

Kapolei, and 'Ewa Villages, and for a bikeway continuing on from 'Ewa Villages to Waipahū and 'Aiea as part of the Pear Harbor Historic Trail.

Landscape Treatment

- Provide generous landscaped open spaces throughout the resort area to promote tropical beauty and provide visual relief and a feel of spaciousness.
- Use landscaping to provide continuity between residential, resort, marina, and commercial areas and the recreational areas at the shoreline, parks, and golf courses.
- Use landscaping to enhance and preserve view corridors and provide privacy, screening, shade, and comfort.
- Use xeriscaping (the use of native landscape materials with low water demand), non-potable water for irrigation, and efficient irrigation systems wherever possible to conserve groundwater resources.

3.12 INDUSTRIAL CENTERS

This section provides general policies and guidelines for development of industrial centers and industrial uses in 'Ewa.

Industrial centers in 'Ewa include the Barbers Point Industrial Area, Kalaeloa, Honouliuli Industrial Area, Kahe Valley, and an area near the Hoakalei marina.

Barbers Point Industrial Area includes Campbell Industrial Park, Kalaeloa Barbers Point Deep Draft Harbor, Kenai Industrial Park, Kapolei Harborside, and Kapolei Business Park. It is the site of the State's largest heavy industrial area (Campbell Industrial Park) and an important industrial harbor and fuel transfer point.

The Barbers Point Redevelopment Commission approved continuation of the airport at Kalaeloa to provide a reliever airport for Honolulu International Airport, and a site for general aviation operations. As a result, the Pacific Aerospace Training Center, a program of the Honolulu Community College, was established to provide flight training for Hawai'i, Mainland, and international students. A number of opportunities for

aviation-oriented industrial and training developments associated with the Center have been identified.

In 2002, the State Legislature transferred redevelopment responsibility for Kalaeloa to the Hawai'i Community Development Authority (HCDA). The HCDA prepared a Master Plan for redevelopment of Kalaeloa. The Master Plan (approved in 2006) identifies lands capable of providing over two million square feet of light industrial floor space.

Honouliuli includes 44 acres of land zoned industrial/commercial mixed use in the 'Ewa by Gentry project, the 49-acre Honouliuli Wastewater Treatment Plant, and the 72-acre 'Ewa Industrial Park zoned for intensive industrial uses.

3.12.1 GENERAL POLICIES

- Maintain industrial activity at Barbers Point Industrial Area, Kalaeloa, Honouliuli Industrial Area, and Kahe Valley and permit industrial activity at other dispersed industrial areas, as noted below.
- If a major film studio is developed within industrial areas in 'Ewa, allow accessory uses, such as film production offices, a "back lot" area with commercial uses, and visitor attractions. Overnight accommodations for film crews are allowable as an accessory use to a major film studio.

Barbers Point Industrial Area/Kalaeloa

- Maintain the Barbers Point Industrial Area as one of O'ahu's and the State's most important industrial areas.
- Allow construction of an additional electrical power generating plant at the Barbers Point Industrial Area, possibly taking advantage of cogeneration opportunities with other industrial activities. The 138 kilovolt transmission corridor running from the Barbers Point Industrial Area to Waiau could accommodate additional load on the existing poles.
- Develop the northern parts of Kapolei Business Park, Kapolei Harborside, and any Kalaeloa lands designated for industrial use for light industrial uses or compatible commercial uses as a transition between heavy industry at Campbell Industrial Park and the City of Kapolei.

Honouliuli Industrial Area

- Develop Honouliuli as a smaller industrial area, used for wastewater treatment and for light industrial and industrial-commercial mixed uses to serve the surrounding communities.
- Allow a power generation facility to be included if it is dependent on wastewater treatment operations and can be designed so that it is generally not visible from nearby major public rights-of-way, residential areas, and commercial areas.
- Expand the Honouliuli Wastewater Treatment Plant to accommodate additional growth in the region as well as to provide additional facilities for higher levels of wastewater treatment.

Other Industrial Areas

- Allow **service-oriented industrial uses** throughout the region as noted below. Uses requiring larger lots should be located in Campbell Industrial Park. Small-lot uses, including automobile repair shops, contractor's yards, and businesses serving residential and commercial areas, should be allowed to locate near the City of Kapolei in the Kapolei Business Park and on any industrial lands which may be designated within Kalaeloa.
- The **Hawaiian Electric Company generating plant** in Kahe Valley is and should remain the largest source of electrical power on O'ahu. Allow the plant to be expanded to take advantage of available land area, cooling system capacity, and power transmission lines, if needed.
- Allow development of the **industrial area planned for the western edge of Ocean Pointe** to accommodate marine haul-out facilities, repair shops, and related small boat industrial uses.

3.12.2 GUIDELINES

The following guidelines suggest how the general policies for Industrial Centers should be implemented.

All Industrial Areas

Appropriate Scale

- Minimize the visibility of large building volumes and tall building or machinery elements from resort areas, residential areas, commercial and civic districts, and parks through site planning and landscaping.

Environmental Compatibility

- Locate industries and utilities that discharge air or water pollutants, even when treated, in areas where they would impose the least potential harm on the natural environment in case the treatment process fails to perform adequately.
- Locate and operate uses that generate high noise levels in a way that will keep noise to an acceptable level in existing and planned residential areas.
- Use xeriscaping (the use of native landscape materials with low water demand), non-potable water for irrigation, and efficient irrigation systems wherever possible to conserve groundwater resources.

Barbers Point Industrial Area

Coastal Environment

- Set back all buildings a minimum of 60 feet from the shoreline and 150 feet where possible if justified based on historic and projected shoreline erosion data.
- Provide a lateral public access easement along the entire shoreline from the Kalaeloa/Barbers Point Deep Draft Harbor to Kalaeloa.
- Continue to provide the major entry point to the shoreline easement at the Barbers Point beach park and lighthouse area.
- Provide at least one additional minor access, similar to the one at Kenai Industrial Park, at the drainage channel next to Kalaeloa.
- Provide access at other points where public parking on the street is available.

Building Height and Mass

- Limit building heights generally not to exceed 60 feet when they consist of large mass.
- Allow taller, vertical structures when required as part of an industrial operation, but require a view plane study to be conducted for structures over 100 feet in height to determine if they can be sited or designed to minimize visibility from residential, resort and commercial areas, public rights-of-way, and the shoreline.

Use Allocation

- Allow small lots to be provided within the Kapolei Business Park and Kapolei Harborside as sites for small business service uses.

Landscape Treatment

- Require the planting of a landscape screen, consisting of trees and hedges, along street frontages to minimize the visibility of parking, storage, industrial equipment, and operations areas from the street.
- Require special landscape treatment for streets leading to the shoreline access points.

Honouliuli Industrial Area

Building Height and Mass

- Limit building heights to generally not exceed 60 feet, especially for buildings of large mass.
- Allow taller, vertical structures when required as part of an industrial operation, but require a view plane study to be conducted for structures over 100 feet in height to determine if they can be sited or designed to minimize visibility from residential, resort and commercial areas, major public thoroughfares, and the shoreline.

Roadway Setbacks

- Require wastewater treatment structures to be at least 300 feet from the proposed alignments of the Kapolei Parkway, and the Kualakaʻi Parkway. Setbacks for other industrial uses should be as given in the zoning standards.

Landscape Treatment

- Require the planting of a landscape screen, consisting of trees and hedges, along street frontages to minimize the visibility of parking, storage, industrial equipment, and operations areas from the street.

Other Industrial Areas

Separation of Use Areas

- Allow small industrial lots (10,000 sq. ft. or less) for repair services and "incubator" businesses to be located near the commercial core of the City of Kapolei, but not on the principal commercial streets.
- Locate warehousing and other industrial uses requiring larger lots in industrial parks.

Landscape Treatment

- Require use of privacy walls and buildings, with minimal use of landscaping to visually screen small-lot industrial areas, outdoor work and storage areas for vehicles, equipment and supplies from the street and adjacent lots.
- Require use primarily of landscaped setbacks and street trees to provide visual screening in large-lot industrial subdivisions.

3.12.3 RELATION TO URBAN LAND USE MAP

Industrial zoning should generally be limited to those areas shown as "Industrial" on the Urban Land Use Map in Appendix A, provided that industrial zoning may be granted for an individual activity which, because it is a public transportation or utility use or because of its unique characteristics, is unable to locate in a planned industrial area.

Heavy industrial uses should be located at Campbell Industrial Park, transitioning to lighter industrial uses closer to the City of Kapolei.

3.13 KALAELOA

Kalaeloa (formerly Barbers Point Naval Air Station) is designated as a Special Area within the 'Ewa Development Plan Area because of the need to provide strategies for the redevelopment of the area, to coordinate the activities of the many private, City, State, and Federal agencies involved in the area, and to coordinate redevelopment of Kalaeloa with the development of the rest of 'Ewa.

In 1999, the Barbers Point Naval Air Station was closed, and the process of transferring the Navy lands to civilian control for public benefit began. Approximately 1,050 acres was retained by the Navy, and 457 acres were transferred for use by various other Federal Agencies. The balance of 2,180 acres were declared surplus and made available for transfer to various State and City agencies for public use. Table 3.6 lists the acreage retained by Federal agencies, acreage under negotiation for conveyance, and the acreage which has been transferred to City and State agencies.

The **Kalaeloa Redevelopment Plan** was prepared for Kalaeloa in December 2000 by the Barbers Point Naval Air Station Redevelopment Commission and accepted as the **Kalaeloa Special Area Plan** by the City Council (Res. 01-86, April 2001).

In July 2002, the State Legislature transferred responsibility for Kalaeloa to the Hawai'i Community Development Authority (HCDA). HCDA prepared a **Kalaeloa Master Plan** for redevelopment of Kalaeloa that was approved by the HCDA Board and the Governor in 2006. The **Master Plan** identifies the need to upgrade all major infrastructure systems (roads, drainage, water supply and wastewater) to City standards in order to support the substantial residential, retail, office and industrial development envisioned in the **Master Plan**. The **Master Plan** should be submitted for acceptance by the City Council as the Special Area Plan for Kalaeloa, replacing the 2000 **Kalaeloa Redevelopment Plan**.

3.13.1 GENERAL POLICIES

- Use Kalaeloa's redevelopment as an opportunity to integrate the circulation system and land use pattern of the 'Ewa Plain.
- Develop a major new regional public park, and provide continuous lateral public access along the shoreline at Kalaeloa.

TABLE 3.6: KALAELOA LAND CONVEYANCE STATUS (in acres)				
AGENCY	PROPOSED USE	ACREAGE		
		retained	conveyed	pending
U.S. Navy	Golf Course, Horse Stables, two beach parks, Landfill, Public Works Center, and Defense Reutilization and Marketing Office	437	0	0
Ford Island Properties	Lands brokered for Ford Island Development	0	492	0
U.S. Coast Guard	Air Wing Headquarters	0	44	14
U.S. Federal Aviation Agency	Navigational Aid Beacon	0	18	0
U.S. Fish & Wildlife	Pearl Harbor National Wildlife Refuge	0	37	0
U.S. Veterans Affairs	Homeless Assistance and Social Services	0	7	0
U.S. Postal Service	Existing Post Office	0	1	0
Hawai'i National Guard	Consolidated Headquarters & Operations	0	148	0
State DOE	Barbers Point Elementary School	0	14	0
State DHHL	Leases for commercial and industrial purposes	0	556	0
State HCDA	Kalaeloa Heritage Park	0	77	19
State HHFDC	Holo Loa'a Shelter	0	12	0
State DOT	Kalaeloa (John Rodgers) Airport	0	752	53
State DOT	Various Roads	0	91	0
UH Honolulu CC	Pacific Aerospace Training Center	0	6	0
City BWS	Reverse Osmosis Facility	0	20	0
City DTS	Various Roads	0	66	0
City Parks & Recreation	Kalaeloa Regional Park, Kalaeloa Downtown Neighborhood Park	0	0	421
Ford Island Housing LLC	On-Station Housing	0	53	0
Carmel Partners	Orion, <i>Makai</i> , and Orion Park Housing	0	73	0
State HCDA	Unallocated ⁽¹⁾ Parcels	0	0	259
Unallocated ⁽¹⁾	Roads and Easements	0	0	26
TOTAL		437	2,467	792

Notes:
⁽¹⁾ Lands originally assigned to agencies that subsequently withdrew their interest in receiving the lands.
SOURCE: Hawai'i Community Development Authority, "Table 2-1: Kalaeloa Land Conveyance Status," Kalaeloa Master Plan (March 1, 2006) and agency updates as of May 2011.

- Create a continuous pedestrian route along most of the 'Ewa Coast by reserving the entire shoreline of Kalaeloa for public access and recreation, and linking to adjacent pathways in Ocean Pointe/Hoakalei and Campbell Industrial Park.
- Require building setbacks from the shoreline.
- Integrate the road network within Kalaeloa with the regional circulation system for all of 'Ewa to provide additional ways for residents and workers to cross 'Ewa from east to west and north to south.
- Provide ample lands within Kalaeloa devoted to uses that will create long-term jobs for 'Ewa's residents.

3.13.2 GUIDELINES

The following guidelines suggest how the general policies for Kalaeloa should be implemented:

- Develop a major regional park at Kalaeloa that provides beach recreation and support facilities near the shoreline, other active recreation facilities in *mauka* areas, and preserves for archaeological and cultural resources, wildlife habitat, wetlands, and endangered plant colonies.

Coastal Environment

- Require a minimum building setback of 60 feet and a lateral public access easement along the entire shoreline, with the entry point at the former military beach recreation center. Where possible, the setback should be expanded to 150 feet where justified by historic or adopted projections of shoreline erosion rates.
- Connect the Kalaeloa shoreline access easement to shoreline access easements at the Barbers Point Industrial Area to the west and to public pedestrian pathways at Ocean Pointe/Hoakalei to the east.

Separation of Use Areas

- Design the road pattern and use landscape buffers to separate and distinguish military support housing, airport/industrial facilities, and recreation/wildlife areas from one another.

Appropriate Scale

- Use site planning and landscaping to minimize the visibility of large building volumes and elements from residential areas, commercial and civic districts, and public rights-of-way and parks.

Circulation System and Transportation Facilities

- Design the circulation system to include major roadways connecting the City of Kapolei to the shoreline recreation center and Ocean Pointe/Hoakalei.
- Upgrade the road system to allow bus stop facilities to be provided at the airport, military housing area, and shoreline recreation area.

Landscape Treatment

- The visibility of parking, storage, and airport/industrial operations from the street should be minimized through the planting of a landscape screen, consisting of trees and hedges, along street frontages.
- Require streets connecting the City of Kapolei to Ocean Pointe/Hoakalei and the shoreline recreation areas to receive special landscape treatment.
- Use xeriscaping (the use of native landscape materials with low water demand), non-potable water for irrigation, and efficient irrigation systems wherever possible to conserve groundwater resources.

3.14 PEARL HARBOR NAVAL BASE (WEST LOCH)

The West Loch Annex of the Pearl Harbor Naval Munitions Command is proposed to be the principal site where U.S. Department of Defense ordnance handling and storage for O'ahu is consolidated. The existing Explosive Safety Quantity Distance (ESQD) arc at West Loch will remain, but would not need to be enlarged. City general policies for these areas are:

- Expand limited public access to the shoreline waters of West Loch beyond the West Loch Shoreline Park.
- Retain and enhance wetland wildlife habitat areas along the Pearl Harbor shoreline.

3.15 UNIVERSITY OF HAWAI'I WEST O'AHU

This section contains general policies and guidelines for development of the University of Hawai'i West O'ahu.

In 1997 at the time when the revised 'Ewa Development Plan' was adopted, the University of Hawai'i West O'ahu campus was planned to be developed on a 991-acre site *mauka* of the H-1 Freeway. In 2004, the Board of Regents decided to move the site of the initial University of Hawai'i West O'ahu (UH WO) campus back to a 500 acre parcel at the *makai*-Wai'anae corner of the Kualaka'i Parkway – Farrington Highway intersection. A large portion of the *makai* campus lies within the Kalo'i Gulch watershed.

The City Council approved a zone change allowing development of a campus and a mixed use community within the 500-acre *makai* site in 2008. The 2010 State Legislature approved \$48 million in bond financing, allowing construction of the first phase of the campus to begin in the fall of 2010 with first classes on the new campus planned for the Fall of 2012. The University is currently evaluating options for the development of the adjacent residential and residential-commercial mixed use lands, and plans to sell 15 acres to finance a portion of the first phase construction.

The *mauka* site still remains part of the UH WO lands and could be used in the future for university and university-related uses.

Projected size is 4,600 students by 2019, and 7,600 students by 2025. The projected 2025 faculty and staff is 1,040.

3.15.1 GENERAL POLICIES

- Develop the campus to be environmentally and culturally sensitive to the site and reflective of the Hawaiian culture and of the heritage of 'Ewa.
- Develop the campus in combination with an adjacent University Village to evoke a unique sense of place that distinguishes it as an important civic and cultural institution in 'Ewa.
- Provide direct vehicle access to the campus from both Farrington Highway and Kualaka'i Parkway.

- Orient the campus to support pedestrian access to and transit usage from two rapid transit stations, one located near the corner of Farrington Highway and Kualaka'i Parkway, and a second located on the Kualaka'i Parkway midway between Farrington and Kapolei Parkway.
- Design the campus to use open space areas for flood detention and retention as part of the Kalo'i Gulch watershed master plan.

3.15.2 GUIDELINES

Place Making

- Establish a clear identity and "sense of place" for the main campus through attentive design and careful integration with the adjacent mixed-use commercial area referred to as "University Village". Major campus buildings surrounding the Great Lawn should serve as one anchor for the University Village "main street" commercial/residential area anchored at the other end by a major transit station near the *mauka* entry from Kualaka'i Parkway (in the vicinity of the Farrington/Kualaka'i Parkway intersection).

Regional Integration

- Design the campus and surrounding mixed-use/residential community to function as a fully integrated community within the context of the broader regional community. The campus and surrounding community should include housing, support services, community and business facilities, in addition to the required academic facilities.

Community Orientation and Service

- Design the campus to be community-oriented and to serve the Kapolei area and West O'ahu as an urban park and cultural center, providing community services, and cultural opportunities.

Functional and Accessible Design

- Design the campus to reflect appropriate functional relationships, internal compactness, and accessibility between academic functions and supporting facilities, providing a pleasant and efficient study environment.

Drainage Impacts

- Incorporate flood detention and retention capability in the campus open space system in order to reduce the downstream impact of major storm events. For example, sports playing fields could be designed to act as flood detention basins during major storm events.
- Design the drainage plans for the campus so as to not increase storm water flows or velocity above the design levels used in designing the water retention areas of the 'Ewa Villages Golf Course and the drainage systems for earlier developments in the Kalo'i Gulch watershed.

Architectural Forms

- Site and design specific activity areas and structures to accommodate required internal academic or support relationships. This would include siting of buildings or facilities to promote academic continuity, provide spatial definition to public areas, and allow easy access to needed support areas (housing, business/food services, recreation, and parking).
- Design buildings and structures to reflect sensitivity to the local environmental conditions, as well as to Hawaiian regional styles.
- Avoid use of structures which visually dominate the site unless required to carry out the building's function. Rather, low-rise academic structures with more emphasis on regional architectural forms and human scale should prevail.

Landscape Forms

- Use trees and other landscape materials throughout the campus to provide welcome shade and visual relief.
- Use street trees and accent plantings to feature gateways, define circulation corridors, or enhance special activity areas. The intensity or selection of landscape treatments should be used to further define, identify, or buffer various campus land uses.
- Use landscape materials which reflect climate conditions, limited water resources, and maintenance issues.
- Use native/indigenous species in landscape treatments to the greatest extent possible.

Circulation

- Design circulation patterns to provide for easily accessed routes to, within, and around the campus. Minimize conflicts between cars, bikes, and pedestrians.
- Highlight the hierarchy of roadway, bikeway, and pedestrian circulation patterns by use of a distinctive design treatment for each element of the system or other appropriate method.
- Use appropriate site design and placement to minimize visual impacts from vehicle corridors and parking lots.
- Make provisions for public transportation with ties to the regional system and transit corridor an integral part of the campus plan.

Open Space/Views

- Integrate and blend open space components throughout the campus in the form of passive landscape areas, courtyards, mall spaces, and multi-purpose recreation fields or community spaces.
- Link the internal campus open space system with the adjoining regional open space systems of the adjacent developments.
- Develop campus gateways and enhance internal view corridors as an integral part of the open space elements within the campus.
- Preserve and enhance *mauka-makai* views within major open spaces and through building siting.
- Use landscape treatments or building design to visually buffer between conflicting or unsightly functions.

4. PUBLIC FACILITIES AND INFRASTRUCTURE

POLICIES AND GUIDELINES

This chapter sets forth policies and guidelines to guide planning and construction of proposed public and private public facility projects and infrastructure systems to carry out the vision for future development of 'Ewa, as described in Chapter 2. These policies and guidelines are not regulations, but provide guidance that decision makers and administrators should follow, where sensible, in approving projects and revising rules, regulations, and best practices standards.

Information on timing and phasing of both planned and proposed infrastructure and public facility projects, which was available during the plan revision period, is also included. However, each project proposal is only identified and presented conceptually; not on a site-specific basis. More detailed information on the specific need, route alignment, site boundaries, capacity, and other specifications for each project, as applicable, will be prepared at the master planning stage required before a specific project can be approved. As noted in Chapter 5, existing Unilateral Agreements, Zoning and Urban Design Plans will continue to guide development in the area.

Policies and principles are provided for the following public facilities and infrastructure systems:

- 4.1 Transportation Systems
- 4.2 Water Allocation and System Development
- 4.3 Wastewater Treatment
- 4.4 Electrical Power Development
- 4.5 Solid Waste Handling and Disposal
- 4.6 Drainage Systems
- 4.7 School Facilities
- 4.8 Public Safety Facilities
- 4.9 Other Community Facilities

4.1 TRANSPORTATION SYSTEMS

This section describes the existing conditions, plans, and proposals for development of 'Ewa's roadways, transit system, and bikeways. (See the Public Facilities Map in Appendix A and the Planned and Proposed 'Ewa Roadway Network Improvements listing in Table 4.1.) The section concludes with general policies and guidelines to guide future transportation system development in 'Ewa.

The planned and proposed roadway elements and other transportation system features which are listed as potentially being needed to meet the projected development in 'Ewa were identified through the regional planning and transportation analysis done for the initial 'Ewa Development Plan Revision Program from 1994 to 1997, subsequent revisions of the **Oahu Regional Transportation Plan (ORTP)**, the **'Ewa Highway Master Plan** and the 2009 **'Ewa Roadway Connectivity Study**.

Because of its generally even, gradually sloping terrain, 'Ewa offers decided advantages for transportation.

- It provides an opportunity to create multiple linkages and routes between the various parts of the region. This advantage was enhanced by the closing of the Barbers Point Naval Air Station, which has allowed for increased road linkages to and across Kalaeloa.
- The terrain allows for relatively less expensive development of a dedicated transit right-of-way. The flat terrain also increases the feasibility of constructing a rapid transit system within that right-of-way.
- Both the terrain and the sunny, low rainfall climate enhance bicycling and walking as alternative forms of transportation, as well as for recreation. An improved environment for bicycling and walking also improves the potential for high transit ridership. (See the discussion of the **Kapolei Area Bikeway Plan** in Section 4.1.5.)

Act 54 (May 2009), requires State and County transportation departments to adopt and implement a complete streets policy and establishes a task force to determine necessary standards and guidelines. The intent of a complete streets policy is to create and configure a connected street system that provides for all users; including, but not limited to, pedestrians, bicyclists and transit passengers of all ages and abilities.

**Table 4.1
Planned and Proposed 'Ewa Roadway Network Improvements**

	'Ewa Hwy Master Plan ⁽²⁾	ORTP 2035 Project Numbers ⁽³⁾	ORTP 2035 Phasing ⁽³⁾
Planned Extensions⁽¹⁾			
Existing Roads Improvements			
o Widen Farrington Hwy (4 lanes, Ft. Weaver to Golf Course Road)	2020	20C	2011-2020
o Widen Farrington Hwy (Kalaeloa Blvd to Kamokila)			
o Widen Ft. Barrette Rd			
□ (4 lanes, Farrington to FDR Avenue)	2010/2020	21S	2011-2020
□ (4 lanes, FDR Avenue to Saratoga Avenue)		56C	2011-2020
o Widen Kunia Road/Ft. Weaver Road			
□ (4 lanes, Anonui Street to Kupuna Loop)		71S	(Illustrative)
□ (6 lanes, Kupuna Loop to Farrington Hwy.)		71S	(Illustrative)
□ (6 lanes, Geiger Road to North Road)	2010		
o Widen Kalaeloa Boulevard Phase II (Lauwiliwili St. to Olai St.)		17C	2011-2020
o Extend Hānu'a Street to Farrington Hwy.	2020	16S	2011-2020
o Widen Farrington Hwy (6 lanes, Kaleloa Blvd. to Hakimo Rd. [Nānākuli])		54S	2021-2035
o H-1 contraflow lane			
o Extend Kamokila Boulevard from Roosevelt Avenue to Saratoga Avenue		55C	2021-2035
New Roads			
o Kapolei Parkway			
□ Aliinui Dr. [Ko Olina] to Kalaeloa Blvd	2010, 2020	18C	2011-2020
□ Kamokila Blvd to Kamaaha Ave.	2010, 2020	19C	2011-2020
o Kalaeloa East-West Spine Road		S57	2021-2035
o Kualaka'i Pkwy (North-South Road)			
□ Widen to 6 lanes from H-1 to Kapolei Pkwy		22S	2011-2020
□ Extend from Kapolei Pkwy to Keoneula Blvd.	2020	23S	2011-2020
o Makakilo Drive extension		35C	2011-2020
o Makakilo Mauka Frontage Road, Makakilo Dr. to Kalaeloa Blvd		58S	2021-2035
Interchange Improvements			
o H-1 Kunia Interchange (Add eastbound lane)		71S	(Illustrative)
o H-1 Pālaialai Interchange	2020	16S	2011-2020
New Interchanges			
o H-1 Kapolei Interchange	2010, 2020	15S	2011-2020
o Makaiwa Hills			
Additional Proposed Elements⁽⁴⁾			
<ul style="list-style-type: none"> o Develop additional north-south and east-west roads near the City of Kapolei o Develop an additional north-south road in East Kapolei o Develop an additional east-west road in East Kapolei connecting between Farrington Highway, Kualaka'i Pkwy, and Fort Weaver Road 			
Notes:			
⁽¹⁾ Some projects listed in previous editions of the O'ahu Regional Transportation Plan (ORTP) were not listed in the ORTP 2035 adopted in April 2011. If no number appears, the project was not included in the ORTP 2035 .			
⁽²⁾ 2010: Project identified in the Ewa Highway Master Plan (2002) as needed by 2010. 2020: Project identified in the Ewa Transportation Impact			
⁽³⁾ The ORTP 2035 was approved in April 2011. Project Numbers from Table 8 of the ORTP2035. C indicates a City project; S is a State Project. Phasing indicates the period when funding and construction is anticipated for the project. Illustrative projects could be added if additional funding is available.			
⁽⁴⁾ A number of additional north-south and east-west connections needed to provide connectivity as 'Ewa develops are identified on the public facilities map in Appendix A.			

4.1.1 EXISTING ROADWAY NETWORK

The major east-west arterials of the 'Ewa roadway system includes:

- The H-1 Freeway, which is the major arterial road connecting 'Ewa with the Primary Urban Center,
- Farrington Highway, which, past Kapolei, is the sole arterial highway connecting the Waianae Coast with 'Ewa, and, between Kapolei and Waipahū, is a secondary east-west route; and
- Kapolei Parkway, which links 'Ewa Beach in the east with the City of Kapolei in the west, and eventually will extend to Ko Olina.

North-south roads distribute traffic onto and off the east-west arterials at several locations. They include:

- Fort Weaver Road which links West Loch, 'Ewa Villages, 'Ewa by Gentry, Ocean Pointe/Hoakalei, and 'Ewa Beach with Farrington Highway and H-1,
- Kunia Road, which connects 'Ewa with Central Oahu's Schofield Barracks and Wahiawā,
- Kualaka'i Parkway (formerly North-South Road) which links Kapolei Parkway with Farrington Highway and the H-1 Freeway;
- Fort Barrette Road, which extends south from the City of Kapolei to Kalaeloa,
- Makakilo Drive, which continues up the hillside from the Makakilo Interchange of the H-1 Freeway, providing the only access to Makakilo, and
- Kalaeloa Boulevard, which provides access to Campbell Industrial Park and Kalaeloa Barbers Point Harbor via the H-1's Pālailai Interchange.

According to the **Oahu Regional Transportation Plan 2035**, the number of people traveling on H-1, Farrington Highway, and Fort Weaver Road just before the Kunia Interchange is projected to increase from 183,600 trips per day in 2007 to 276,600 in 2035, an increase of 51 percent. Traffic congestion on east-west and north-south collector and connector roadways in 'Ewa is also increasing, even outside the peak commuting hours.

As noted in Section 4.1.6, the substantial development of Secondary Urban Center jobs (from 19,900 jobs in 2000 to over 103,000 jobs by 2035) is expected to increase the number of 'Ewa residents who work in the area. However, even with this substantial job growth, it is projected that the number of commuters traveling to the PUC from 'Ewa and Central O'ahu will still increase, although at a lower rate than would occur if development of the Secondary Urban Center was not supported.

4.1.2 PLANNED EXTENSIONS OF THE ROADWAY NETWORK

Planning and development of major roadways is the shared responsibility of the State Department of Transportation and the City Department of Transportation Services. Planning and use of federal transportation funds is coordinated through the O'ahu Metropolitan Planning Organization (OMPO), a joint City-State agency.

A consortium of landowners and developers working with the State Department of Transportation and the City Department of Transportation Services funded the **Ewa Highway Master Plan** which identified major roadway improvements needed to meet projected development in 'Ewa through 2025.

Based on the **Ewa Highway Master Plan**, the City Council, in 2002, adopted Ordinance 02-52 establishing the 'Ewa Highway Impact Fee which is added to all building permits in 'Ewa and in the Royal Kunia and Village Park areas of Central O'ahu. Funds collected from the fees are to be used to provide the local contribution for seven major 'Ewa roadway projects needed by 2010 to meet projected growth. (See Table 4.1 for details.)

The 2002 **'Ewa Highway Master Plan** was recently updated as part of an update to the 'Ewa Highway Impact Fee program. The updated **Plan** identifies eight roadway and intersection projects needed to meet growth in 'Ewa traffic by 2020.

The **O'ahu Regional Transportation Plan (ORTP) 2035** was adopted in April 2011. It is the State and County plan for what transportation projects are needed through 2035 for O'ahu. In order to receive Federal funding, projects need to be listed in the **ORTP**. See Table 4.1 for listings of the 'Ewa roadway projects in the **ORTP 2035** and the 2002 and 2011 versions of the **'Ewa Highway Master Plan**.

The **Ewa Highway Master Plan** and the **ORTP 2035** show major elements of the future 'Ewa roadway network. These major improvements include:

- Widening of Fort Weaver Road;
- Widening of Farrington Highway;
- Completion of Kapolei Parkway, which is planned as a major east-west corridor, connecting the eastern parts of 'Ewa with the City of Kapolei and employment areas to the west;
- Connection of Kualaka'i Parkway *mauka* of the H-1 Freeway interchange with the extension of Makakilo Drive;
- Widening of Fort Barrette Road;
- Extension of the Kualaka'i Parkway south of Kapolei Parkway into Kalaeloa to provide a direct access to the Regional Park for East Kapolei residents and UH-West O'ahu campus staff and students;
- Extension of Keoneula Boulevard to link Ocean Pointe\Hoakalei with the Kalaeloa Regional Park and the extension of Kualaka'i Parkway;
- Extension of Kamokila Boulevard to Saratoga Avenue to further improve this route between Kalaeloa and the City of Kapolei;
- Extension of Geiger Road to connect with Saratoga Road and provide a direct link between Kalaeloa Boulevard, Kamokila Boulevard, Fort Barrette Road and the Kualaka'i Parkway;
- Improvements to existing H-1 Freeway interchanges at Pālailai, and Kunia;
- Construction of a new H-1 Freeway interchange at Kapolei;
- Widening of Kalaeloa Boulevard;
- Extension of Hānu'a Street parallel to Kalaeloa Boulevard to enhance truck access between Farrington Highway and Barbers Point Industrial Area/Kalaeloa Barbers Point Deep Draft Harbor; and
- Development of a mauka frontage road to connect Makakilo Drive with Kalaeloa Boulevard.

Recognition in this Plan of these major improvements to future roadway networks for 'Ewa in no way implies City Council approval of these projects. Any projects requiring City funding will have to be approved through the Capital Improvements Program process.

4.1.3 ADDITIONAL ELEMENTS OF THE ROADWAY NETWORK

The planned development of East Kapolei and redevelopment of Kalaeloa will eventually open additional areas for use and increase transportation needs beyond the levels planned for the 'Ewa Highway Master Plan and the ORTP 2035.

Additional east-west and north-south roadways will be needed to enhance movement between the various parts of the 'Ewa region and to provide improved access to activity centers such as Ocean Pointe/Hoakalei and the Kalaeloa Regional Park, including:

- Development of an east-west collector-connector roadway system, which connects developments on both sides of Kualaka'i Parkway in an efficient circulation pattern;
- Development of additional north-south roads to improve circulation between the City of Kapolei and the freeway, Makakilo and Makaīwa Hills;
- Construction of a new H-1 Freeway interchange at Makaīwa Hills;
- Extension of Keaunui Road to connect with Renton Road;
- Development of an additional east-west arterial between East Kapolei and Fort Weaver Road; and
- Development of at least one additional north-south road between East Kapolei and Farrington Highway, east of the Kualaka'i Parkway.

The need for these roads has been established only at the conceptual stage, and further study, planning, and approvals will be required to establish need, appropriate route, capacity, and other characteristics.

DPP has completed a road connectivity study for the 'Ewa region to identify where east-west and *mauka-makai* connector roads should be located to link adjacent subdivisions. Results of the study are used by the Department in the approval of subdivision layouts.

4.1.4 TRANSIT

With population growth, the City should increase transit service in 'Ewa in order to enhance circulation among 'Ewa communities and between 'Ewa and the adjacent Wai'anae and Central O'ahu areas, and to provide suitable service for peak-hour commuting.

4.1.4.1 Bus Service

Bus service is provided through the Department of Transportation Services, which currently contracts with O‘ahu Transit Services (OTS) for operation of TheBus. A second vendor operates the Handi-Van system. As of 2009, OTS operated a fleet of 531 buses. About 62 buses are currently assigned to TheBus' ‘Ewa Service Area, which is identical to the ‘Ewa Development Plan area.

The **Comprehensive Bus Facility and Equipment Requirements Study**, published in 1994 by the Honolulu Public Transit Authority, examined bus system expansion and financing needs for the period 1994 - 2006. This study has not been updated. Currently, there are no plans to expand the bus fleet beyond the current 531 buses. For the fleet to expand its service, public review and Council approval will be necessary.

The Department of Transportation Services has currently identified and proposed for development three park-and-ride facilities in ‘Ewa, one in the future civic center area of the City of Kapolei, one further east, near the Kualaka‘i Parkway/Kapolei Parkway intersection, and another near the corner of Kualaka‘i Parkway and Farrington Highway.

Policies, planning principles, and guidelines in this Development Plan support the establishment of transit service throughout ‘Ewa and creation of linkages feeding into transit nodes along the rapid transit corridor (see Section 4.1.4.2).

4.1.4.2 Planned Rapid Transit Corridor

In 2006, the City Department of Transportation Services completed a planning Alternatives Analysis to evaluate alternatives that would provide high-capacity transit for the corridor between the University of Hawai‘i at Mānoa, downtown Honolulu, and the fast growing areas in Leeward Oahu and Kapolei. On December 22, 2006, the City Council selected as the Locally Preferred Alternative, a fixed-guideway transit system extending from the City of Kapolei to the University of Hawai‘i Mānoa with a connection to Waikīkī. The initial phase of the transit system will begin in East Kapolei near the planned Kroc Center and the Department of Hawaiian Home Lands headquarters, and end at the Ala Moana Shopping Center.

As shown on the Public Facilities Map in Appendix A, a rapid transit corridor is planned to connect the City of Kapolei with Waipahū and onward to the Primary Urban Center. Service on the corridor could provide a shuttle service between Kapolei West, the City of Kapolei, Kalaeloa, DHHL East Kapolei, the University of Hawai'i West O'ahu Campus (UH WOC), Ho'opili, and Waipahū, and an express commuter service to and from the Primary Urban Center. In peak-hour commuting, the corridor will provide high-speed dedicated transit service.

By connecting to the Primary Urban Center via Waipahū, the corridor will provide for a future high-speed connection between the Kapolei campus of the University of Hawai'i at West O'ahu and Leeward Community College, Honolulu Community College, and the University of Hawai'i at Mānoa.

The 'Ewa rapid transit corridor is planned to run from Waipahū through the proposed Ho'opili project, turning south to run along Kualaka'i Parkway to extend into Kalaeloa where it turns west and runs along Saratoga Road until it turns north and enters the City of Kapolei on Wākea Street, turning west on Kapolei Parkway until reaching its terminus near the Kapolei Commons shopping center.

Developments along the proposed transit corridor should set aside appropriate sized right-of-way and space for pedestrian-station interface areas for the establishment, when needed in the future, of an elevated rapid transit system. Such a system will require a 28 to 32 foot right-of-way along the route and a 75 foot right-of-way for transit station sites (at the transit nodes).

Land has been set aside for a rapid transit right-of-way in the median of Kapolei Parkway and along the east side of the Kualaka'i Parkway corridor.

DR Horton, Schuler Division has purchased the former Campbell Estate lands along Farrington Highway between Kualaka'i Parkway and Fort Weaver Road. They have made a commitment to provide a rapid transit corridor right-of-way between Kualaka'i Parkway and Fort Weaver Road.

Land has been set aside in the City of Kapolei for a transit station/bus terminal/park-and-ride facility, and provisions should be made for transit stations/park-and-ride facilities at each of the transit nodes along the rapid transit corridor.

Medium density apartment and commercial development should be permitted and encouraged within a 1/4 mile radius (5 minutes walking distance) around the transit station/park-and-ride facility site at the center of the transit node. These transit nodes should be designed to give priority to pedestrians and areas intended for pedestrian access and circulation. The objective is to create a land use pattern that would allow residents to minimize use of the private automobile and encourage use of transit for longer trips and walking or biking for short trips.

4.1.4.3 Commuter Ferry System

TheBoat, a high-speed commuter ferry system, operated between September 2007 and June 2009, and provided an alternative way to commute to the Primary Urban Center from 'Ewa and West O'ahu. The ferry ran between Kalaeloa Barbers Point Harbor and the Aloha Tower.

Renewal of the service may be possible if an 'Ewa terminus in the 'Ewa Beach area could be obtained.

4.1.5 BIKEWAY SYSTEM

The **Kapolei Area Bikeway Plan (KABP)**, published by Campbell Estate in 1991, establishes a comprehensive bikeway network to serve the 'Ewa Plain. The network would include 56 miles of bikeway facilities, including bike paths (separated from the roadway), bike lanes (four- to six-foot lanes) and bike routes (shared curbside vehicle lane, with minimum 12-foot width).

The **Kapolei Area Bikeway Plan** is part of the **City of Kapolei Urban Design Plan**, which was updated and adopted by the City Council in 2008. The KABP covers all of 'Ewa except for military bases in the area. Elements of the KABP have been adopted by the State Department of Transportation as part of the State bikeway plan, **Bike Plan Hawai'i** (2003), and have been included in draft **O'ahu Bike Plan** maps for 'Ewa which

are being reviewed as part of a City update to the 1999 **Honolulu Bicycle Master Plan**.

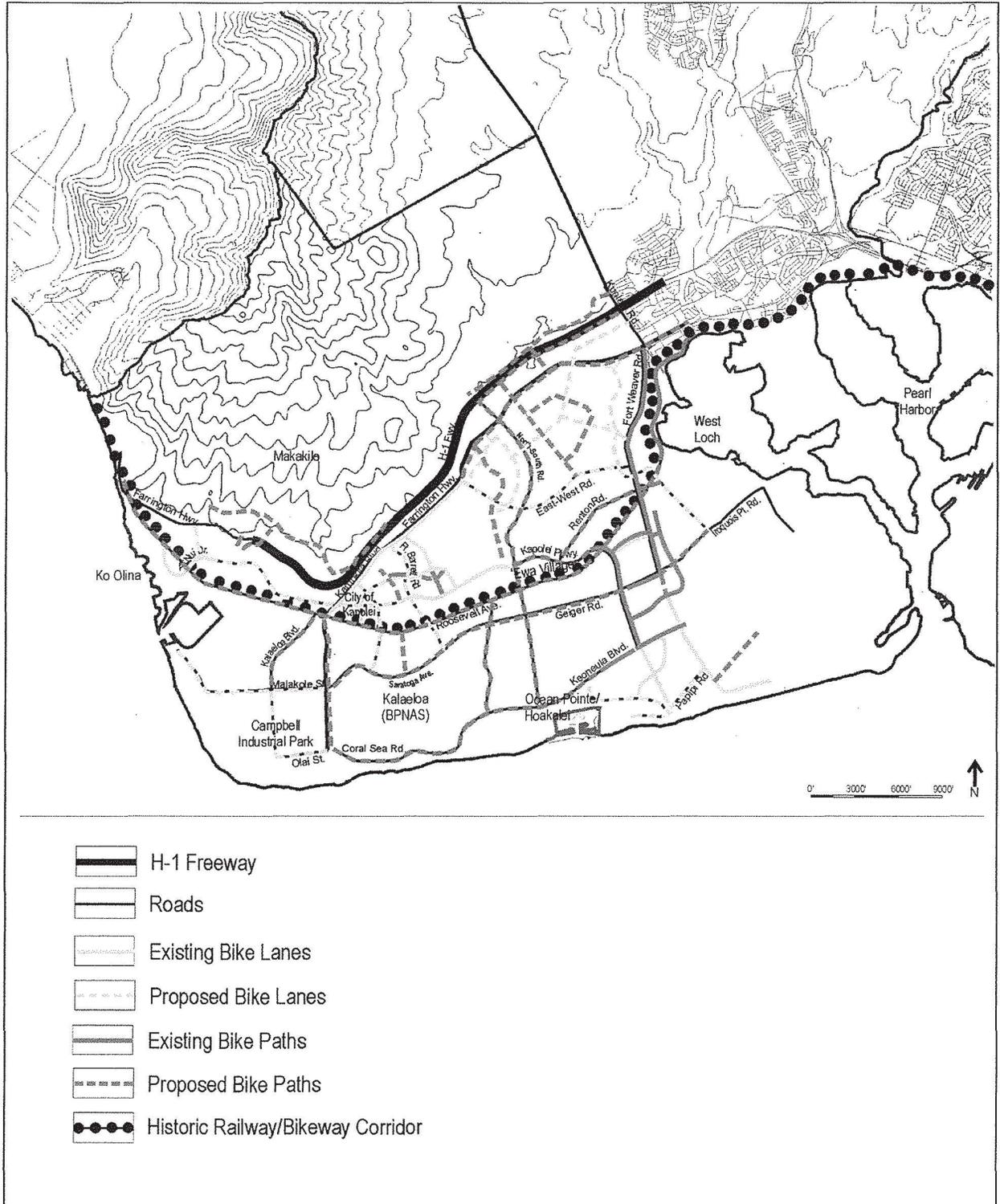
In addition, the Department of Planning and Permitting has completed the **Ewa Roadway Connectivity Study** (May 2009) which provides a proposed bikeway facility plan for 'Ewa to be used in evaluating roadway master plans submitted as part of subdivision applications.

The **'Ewa Development Plan** includes all the projects found either in the KABP, in the State's **Bike Plan Hawai'i**, or the **Ewa Roadway Connectivity Study**. As shown in Exhibit 4.1, major bike paths should run along the OR&L right-of-way, Kapolei Parkway, the Kualaka'i Parkway, and Fort Weaver Road. Bikeways should also be incorporated into other major roadways, and there should be an extensive network of bike lanes within the City of Kapolei and the Villages of Kapolei.

4.1.6 GENERAL POLICIES

- **Transportation System Functions** - To support 'Ewa's role as the site for the Secondary Urban Center and a major growth area for new residential and employment development, its transportation system should:
 - Provide adequate access between residences and jobs, shopping, and recreation centers in 'Ewa as development occurs;
 - Provide improved access to and from adjacent areas, especially Central O'ahu; and
 - Provide adequate capacity for major peak-hour commuting to work in the Primary Urban Center. (Although the share of residents who will both live and work in 'Ewa is projected to increase from 17 percent in 1990 to 46 percent by 2030, a majority of residents will still commute to jobs outside the region.)

**Exhibit 4.1
Ewa Bikeway System**



- **Transportation Development Priorities** - Meet demand for peak-hour transportation in 'Ewa by:
 - Increased use of transit; and
 - Transportation demand management through:
 - ❑ Provision of improved service on High Occupancy Vehicle (HOV) facilities;
 - ❑ Provision of park-and-ride facilities; and
 - ❑ Use of other programs which encourage reduced use of the single occupant private automobile.

Comprehensive Roadway Network

- Design and develop the roadway system to provide multiple routes for traveling among the various residential communities and activity centers of 'Ewa, thereby lending variety to travel within the region and promoting communication among its communities. Network designs for communities should take on more of a grid pattern, providing intersections between collector or connector streets at approximately quarter-mile intervals.
- Design and develop the roadway system to increase connections between parallel major collectors and arterials - e.g., between Kualaka'i Parkway and Fort Weaver Road - rather than relying primarily upon loop roads to feed the major roadways. Planning for East Kapolei and for Kalaeloa are important opportunities for creating such connections.

Land Use Planning Anticipating Rapid Transit

- Reserve land sufficient for the right-of-way for the Council-identified rapid transit corridor prior to development and plan for medium density, high-traffic land uses along the corridor. This strategy will contribute to the feasibility of developing a high-speed transit line and will result in a more mobile, less automobile-dependent community.
- Plan all the communities along the proposed transit corridor on Farrington Highway, on Kualaka'i Parkway, through Kalaeloa, and on Kapolei Parkway to reflect the desire to establish a rapid transit corridor with medium density residential and commercial nodes located at regular intervals.