC member did not want to see buildings similar in height to the two 12-story Plantation Town Apartments, and was not convinced that buildings this tall are essential in creating the Gateway at the end of the Leoku Station area.
- There was support for allowing buildings up to 120 feet in the Farrington/Leoku TOD Precinct, but only if the community could be involved in negotiating the Community Benefits Bonus package, and if the benefits were based on a "formula," and not open negotiation by the City. *DPP responded that the community would be involved – the applicant could be required to make a presentation before the Neighborhood Board, and to notify adjacent property owners regarding a public hearing on the subject.*
- A community member did not want to see the maximum building height regulated.

#### Community Benefits Bonus

- Currently, exceptions to the LUO may be approved via the variance process. How does this differ from the review process in negotiating the Community Benefits Bonus package? *DPP responded that the latter would entail a greater level of review. A "development menu" could be established that offers developers and the community predictability in terms of how increases in density and building height correspond to the provision of Community Benefits.*

#### Parking

- *On this topic, DPP noted that parking in TOD Districts could be provided using shared, congregate parking. In the 1950s, parking districts in Downtown, Kailua, and Kaimuki were established. Landowners paid a parking district assessment, and in exchange did not need to provide on-site parking. Shared parking on private property is another option. This arrangement is often seen, for example, between a church and a preschool.*
- What about park-and-ride facilities near the Waipahu stations? *DTS noted that park-and-ride lots are not planned for Waipahu as part of the rapid transit project. Park-and-ride facilities are planned for East Kapolei which will intercept people coming from Waianae, Kalaeloa, Kapolei, and Ewa Beach.*

- Where are other park-and-ride facilities planned? *DTS responded that in addition to East Kapolei, park-and-ride lots are planned near the Pearl Highlands Center and at the Middle Street Transit Center. The park-and-ride facilities are strategically placed in areas where there is a large concentration of people. The transit system is not designed to have drive-up stations.*
- What about Waipahu and Village Park residents that live mauka of the Freeway? *DTS responded that once the transit backbone is established, it would liberate circulator buses to go into neighborhoods to service these residents. It was further noted that Waipahu already has tremendous bus ridership.*
- Without a park-and-ride facility in Waipahu, people will park their cars all over the inner streets and then catch the bus or walk to the transit station. The parked cars may have a negative impact on neighborhoods. An enforcement sticker program that would allow only neighborhood residents to park 24 hours a day should be considered.
- Need to keep an open mind and explore the possibility of developing a parking facility as a public-private partnership.
- Where do you envision on-site parking to be situated on the property, e.g. for a restaurant? *VMWP responded that parking behind the building would be encouraged.*

#### **Parks and Open Space**

- Who will pay for parks? *DPP noted that incentives need to be created so that developers provide parks and other amenities.*
- Who will maintain private open space? *DPP responded that there are different options to consider regarding maintenance, possibilities include community/neighborhood associations or the developer.*

#### **Design Guidelines**

- Would like to see photos of developments that adhered to the proposed design guidelines, and vice versa, developments that did not follow the guidelines.

