KALIHI-PĀLAMA ACTION PLAN

September 2004

For:

City and County of Honolulu
Department of Planning and Permitting

and

Kalihi-Pālama Vision Group 6

By:

Townscape, Inc.
Honolulu, Hawai‘i

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BACKGROUND, PURPOSE, AND SCOPE

The Kalihi-Pālama Community Vision Group No. 6 and the City and County of Honolulu (City) Department of Planning and Permitting (DPP) initiated the **Kalihi-Pālama Action Plan** as part of the "21st Century O'ahu, A Shared Vision for the Future" (known as the "visioning process") that was launched by Mayor Jeremy Harris in 1998. The island of O'ahu was divided into 19 Vision Group areas. The intent of the visioning process was to give each of the Vision Groups the opportunity to create a vision for the future of their neighborhoods. This process would result in the identification of programs or projects that would implement the community's vision. Each Vision Group was given $2 million annually to fund their vision projects. It was the Vision Group's responsibility each year to identify and prioritize projects to be implemented in their community.

King Street beautification project.

For Kalihi-Pālama Vision Group 6, beautification of King Street was the first project selected. The project would extend from Middle Street to Liliha Street. Improvements included sidewalk repair with handicap accessibility, character-style lighting, and street trees with irrigation system. The $2 million yearly allocation was not enough to fund the entire length of the beautification project. Thus, the project was phased over a 4- to 5-year period.

Because the first several years of the vision funds were targeted for completion of the King Street beautification project, Vision Group No. 6 decided to fund a master plan that would identify future important projects in their community. This master plan would serve as a guide for prioritizing projects after the King Street project was completed. Thus, the "Kalihi-Pālama Action Plan" was funded through the vision process.

The scope of the Action Plan was to conduct extensive research on physical, environmental, social, and economic factors; to analyze data and identify assets and liabilities; and to solicit community ideas and concerns through a series of meetings with individuals, community groups,

organizations, and government agencies. The objective was to identify actions that the City could fund to improve the quality of life for residents, businesses, and visitors. The identified actions were categorized into areas of focus for which design guidelines were developed. This report provides a summary of the research effort, the analysis of the data, and the recommended actions and guidelines needed to fulfill the community vision.

Community Meeting.

The information, findings, and planning conclusions contained in this report provide a foundation for the recommended guidelines. Conceptual plans for site-specific areas were developed to illustrate the types of improvements that the community desired. These conceptual plans serve as examples for the improvement of other areas in Kalihi. Because Kalihi-Pālama contains neighborhoods with unique characteristics, each project scope will need to be clearly defined and incorporate the desires of the community on a case-by-case basis.

This study covers approximately 8,500 acres situated in the primary urban center of Honolulu and consists of Neighborhood Boards 14 (Liliha, Alewa, Pu‘unui, Kamehameha Heights), 15 (Kalihi-Pālama), and 16 (Kalihi Valley). The northern boundary is the ridgeline of the Ko‘olau Mountains. The eastern boundary is Pali Highway and Liliha Street. The southern boundary is the coastline of Honolulu Harbor, including Sand Island. The western boundary is Likelike Highway, Fort Shafter, and Middle Street (see Figure 1).

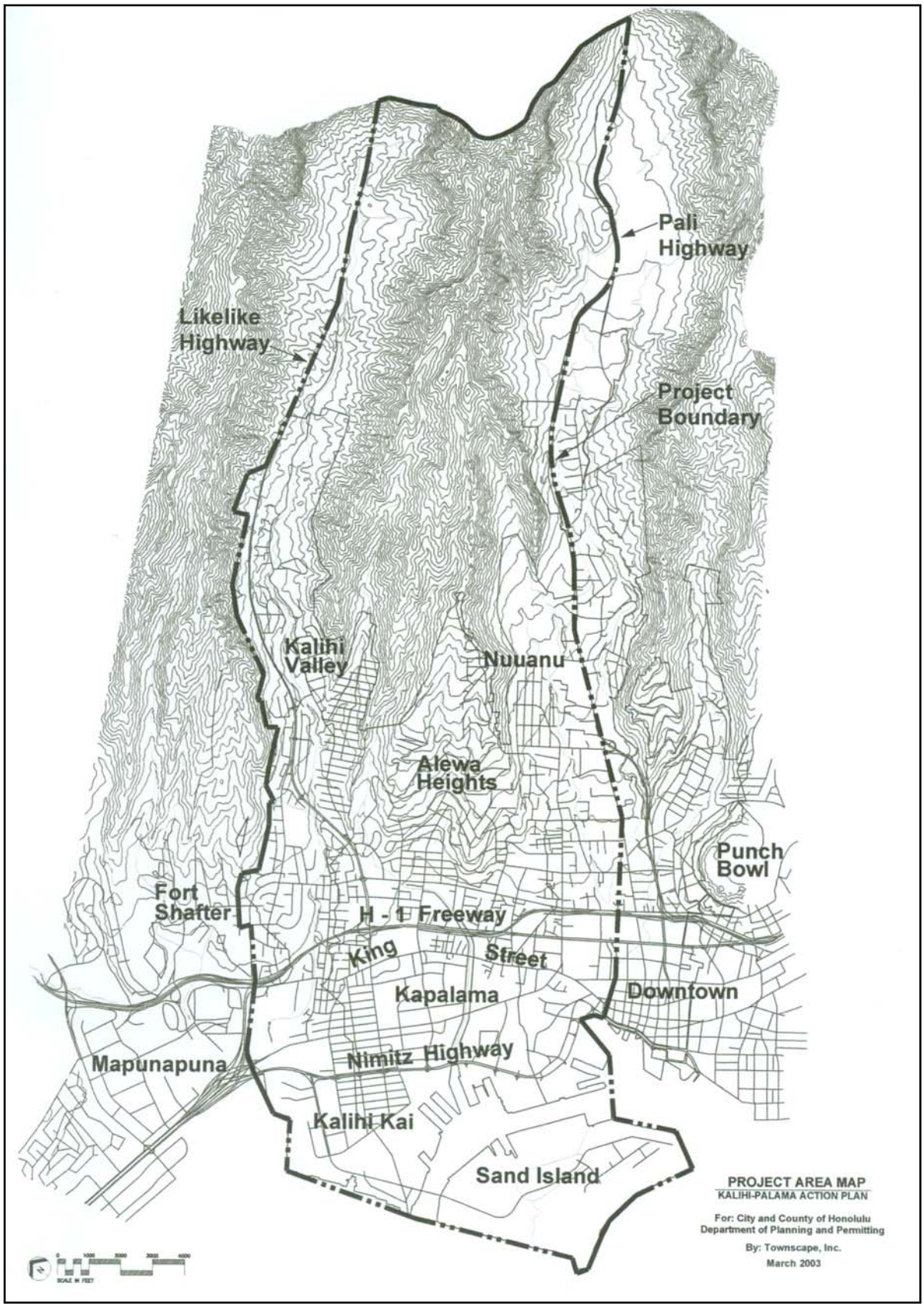

Figure 1. Kalihi-Pālama Project Area

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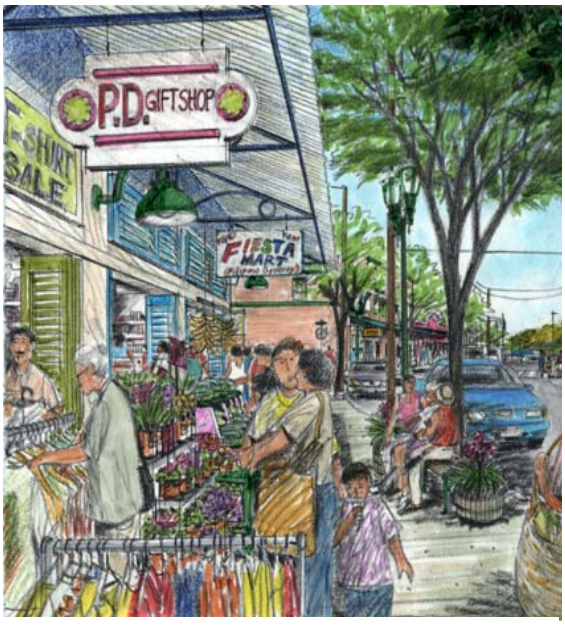
SECTION 1.
KALIHI-PĀLAMA VISION FOR THE FUTURE

This section presents the Kalihi-Pālama Vision Statement and the community-based values expressed in that vision. This statement was prepared as a result of the Kalihi-Pālama Vision Group's participation in the Mayor's "21st Century O'ahu, A Shared Vision for the Future" initiative of 1998.

Kalihi-Pālama is a diverse community with a variety of cultures and economic activities. A very high percentage of the population is of Asian ancestry compared to the rest of O'ahu and the State, and many are foreign born. The area is generally characterized by stable, single-family, residential neighborhoods. Economically, Kalihi-Pālama contains a large industrial area, Honolulu Harbor, and many small businesses. Institutionally, the area has three hospitals, the Oahu Community Correctional Center, and the Honolulu Community College, as well as public and private schools. Significantly, approximately 50% of Oahu's public housing stock is located in Kalihi-Pālama.



Lively economic scene along King Street.

Kalihi-Pālama was one of the first areas to be developed on O'ahu. As a result, the infrastructure is old and substandard and, based on Census statistics, the population is aging. As downtown Honolulu flourished, Kalihi-Pālama became the backyard that was neglected over the years. The City's visioning process provided the opportunity for the residents of Kalihi-Pālama to begin to shape their community into an area that would improve their quality of life. Thus, this Action Plan is intended to identify actions and physical improvements that can be implemented to attain the community's vision.

1.1 KALIHI-PĀLAMA VISION

This is the Kalihi-Pālama Vision Statement that was developed in December 1998:

"Our vision for the future of Kalihi is one of pride and multi-cultural harmony; of living and working together; of preserving our treasures for young and old. We see a Kalihi that is visually, economically, and socially inviting; a place that promotes our natural beauty from mountain to ocean."

1.2 KALIHI-PĀLAMA VALUES

The vision process resulted in an expression of community-based values:

"We value the beauty, history, and cultural diversity of Kalihi."

Kalihi-Pālama's beauty lies in the Koʻolau Mountains, Kalihi Valley, Kalihi and Kapālama Streams, and the Honolulu waterfront. Historically, Kalihi-Pālama, with the advent of the Honolulu Harbor, was one of the first areas to be developed. The cultural diversity lies in the people that live, work, and play in Kalihi and the many families and small companies that own and operate stores, restaurants, specialty services, and manufactured goods that cater to the multitude of ethnic groups of the area.

"We seek a future community that is more livable and enjoyable.

Kalihi-Pālama is truly Oahu's crossroads containing major transportation systems that connect the east to the west, and the north to the south. Major transportation corridors and internal road networks should move people to our businesses, shopping areas, and historic features -- places that are convenient and safe for residents and visitors alike. Kalihi-Palama is a pedestrian-friendly community for children, adults and seniors. We envision a network of bikeways and pedestrian paths that connect community activities. Traffic along Nimitz Highway is rerouted through a proposed Sand Island expressway that will connect areas to the west of Kalihi-Pālama to downtown Honolulu and Waikīkī, creating a beautiful waterfront corridor.

Vision of a healthy urban environment: This rendering of Kalihi Street captures a healthy urban environment that includes traffic calming applications for safe streets and a clean and active commercial strip. There is character-style street lighting, with landscaping along the streets and within the park.

"We are an economically vibrant community… now and in the future."

Businesses in the area contribute to keeping the community clean and safe, and assist with employing residents as much as possible. There is strong support from the community for part-time business opportunities, such as home-based business, bed and breakfast establishments, and tours of Kalihi. Many successful residents grew up in Kalihi and have fond memories of their neighborhoods, and they may be able to contribute to our community development fund. Economic readiness programs are also encouraged in public housing projects. Development of the Honolulu waterfront supports a vibrant community.

"We value education as the means to sustain the future of our community."

Educational partnerships are encouraged to improve the quality of the education system, such as scholarships for Kalihi students to attain higher education, to encourage local businesses to participate in "school to work" programs, and to develop partnerships with educational institutions to support life-long learning.

Lo'i Kalo Cultural Park: In this vision of a renovated Lo'i Kalo Park, cultural features like taro patches and the hale pili (grass house) serve the local schools, residents, and visitors. Planned activities at the redesigned cultural park would include: culture-based classes and workshops for local schools and community organizations, and community work days.

"We value recreational opportunities within our community."

As opportunities arise, more parks and green space are developed to break up the densely developed areas. Existing parks such as Sand Island, Lanakila Park, and Kalakaua Gym, host events such as Sunset at the park, local craft festivals, and food fairs. There is community pride and a sense of ownership of our parks. Kapālama Canal should be improved for greater community use and aesthetic pleasure.

"The health, safety, and welfare of our community are fundamental to Kalihi's future."

Kalihi-Pālama upholds a healthy and safe environment for its residents. Police maintain visibility in our community. Basic services, like street lights, storm drains, and sewer systems, are well functioning. A broad spectrum of health program are available to keep our families healthy. Keep drug dealers and users out of our community! Kalihi Pālama residents, businesses and agencies pool resources to keep vital community programs in operation.

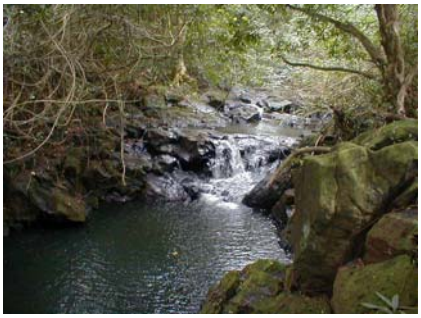
Kalihi-Pālama Multi-Cultural Market Place at the OCCC Site: Envision this vibrant economic and community space that incorporates adaptive reuse of existing buildings and offers a venue for an open market and valued social services. Other features provide tot lots, pedestrian paths, green spaces, and an open-air stage.

"We treasure our elders and have much to learn from them."

Recognize that we can learn from, and create opportunities for, our seniors to contribute to the health and well-being of our community. Kalihi Pālama hosts venues for intergenerational learning. There is adequate health care and stable housing conditions for our seniors.

"We are a diverse community with a broad spectrum of housing needs."

New housing opportunities are limited because most of the area has been developed; where possible, encourage housing options such as multi-generational and affordable housing, senior housing, and "'Ohana plus" housing for aging homeowners. Special financing, such as cooperative housing, should help young families and seniors in the housing market.



"We cherish the natural beauty of our mountains, valleys, streams, waterways, and waterfront, seeking to preserve and enhance their future."

The valley slopes and the mountainsides that form the backdrop for Kalihi should be preserved and protected. The streams need to be cleaned and the stream banks restored.

"We treasure our youth and are dedicated to helping them create a bright future."

Our youth are a community resource! Opportunities should allow young people to contribute to the community -- establish a clearinghouse for part-time employment training. Increase the number of sporting opportunities that teach team work and help build character.

Community workshop.

"We are a community, which values working together."

Government, businesses, and residents work together to improve the perception of Kalihi by sponsoring community festivals that celebrate Kalihi-Pālama pride and cultural diversity.

SECTION 2
KALIHI-PĀLAMA URBAN ENVIRONMENTAL CONCEPT

The Kalihi-Pālama Urban Environmental Concept is a graphic illustration of the major environmental features of the area. This graphic is a reflection of the community's vision and the "end state" of Kalihi Pālama that was compiled from the many ideas gathered from community meetings. "Current" projects that were in the State and City 2001-2003 approved budget and projects proposed in various master plans are also included in this graphic.

Due to the developed nature of the area, the graphic shows four major land uses: 1) the upper forested and undeveloped area that is mainly conservation lands; 2) the low-density residential neighborhoods below the conservation lands and above the H-1 Freeway; 3) the mixed-use neighborhoods from the H-1 Freeway down to Nimitz Highway; and 4) the industrial and port facilities makai of Nimitz Highway, including Sand Island. For the most part, significant changes or growth are not anticipated. However, improvements or enhancement of existing conditions to beautify the area to make it a safe and better place to live, work, and play are envisioned. The following describes the elements of the Kalihi Pālama Urban Environmental Concept:

2.1 AHUPUA‘A

Ahupua‘a is the traditional native Hawaiian land division that extends from the uplands to the sea. There are three ahupua‘a in the Kalihi-Pālama project area. The boundaries are shown in a heavy red dashed line and are as follows:

a. Kalihi Ahupua‘a – The Kalihi Ahupua‘a is on the western side of Kalihi-Pālama and generally contains Kalihi Valley and Kalihi Kai on the makai side of the ahupua‘a.

b. Kapālama Ahupua‘a – The Kapālama Ahupua‘a is a smaller area that contains Kamehameha Heights on the mauka side and the area between Kalihi Street and Kapālama Canal on the makai side.

c. Nu‘uanu Ahupua‘a – The Nu‘uanu Ahupua‘a includes ‘Alewa Heights, Nu‘uanu Valley, and makai to Iwilei between Kapālama Canal and River Street.

2.2 CONSERVATION AREA

The large area shaded with green shows the conservation lands. This area should be replanted with native species to protect the watershed. The introduced plant species presently occupying the conservation areas may not retain storm water runoff as well as native species that occupied the area in the past because the understory is less dense than typical native forests. Feral ungulates (pigs) or other animals that destroy or feed on vegetation should be controlled to minimize soil erosion.

Mauka conservation lands.

2.3 ‘ELEPAIO UNOCCUPIED CRITICAL HABITAT

This area is shown on the map with a long dashed red line with red stippling (dots) within the conservation lands. ‘Elepaio (a species of flycatcher) has not been seen in this area for over 20 years. However, the U.S. Fish and Wildlife Service (USFWS) designated a large portion of the conservation area as the ‘Elepaio Unoccupied Critical Habitat. Currently, there are no guidelines from USFWS as to what this designation means in terms of restrictions. Predators of the ‘elepaio include rats and mongoose. If there was a way to control the rats and mongoose in the upper Ko‘olau Mountains, the area could be reforested with native plants to restore the habitat of the ‘elepaio. Feral ungulates should also be eradicated or controlled because they destroy vegetation.

2.4 LIMIT OF URBAN BOUNDARY

The urban boundary is depicted by a short, dashed, black line that separates the Conservation District from the urbanized areas. Generally, no new urban development should occur mauka of this urban boundary line.

2.5 LOW-DENSITY RESIDENTIAL AREA

The unshaded areas of the map, generally above the H-1 Freeway to the “limit of urban boundary,” should be maintained as low-density residential. These areas should be limited to single-family residential and low-rise walk-up apartments. Roadways should be improved to

provide an efficient movement of traffic, adequate on-street parking, landscaping, and safe pedestrian walkways. Infrastructure should be upgraded to current standards and overhead utilities should be placed underground.

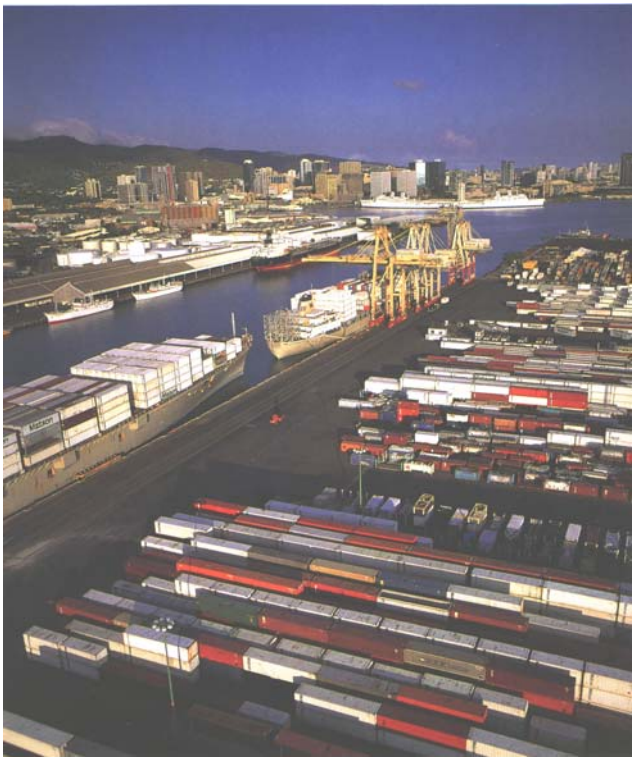
2.6 MIXED-USE AREA

Photo of existing Dillingham Plaza.

The area between Nimitz Highway and the H-1 Freeway is shaded with vertical black lines. This area should be maintained as a mixed-use zone that includes light industrial, manufacturing, office commercial, retail commercial with an emphasis on "mom and pop" shops, single-family residential, and low-rise apartments. Existing buildings should be revitalized or reconstructed to blend with the current historic architectural style of structures to maintain the character of the area. Roadways and pedestrian/bike paths should also be improved to provide a safe environment. Overhead utilities should be placed underground and infrastructure upgraded to current standards. Where possible, vacant lots should be acquired for off-street parking for businesses and residents or they should be developed into park space.

Computer simulation of a revitalized Dillingham Plaza.

2.7 PORT FACILITIES



Honolulu Harbor.

All of the lands makai of Nimitz Highway have been shown with blue diagonal lines. These port facilities should be maintained for maritime uses and not developed for retail commercial or residential uses, except for the areas near downtown Honolulu. Streets should be improved to accommodate large vehicles and to provide adequate parking and walkways for both businesses and residents. Overhead utilities should also be placed underground and infrastructure upgraded to current standards. The State's O'ahu Commercial Harbors 2020 Master Plan should be implemented (see Appendix G).

2.8 STREAMS

The major streams in the area have been outlined in blue. In many areas, streams are used as a dumping ground for urban waste. These streams should be cleaned and preserved. There is a potential along portions of certain streams to include trails or paths, such as along Kapālama Canal. Owners alongside the streams should consider an "Adopt A Stream" program to prevent further pollution and improve stream water quality, including receiving ocean waters.

2.9 ROADS

Photo of existing Liliha Street.

There are a number of major roads that traverse the Kalihi-Pālama neighborhood as illustrated by thick black dashed lines. These major roads include: H-1 Freeway, Likelike Highway, School/Middle Streets, Vineyard Boulevard, King Street, Dillingham Boulevard, Nimitz Highway, Kalihi Street, Houghtailing Street/Waiakamilo Road, and Liliha Street. These streets should be beautified with landscaping, bikeways, pedestrian-friendly walkways, and character-style lighting; overhead utilities should also be placed underground. Bike paths have been shown with brown dotted lines along most of the major roadways. Other roadways should be improved to current City standards and to provide a safe environment for pedestrians.

Computer simulation of a revitalized Liliha Street.

2.10 KING STREET CORRIDOR

Tamashiro Market.

King Street contains numerous "mom and pop" shops, shown with red diagonal lines. This small-town character should be maintained. There are also a number of historic buildings along King Street. These buildings should be preserved and a "heritage corridor" developed for historic tours along King Street. The Heritage Corridor would begin at a new museum on King Street and travel along King Street and to other historic areas in Kalihi. The tour would identify historic sites as well as historic businesses, such as Tamashiro Market and Elena's Filipino Food. Historic sites are shown as black asterisks (*).

2.11 COLLEGE TOWN

A large blue dashed circle has been shown around Honolulu Community College (HCC). This entire area surrounding the campus should be developed into a "college town" to include apartments or dormitories and commercial establishments that cater to student needs, such as copying services and fast food eateries. Because of the Hi-Tech and specialized trade focus of HCC's curriculum, businesses related to these industries should be located near the College Town. This concept would be in alignment with recent discussions about a "Technology Corridor." A study to determine the extent of the College Town and the related uses should be conducted. A study of this nature will involve a number of different parties, including, but not limited to, the University of Hawai'i, landowners, business owners (new and existing), and residents.

2.12 COMMERCIAL NODES

The major commercial nodes have been shown with a large red asterisk (*). The smaller of the two commercial nodes is Kamehameha Shopping Center. The larger commercial node includes Dillingham Shopping Center, Waiakamilo Shopping Center, Kapālama Center, and Kokea Center in the vicinity of Waiakamilo Road and Dillingham Boulevard. These commercial nodes

should continue as major commercial shopping areas. Big-box commercial nodes should be limited to the Iwilei area.

2.13 GATHERING PLACES

Two major gathering places have been shown with a green asterisk (*) that would cater primarily to the Kalihi-Pālama community. The first is shown at Kalihi District Park and the second at the current site of the O‘ahu Community Correctional Center (OCCC), which would be converted into a community gathering place when OCCC is moved. These gathering places would be used for large community activities. Adaptive reuse of existing buildings at OCCC should be utilized, where appropriate. A community center and/or multi-cultural marketplace at the OCCC site should be considered. Other gathering places include the public libraries, schools, and parks. Sand Island State Park and Bishop Museum are island-wide gathering places located in Kalihi-Palama.

Oahu Community Correctional Center.

2.14 SCHOOLS

Ka‘iulani School.

All public and private schools have been shown with blue asterisks (*). Blue asterisks with circles around them are the private schools. School district boundaries have been shown with blue dashed lines. The school sites are also viewed as community centers within Kalihi-Pālama. Schools, both public and private, also serve as gathering places that can be used by the residents for community activities. Facilities should be maintained to accommodate the appropriate level of community use and provide a healthy environment for learning.

2.15 PARKS

Park facilities have been shaded a light green. These park facilities should be appropriately landscaped to provide shade. Park furniture and security lighting should be installed. As the opportunity arises, vacant lands adjacent to existing park facilities should be acquired so that park facilities can be upgraded to current City standards. Other larger vacant lands that become available should be considered for park development to increase recreational amenities in the area.

DeCorte Park Tot Lot.

2.16 SAND ISLAND PARK

Sand Island Park is shaded green. The park should be extended to the western/makai side of Sand Island and include more day and night activities.

2.17 CURRENT PROJECTS

Projects that have been proposed by the Federal, State, and City governments; the private sector; community; and visioning group are listed below. Federal and State projects are those projects being proposed under various master plans. The State projects also include those projects listed in the approved State budget for the Fiscal Year 2001-2003. With a few exceptions, the projects listed under the City were funded through the Fiscal Year 2001-2003 approved budgets.

- **Federal**
  - Fort Shafter Flats Park

- **State of Hawai‘i**
  - Sand Island Park Renovations
  - Sand Island Container Yard Improvements
  - Feasibility Study of Tunnel Under Kalihi Channel
  - Container Terminal, Produce Center, Airport Warehouses, and Fuel Storage at the Former Kapālama Military Reservation, Piers 41 and 42

- Inter-Island Cargo Yard at Piers 39 and 40
- Future Bridge Near Kapalama Stream (Makai of Nimitz Highway) and a Perimeter Road Around Honolulu Harbor
- Domestic Commercial Fishing Village at Piers 36 to 38
- Ferry Terminal at Pier 19 (Completed)
- Pier 16-18 Improvements
- Elderly Complex at the OR&L Site
- Relocate O'ahu Community Correctional Center
- Contra-Flow Lane on Nimitz Highway During the A.M. Peak Hour
- Bikeway Extension Along Dillingham Boulevard from Nimitz Viaduct to Waiakamilo Road
- Widen H-1 Freeway by One Lane, Eastbound, Middle to School Streets
- Lanakila Multi-Purpose Senior Center Safety Renovations
- Kuhio Park Terrace (Hope VI) Revitalization and Resource Center
- Kalihi Valley Homes Renovation
- Band Room Renovation at Dole Intermediate School
- Likelike Highway Rehabilitation, Emmeline to Burmeister Streets
- Renovate Buildings at HCC for High-Tech Program
- Statewide Bicycle Paths/Lanes

- **City**

  (Work Phase: L = Land, P = Planning, D = Design, C = Construction, I = Inspection, E = Equipment, R = Relocation, A = Art, O = Other)

  - Upgrades to Sand Island Wastewater Treatment Plant – Multiple Projects (L, P, D, C, I, E)
  - New Force Main from the Hart Street Pumping Station to the Sand Island Wastewater Treatment Plant (SIWWTP) (P, L, D, C, I)
  - Upgrade Hart Street Pumping Station (L, D, C, I, E)
  - Mokauea Street Improvements (D, C, I)
  - Pu'uhale Road Flood Improvements (P, D)
  - Middle Street Transit Station (L, P, D, C)
  - Iwilei Transportation Station (P, D)
  - Kalihi-Pālama Bus Maintenance Yard Improvements (P)
  - Relief Sewer Line Along Kokea Street From the H-1 Freeway to Nimitz Highway (L)
  - Kohou Street Improvements (P, D, C, I)

- Kapālama Canal Beautification Study (P)
- Incinerator Demolition (D, C, I)
- Kalihi-Waena Park Improvements (D, C)
- Kalihi Fire Station Improvements (D, C, I, E)
- Relief Sewer Line Along Houghtailing Street, Damien High School to Hālona Street, Along Hālona to Kohou Street (L, D, C, I, E)
- Sidewalk Improvements Along Judd, Lanakila, School, ʻAlewa, and Houghtailing Streets (L, P, D, C, I)
- Puna Street and Skyline Road Improvements (P, D)
- Puʻunui Park Improvements (D, C)
- ʻAlewa Park Improvements (D, C)
- Kunawai Park Improvements (D, C)
- Kalihi Stream Relief Sewer Line, School Street to the H-1 Freeway (P, D)
- Kalihi Stream Relief Sewer Line, Dole Intermediate School to Nalaniʻehā Street (L, D, C)
- Kalihi District Park Improvements (L, D, C)
- Kalihi Police Station Expansion (D, C)
- Kalihi Bridge Improvements (L)
- Kalihi Street Redesign Bend Near Valley View Terrace and Include Sidewalks (L, P, D, C, I)
- Honolulu Bicycle Paths/Lanes (Master Plan)
- Downsizing of Nimitz Highway (Mayor's Proposal)
- Pedestrian Promenade Along the Makai Side of Nimitz Highway, Middle Street to Iwilei Road (Mayor's Proposal)
- Sand Island Parkway with Tunnel Under Fort Armstrong (Honolulu Channel) (Mayor's Proposal)
- La Mariana Marina (Mayor's Proposal)

- **Private Sector**
  - Ford Dealership on the Corner of Waiakamilo Road and King Street (Kamehameha Schools)
  - Kitchen Incubator on ʻUmi Street (Pacific Gateway Center)
  - New Hope Chapel (Location still to be determined)

- **Community**
  - Performing Arts Center at Sand Island Park

- Kapālama Canal Beautification - Lama Trees, One-Way Kohou and Kōkea Streets
- Kalihi Valley Welcome Sign at Intersection of Likelike Highway and School Street
- Kalihi District Park Erosion Control
- Kupehau Park Redesign with ADA Standards
- Nihi Valley Street Improvements for Better On-Street Parking
- Kalihi Street Sidewalks and Planting Strip
- Likelike Highway Landscaping with Native Plants
- 99-Acre Nature Park

- **Visioning Group**
  - Museum at OR&L Site
  - Entry Sign at King Street/Dillingham Boulevard Intersection
  - Entry Sign to Banyan Court
  - Dillingham Boulevard Beautification
  - King Street Beautification (Design and Construction)
  - Waiakamilo/Houghtailing Streets Beautification
  - All Streams – Restoration and Beautification to Include Paths/Trails, Where Appropriate

The following Current Projects map shows all of the projects listed above. This map is followed by the Urban Environmental Concept map that illustrates the "End-State" for Kalihi-Pālama and includes the projects listed above.

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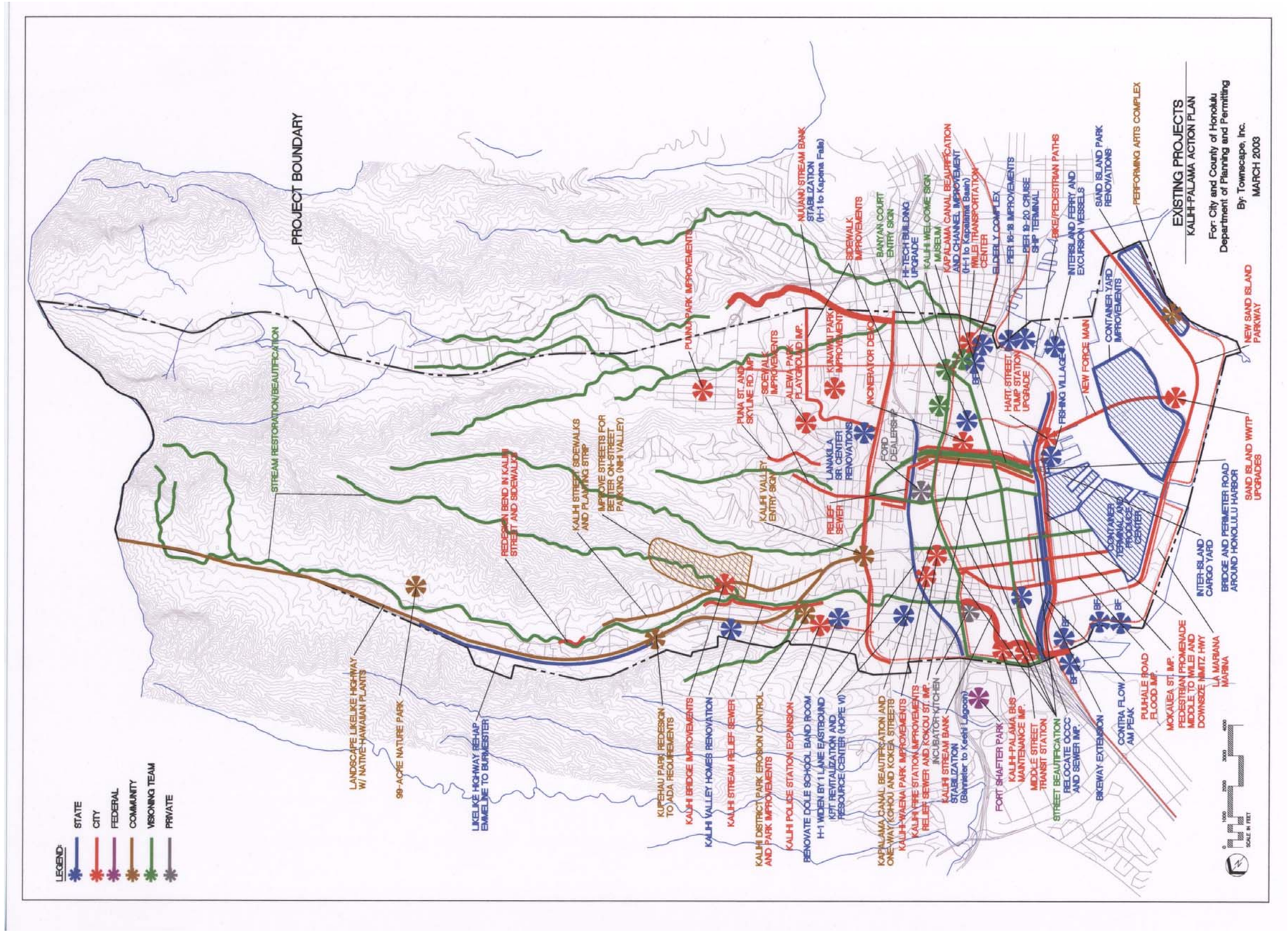

Figure 2-1: Current Projects

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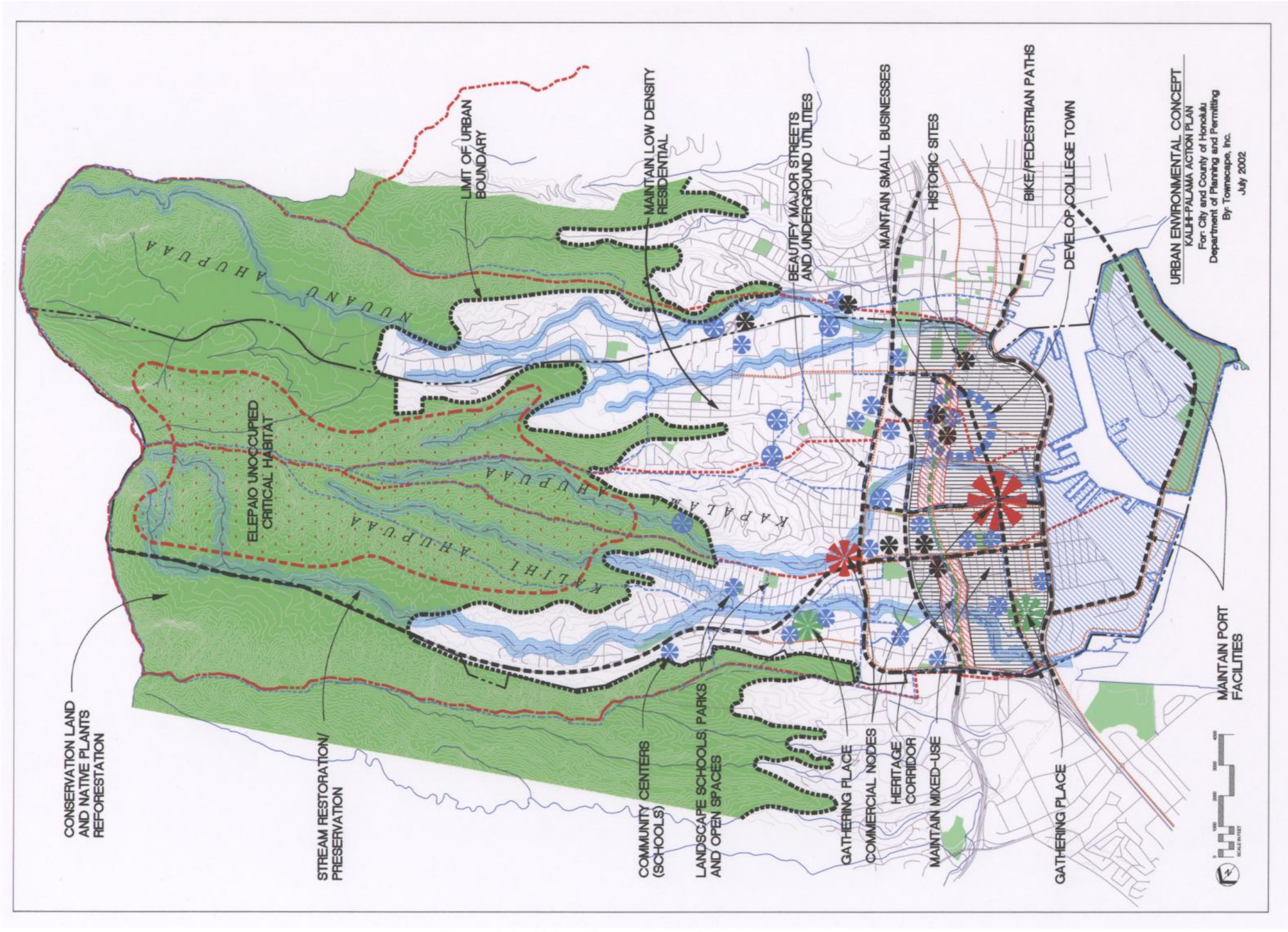

Figure 2-2: Urban Environmental Concept

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SECTION 3
AREAS OF FOCUS

The elements of the Urban Environmental Concept were categorized into "Areas of Focus" in an effort to establish specific guidelines that can be applied to projects that are proposed in the Kalihi-Pālama area. These guidelines should be considered when planning new projects. Because there are varying types of neighborhoods and conditions, not all of the guidelines listed in each area of focus may apply. The details of each project should be scoped to meet the needs of the community it serves. All projects should also conform to the City's General Plan, the Development Plan Common Provisions, the Primary Urban Center Development (PUC) Plan Special Provisions, and the Revised PUC Development Plan (when adopted).

Lighting recommended within the areas of focus should consider efficient lighting and be based on light standards. Lighting should be located to minimize light spillage and glare to nearby properties.

There are five basic areas of focus that are in concert with the overall vision of Kalihi-Pālama to improve the quality of life for residents and businesses. For each area of focus, specific improvements to consider including in the scope of a project have been identified. Depending on the location and nature of the project, some of the guidelines may or may not apply. However, it does provide a checklist of items to consider when planning new projects.

The five areas of focus are:

1. Open Space and Recreation
2. Community Revitalization
3. Beautification
4. Activity Centers
5. Environmental Restoration

3.1 OPEN SPACE AND RECREATION

Kalihi-Pālama is a densely populated neighborhood that has very little open space to provide visual relief from the built environment. There is a deficiency of parks in the project area of approximately 200 acres, based on City standards. The existing parks that are available lack adequate facilities when City park standards are applied because most of these parks were built before standards were established.

Kunawai Park

The homeless are a concern at parks because of access to restroom facilities, shelter, and water. In some cases, barbeque grills and picnic tables are also available and serve as cooking and eating facilities for the homeless. Although these types of amenities are convenient for family picnics, community gatherings, and festivals, these amenities may not be appropriate in areas where there is insufficient night lighting and security or if located in somewhat remote areas. Vandalism is also a concern in dark, secluded areas. Notwithstanding, some of these park amenities may be appropriate in areas of high visibility and if facilities can be adequately secured to reduce vandalism. The following is a list of items to consider when developing open space and recreational facilities:

- Develop parks according to City park standards.
- Provide adequate signage to show City ownership and permitted uses.
- Provide pedestrian and bicycle connections between parks and other uses.
- Provide informational/directional signs indicating the preferred paths and crossings to the park.
- Provide gateway elements such as signs, landscaping, and architectural elements at parks for an inviting appearance.

Banyan Court

- Provide sufficient lighting in and around parks to deter illicit activity.
- Plant vegetation of cultural or historical significance to the Kalihi-Pālama area.

- Use planting material near fencing to soften the hard image.
- Plant trees within the park to provide shade for park users.
- Establish a system to reserve park amenities for special family or community celebrations.
- Explore the possibility of creating mini-parks and tot lots in conjunction with non-profit groups, churches, or schools.
- Provide picnic tables, barbeque grills, benches, drinking fountains, and trash cans.
- Secure picnic tables, trash cans, benches, etc. to prevent vandalism.
- Provide a public telephone.
- Provide adequate parking areas.
- Incorporate handicap-accessible paths to parks from adjacent areas.
- Build park facilities to ADA requirements.
- Provide tot lot and play equipment.
- Provide access for park users and physically challenged persons to areas of the park that have a significant change in elevation through the installation of stairs and ramps.
- Establish an "eyes on the park" system whereby people in neighboring parcels would provide added security by monitoring activities occurring within the park.
- Establish an aggressive park acquisition program to purchase vacant parcels located near existing parks to bring parks up to current City standards.

3.2 COMMUNITY REVITALIZATION

Because Kalihi-Pālama was one of the first areas of Honolulu to be developed, many of the buildings and infrastructure are old. Buildings are in need of revitalization or replacement because they are old, substandard, and not properly equipped with today's technology.

Typical residential street.

Roadways lack curbs, gutters, and sidewalks and have a very narrow right-of-way width. In addition, many of these roadways are privately owned. Some of the roadways do not have adequate drainage facilities. Therefore, the roads tend to be flooded during and after storm events. In areas where sidewalks, curbs, and gutters are available, they need to be repaired and brought up to ADA standards. Underground sewer and water lines are also old and substandard.

The goal for community revitalization and beautification focuses on creating safe, clean, and visually pleasing living environments while maintaining the historic character. There are three types of community revitalization: 1) residential, 2) mixed-use, and 3) industrial. A description of these areas is provided below with the various actions to consider when improving these neighborhoods.

3.2.1 Residential Neighborhood Revitalization

Residential neighborhoods are areas where the primary land use is residential. These areas exist mainly above the H-1 Freeway and below the conservation zone. Smaller pockets of residential areas also exist below the H-1 Freeway. Improvements to consider when projects are being proposed in residential areas are as follows:

Typical residential neighborhood.

- Improve roadways for better on-street parking where right-of-way is sufficient. If the right-of-way is insufficient, consider acquiring property to widen the roadways, such that the appropriate improvements can be installed for safe pedestrian and vehicular movement.
- Improve or construct sidewalks for safer pedestrian traffic and include ADA requirements, where appropriate.
- Improve bus stops to include shelters, benches, and safe setback from streets.
- Upgrade undersized sewer lines.
- Replace old water lines.
- Improve drainage facilities to prevent ponding or flooding.
- Install underground electric, telephone, and cable television lines.
- Improve street lighting and install character-style lighting on major collector roads or where appropriate.
- Plant street trees along roadways to provide shade and to create a visually pleasing streetscape.
- Consider a one-way street pattern to accommodate on-street parking and for safer movement of traffic where appropriate.
- Revitalize/rehabilitate existing housing.

- Design and install gateway and entrance treatments to define major neighborhood boundaries.
- Modify intersections for safe pedestrian crossing.
- Provide sufficient signage for pedestrian crossings, bikeways, speed limits, etc.
- Provide traffic calming devices to reduce speeding on roadways.

3.2.2 Mixed-Use Revitalization

The mixed-use areas exist mainly between the H-1 Freeway and Nimitz Highway. These areas include light industrial, manufacturing, commercial (office and retail), and residential, both single-family and multi-family. Because of the residential component, easy pedestrian access to other uses is important to reduce the need to drive. For commercial uses, nearby parking is essential to allow customers from outside the community easy access to patronize the businesses. Large trucks that are typically associated with industrial and manufacturing uses also need to be accommodated. These types of uses provide a unique mix that is characteristic of Kalihi-Pālama.

Typical mixed-use street scene.

The PUC land use policies and recommendations for mixed-use development should be applied where applicable. This concept integrates commercial uses on the ground floor with apartment units on upper floors. The streets would also be redesigned to attract pedestrian-oriented commercial activity, which would be safer and pedestrian-friendly.

Although some of these uses are not compatible with one another by today's standards, it does provide a convenience for those who work, live, and play in the area. A resident could be within walking distance of all the urban amenities, including work, recreation, shopping, and dining. To the extent possible, this mix of uses should be maintained.

- Maintain sufficient on-street parking.
- Acquire vacant properties for off-street parking.
- Improve bus stops with shelters, benches, and safe setback from streets.

- Provide sufficient lighting along streets.
- Consider an efficient one-way circulation pattern, where appropriate, to allow for safe vehicular movement and pedestrian walkways, while also providing adequate on-street parking.
- Acquire setbacks along roadways where appropriate to provide for necessary improvements.
- Improve or construct sidewalks for safer pedestrian traffic.
- Upgrade undersized sewer lines and replace old sewer lines.
- Replace old water lines.
- Improve drainage facilities to prevent ponding and flooding.
- Install underground electric, telephone, and cable television lines.
- Recognize the importance of highly traveled streets in the Kalihi-Pālama area and consider the following improvements for a visually pleasing driving and walking experience:
  - Highly traveled streets include: Kalihi Street, Mokauea Street, Dillingham Boulevard, Waiakamilo Road/Houghtailing Street, School Street, Nimitz Highway, King Street.
  - Provide sidewalks with ADA standards.
  - Provide bike lanes.
  - Consider character-style lighting, where appropriate.
  - Plant street trees.
  - Consider landscaped medians where appropriate.
  - Improve building facades fronting these streets.
  - Provide adequate signage for pedestrian crosswalks, bike lanes, speed limits, etc.

3.2.3 Industrial Revitalization

Kalihi-Pālama houses a large portion of the industrial activity on O‘ahu. It is worth noting that the project area contributes to approximately 1/3 of Oahu’s industrial economic activity. This area is generally makai of Nimitz Highway to the Honolulu Waterfront, including Sand Island. Although much of the area between Nimitz Highway and the waterfront is designated for industrial use, there are a few single-family and multi-family parcels scattered amongst the industrial uses. The residential component poses a design challenge because large container trucks and young children do not mix well.

Over a long-term period, it is probably inevitable that the residential parcels will be converted to industrial use. Thus, the focus of the development guidelines for this area caters to the industrial users rather than the residential; but, the improvements described above in the mixed-use areas should also be considered.

Sidewalks are already constructed in much of the Kalihi Kai area but the area lacks landscaping. Landscaping with trees in areas where large vehicles travel could pose a problem where tree branches extend into the roadways. However, planting of street trees could be successful with the careful selection of proper species and size.

- Consider a one-way street pattern to maintain on-street parking and to allow safer movement of large vehicles where appropriate.
- Upgrade undersized sewer lines.
- Replace old water lines.
- Identify isolated areas of flooding and improve drainage facilities to prevent ponding and flooding.
- Install underground electric, telephone, and cable television lines.
- Renovate or reconstruct old buildings.
- Plant landscaping on properties to visually break up the mass of large industrial buildings.

3.3 BEAUTIFICATION

Landscaping along Kapālama Canal.

Beauty and cleanliness in the surrounding environment give people a sense of contentment, pride, and order. It does, however, require effort on the part of the community to keep their surroundings aesthetically pleasing. While vandalism and graffiti oftentimes mar the beauty of our neighborhoods, efforts to improve the appearance of our built and natural environment should be implemented. The following is a list of guidelines to consider when improving our surroundings:

- Plant street trees along roadways.
- Plant landscaping along fences or hard surfaces to soften the appearance.
- Use drought tolerant/low water use plans and xeriscaping principles for all landscaping.
- Incorporate efficient irrigation systems such as drip irrigation systems with moisture detection sensors to avoid operation during rain and if adequate moisture is present in soil.
- Renovate or reconstruct buildings that characterize the history of the area.
- Install character-style lighting along major roadways.
- Create parks and open space to provide visual relief from the built environment.
- Install underground electric, telephone, and cable television lines.
- Enforce the use of nonpotable water for the irrigation of large landscaped areas if a suitable supply is available.
- Organize community clean-up events to remove debris or cover graffiti.
- Construct entry features to neighborhoods.
- Install character-style signage within neighborhoods for specific features within the community (community centers, parks, historic sites or buildings, and activity centers).
- Consider installing art work in parks (i.e., sculptures).

3.4 ACTIVITY CENTERS


Open market

The intent of the activity centers is to provide a unique place for people to visit and patronize businesses to boost the economy in Kalihi and provide gathering places for community members to build social capital and improve community spirit. These areas could host open markets, festivals, and fairs. There are several site-specific areas that were identified as activity centers. These activity centers include: 1) King Street Multi-Cultural Heritage Corridor from Liliha Street to Middle Street (see Section 4), 2) Honolulu Community College (HCC), and 3) the site of the O‘ahu Community Correctional Center (OCCC). A non-site specific activity center is a multi-cultural marketplace. The community wants a multi-cultural marketplace established somewhere in Kalihi. However, the location and size of this use need to be determined. This marketplace would be a venue where businesses, farmers, entrepreneurs, and residents can

provide their services and goods (i.e., fruits, vegetables, clothing, jewelry, produce, crafts, banking services, educational opportunities, etc.).

The following lists the guidelines that should be considered for each of these activity centers:

3.4.1 King Street Multi-Cultural Heritage Corridor

This activity center extends along King Street from Liliha Street to Middle Street. King Street was one of the first major roadways to be constructed and contains a number of historic buildings that are on the State and National Register of Historic Places. There are numerous "mom and pop" shops and a variety of ethnic establishments that cater to the diverse multi-cultural population. A detailed description of this project is presented in Section 4.

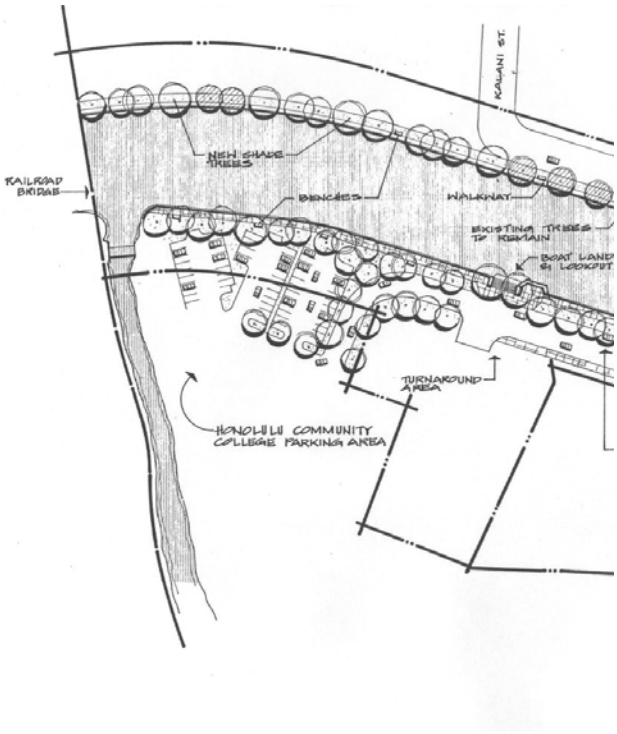
3.4.2 Honolulu Community College Town

Honolulu Community College (HCC) specializes in the education of industries, such as carpentry, aeronautics, automotive, and high technology. HCC has partnered with companies like Cisco and Sun Microsystems where classes are held at HCC to teach students the necessary skills to eventually work for these companies. These partnerships inspired the concept of a technology corridor in the vicinity of HCC, which then evolved into the concept of a "College Town" around HCC.

Honolulu Community College.

The College Town concept takes further advantage of HCC's location by providing students "hands-on" training opportunities with the nearby aeronautic, marine, and automotive industries located a short distance from campus. The College has facilities near Honolulu International Airport for the Aeronautics Maintenance and Commercial Aviation programs, automotive and heavy equipment shops on Kokea Street, and the Marine Education and Training Center at Sand Island. Surrounding establishments and new developments, would cater to the needs of the students. Because of the close proximity of the school to these industries, the students could walk rather than drive to work, resulting in reduced traffic. This concept is consistent with the existing IMX zoning designation.

Currently, monthly parking is available on campus or in the parking lot near Nimitz Highway for a fee. However, many of the students park along the local streets for free. The Kapālama Canal Beautification Study (1980) showed conceptual sketches for a one-way system on Kohou and Kokea Streets and the possibility of dead-ending Kokea Street near Dillingham Boulevard. These sketches also show possible sites for parking lots on the HCC side of Kokea Street. If this plan is implemented, much of the on-street parking will be removed but accommodated in a parking lot. These improvements should be coordinated with the plans for HCC and the plans for a College Town to reduce or mitigate possible impacts on the surrounding area from vehicular or pedestrian traffic.



Portion of plan from 1980 study.

The extent of the College Town is still to be determined. This project would require a collaborative effort amongst many different stakeholders, such as the University of Hawai'i, City, landowners, businesses, and the community. A master plan to determine the types of uses needed for a College Town will be needed. Depending on the outcome of the master plan, changes in the zoning designation may be needed (i.e., off-site housing for students or teachers). Some of the actions to consider for this activity center are as follows:

- Prior to development of the College Town, prepare a master plan to identify the types of services needed, employment opportunities, and housing.
- Redevelop the HCC campus and surrounding areas into a "College Town" that provides services that cater to students and University-based needs (i.e., computer software and hardware stores, restaurants, print shops, book stores, school supplies).
- Improve vehicular access and parking.
- Improve pedestrian circulation on campus and to nearby business establishments.
- Provide attractive landscaping.
- Provide adequate night lighting in and around the campus.

- Provide outdoor and indoor gathering places.
- Revitalize the HCC campus (buildings and infrastructure).
- Provide nearby dormitories or apartments.
- Provide pedestrian and vehicular connections to King Street.
- Clean up the incinerator site of hazardous materials and use the land for campus expansion.

3.4.3 Redevelopment of O‘ahu Community Correctional Center Parcel

The State has been considering moving the O‘ahu Community Correctional Center (OCCC) to Hālawa. As a result, the community has been lobbying elected officials about transforming the site into uses that would serve the community. *(See artist’s rendering on page 3-14).*

Oahu Community Correctional Center.

There is a long list of suggestions provided by the residents on the types of uses that could be accommodated at the site. During a site visit of OCCC, the buildings appeared to be in sturdy condition. Adaptive reuse should therefore be considered. A study to determine the best use for the site should be conducted with community input.

While some of the uses may not be compatible with one another, they are listed in order of type of use, as follows:

Community Services/Activities

- Multi-cultural marketplace
- Cafeteria – meals-on-wheels
- Music center with stage and ballrooms
- Multi-purpose rooms
- Games (dominos, chess, bridge, mahjong)
- Mentorship programs
- Crafts
- Night activities; youth advisors
- Youth activities; gym, programs, computer classes for youth and seniors
- Speakers bureau; candidates night
- Open fields for tournaments
- Community gardens
- Handivan center
- Farmer’s market

- Police staging area
- Reading, research, computer room
- Public internet access node
- Major sports venue
- Center for Pacific and Asian performing arts

Educational Services

- Pre-school
- Culinary classes
- Auto maintenance classes
- HCC branch site
- Youth enrichment areas; aspiring teachers
- Driver training
- Low-income day care

Offices

- Office for social services
- Office for MADD (Mothers Against Drunk Driving)
- Business incubator
- One-stop employment center
- Banking services

Health Services

- Community use and not drug treatment
- Health monitoring services

Senior Citizen Services

- Language programs for seniors and citizenship
- Relocate Lanakila Senior Center to OCCC
- Senior-citizen band
- Assisted living for seniors
- Low-cost senior medication pharmacy
- One-stop senior-citizen center
- Geriatricians with health agencies

Commercial

- Gift center that sells crafts by seniors
- Movie theaters
- Computer communications center: AOL/Microsoft

3.4.4 Multi-Cultural Marketplace

Open market.

The site to house the multi-cultural marketplace has not yet been determined, although it was suggested for the OCCC site. This type of facility is envisioned as having indoor and outdoor sales of goods and services that would require some fixed facilities and some outdoor space for an open market. The development of a multi-cultural marketplace in Kalihi is appropriate because of the diverse ethnic mix of the population. A multi-cultural marketplace would provide the venue where residents and businesses can share their cultural products with others. This marketplace is not expected to compete with Chinatown because Chinatown caters to the Chinese population. It is expected that this marketplace will cater to the large Filipino population of the area and to other ethnic groups, such as Micronesians, Pacific Islanders, and Hawaiians.

- Conduct a feasibility study to determine the location of the site.
- Prepare a master plan to determine the types and location of uses.
- Integrate a permanent/semi-permanent, multi-cultural marketplace for local vendors to sell ethnic crafts, food products, and services.
- Provide open space and park facilities for picnics.
- Provide adequate parking

O'ahu Community Correctional Center.

Artist's rendering of Revitalized OCCC Property.

3.5 ENVIRONMENTAL RESTORATION

Environmental issues are always a concern because, if the natural environment is disrupted, it can have an effect on our quality of life. For instance, leptospirosis was never a major concern in streams in the past. People played and swam in streams with no fear of contracting the bacteria. However, today, most streams on O'ahu have the potential of bacterial presence. People are warned against entering streams if they have any open wounds through which the bacteria can enter their system. Therefore, a concerted effort to prevent negative environmental effects and restore the environment to a better condition is very important.

3.5.1 Watershed Management

The Corps of Engineers, Department of Land and Natural Resources, and the Board of Water Supply have begun a process of collaborative watershed studies. These studies are being conducted to identify actions needed to improve O'ahu's watersheds, streams, and coastal waters. It is assumed that these three agencies will take the lead in implementing the recommended actions outlined in the study to improve the watershed. It will take a long time to improve conditions in the watershed; however, there are some specific actions that can be done to prevent further degradation of the watershed, as follows:

- Develop community-based stewardship programs to manage legal access to the conservation district.
- Control feral pigs and other animals that feed on or destroy vegetation to minimize erosion and increase percolation into the groundwater.
- Plant native trees and vegetation in the watershed.
- Control or eradicate invasive, non-native plant species.
- Respect the community policy to cease the dumping of displaced contamination in the Kalihi-Pālama area from neighboring vicinities.

Kalihi Stream.

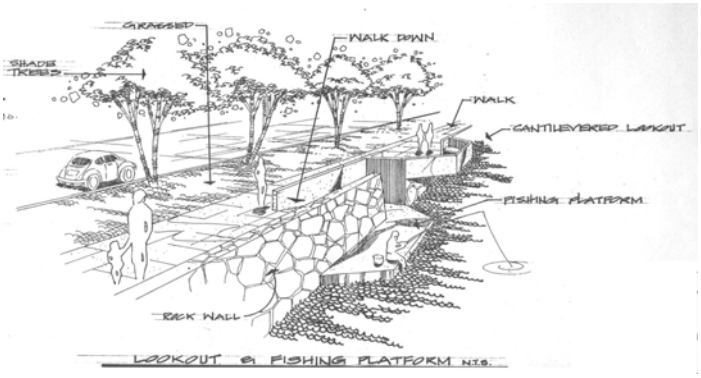
3.5.2 Stream Restoration/Preservation

Streams originate in and are directly related to the watershed. The watershed study will also address actions related to streams. Some of the actions identified are scientific in nature, such as monitoring water quality or stream biota, and other actions may require Department of Army and possibly State permits. However, permits notwithstanding, there are physical actions that can be taken to improve streams in Kalihi:

- Remove debris from streams.
- Develop an "Adopt A Stream" program.
- Preserve the stream corridor through the establishment of stream setback restrictions.
- Establish bioremediation and "clean" plants at Kupehau Park and Kapālama Canal.
- Remove vegetation, such as mangrove, near the mouth of streams to increase stream flow to prevent flooding.
- Stabilize stream banks to minimize erosion.
- Establish a public awareness program on the resulting negative consequences of stream contamination from debris, pesticides, herbicides, and hazardous wastes.

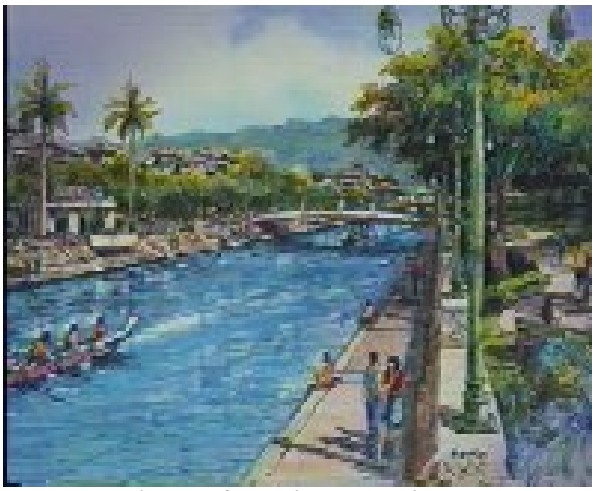
3.5.3 Kapālama Canal Beautification

Kapālama Canal extends from the H-1 Freeway to the ocean. Above the H-1 Freeway, the stream is generally in its natural state. Kapālama Canal (Canal) was constructed in 1938 by the City as a flood control project for Niuhelewai Stream. As urbanization developed around this controlled waterway, the community felt that the Canal was a good asset and wanted to increase its aesthetic quality and provide a recreational amenity for the area.



Sketch of a portion of Kapalama Canal (1980 report).

In 1971, a master plan was prepared for the Canal to develop a long-range plan for flood control improvements, beautification, and recreational potential. In 1978, conceptual plans, engineering



Artist's rendering of Kapālama Canal beautification.

drawings, and cost estimates were developed to include the recommendations of the 1971 master plan. This study was prepared in collaboration with an advisory committee that consisted, in part, of community members. The concepts developed in the 1978 study are still valid today, based on conversations with the community for this Kalihi-Pālama Action Plan. A third plan was prepared in 1980 that also illustrated the improvements of the two previous plans. This plan provided various alternatives for the development of the Canal and Kohou and Kokea Streets. These plans were never implemented because of the high construction costs. However, the Kalihi-Pālama Community Council (KPCC) has played an active role in incrementally improving the appearance of the Canal by lobbying for funds to plant trees and construct picnic tables.

The actions to be taken toward the beautification of the Kapālama Canal begin with the need to develop a phased approach based on the 1980 Kapālama Canal Flood Control, Landscaping, and Beautification Plan:

- Establish a one-way traffic pattern system on Kohou and Kokea Streets.
- Construct curbs and gutters with on-street parallel parking.
- Construct walkways between the curb and edge of the Canal.
- Provide landscaping along the Canal.
- Provide park furniture (picnic tables, gazebo, lighting, trash receptacles).
- Construct a retaining wall along the stream banks to prevent erosion.
- Tier the stream edge to allow access to water for fishing, crabbing, walking, biking, and viewing.
- Dredge the Canal.
- Construct a pedestrian bridge over the Canal near HCC.

SECTION 4
ACTION PLAN

This section of the report provides examples for improvement projects and illustrates how the guidelines listed in the "Areas of Focus" can be applied to a project. Site-specific areas around Kalihi-Pālama were identified as sample projects to show how multiple areas of focus would be addressed for a project site. Implementation strategies are included for each project sample to show what steps are needed. In addition to the sample projects, two other actions are discussed. These two actions are: 1) a "Park Program" and 2) establishing a "Community Development Corporation" (CDC). These two actions are presented for community consideration in the event government funding for priotity projects cannot be obtained.

4.1 KING STREET MULTI-CULTURAL HERITAGE CORRIDOR

4.1.1 Introduction

The King Street Multi-Cultural Heritage Corridor extends from Liliha Street to Middle Street. King Street's unique features are due to the ethnic diversity of the area, which supply the abundant food stores, specialty services, and restaurants. When tied together, these diverse elements represent the foundations for the Kalihi-Pālama Multi-Cultural Heritage Corridor. Once the King Street Corridor has been established, these concepts and ideas can be extended to other areas in Kalihi-Pālama. The history, legends, and stories (Appendix B) can be utilized on tours, at a museum, or at a building site via historic markers and signs.

Historic Kaumakapili Church.

This section discusses the implementation strategy for the Kalihi-Pālama Multi-Cultural Heritage Corridor. It will provide a description of implementing activities, potential funding methods, and a 4-year time line.

4.1.2 Vision and Goal

The goal of the King Street Multi-Cultural Heritage Corridor is to showcase the historical and cultural resources of the Kalihi-Pālama community. The Corridor can enhance the quality of life of residents and businesses by protecting, preserving, restoring, and interpreting the multi-cultural resources of the area. Showcasing the Multi-Cultural Heritage Corridor may afford greater economic and social stability to the Kalihi-Pālama community and attract visitors to the area.

- Preserve historic structures.

- Protect, maintain, and creatively utilize the area's historical and archaeological sites for the enjoyment of community residents, visitors, and future generations.

- Create pedestrian walkways and bikeways that connect cultural areas.

- Develop cultural/historical centers such as OR&L Terminal, Pālama Theater, Pālama Settlement, and Kaumakapili Church.

- Sponsor community festivals celebrating Kalihi's pride, highlighting the community's diverse cultures and integrating business and residential activities.

4.1.3 Resource Opportunities

The following resources along the King Street Corridor offer interpretive opportunities that detail the cultural and historical fabric of Kalihi-Pālama:

- **King Street Eateries**

  Kalihi-Pālama's multi-cultural character is best represented by the numerous ethnicities, such as, Japanese, Chinese, Filipino, Vietnamese, Thai, and Hawaiian. These ethnic groups operate a large number of eateries along King Street.

Elena's Filipino Food Restaurant.

- **Town Within A Town Character**

  The older buildings serve as distinctive reminders of the heritage of Kalihi-Pālama. Rehabilitation or restoration activities of unique buildings along the King Street Corridor can strengthen Kalihi-Pālama's small town character as well as promote economic revitalization.

- **Unique Shops**

  Tamashiro Market, Hawaiian Vintage Gift Shop, Kalihi Bowl, and countless other "mom and pop" shops located along King Street contribute to the historical and contemporary dimensions of the Heritage Corridor.

Kalihi Bowl.

- **Historic Sites and Points of Interest**

  Historic sites, churches, people's markets and other community-based activities and resources are attractions located along the King Street Corridor.

- **Gathering Places**

  Gathering places include schools, parks, museums, and libraries. These are areas where the community can gather for cultural or historic events.

4.1.4 Objectives

- **Establish the Kalihi-Pālama Heritage Corridor**

  - Designate the Kalihi-Pālama Multi-Cultural Heritage Corridor along King Street.
  - Incorporate walking or trolley tours along the Corridor route.
  - Establish a Kalihi-Pālama Community Museum at a location along the Heritage Corridor.
  - Develop a calendar of Kalihi-Pālama festivals, activities, and events along the Corridor.
  - Develop a Kalihi-Pālama Directory and Z-Card walking maps.
  - Use the legends and stories in Appendix B for tours, signage, and brochures.

- **Rehabilitate Kalihi-Pālama's Distinctive Buildings**

  - Inventory the most important and significant historic buildings that the community deems worthy of preservation and/or rehabilitation activities.
  - Utilize "A Town Within A Town Plan" (1993) for certain restoration activities.
  - Incorporate site signage or markers on select historic buildings.

- **Collaborate With Kalihi-Pālama Families, Organizations, and Businesses**

  Community-based leadership is important to setting in motion a series of incremental initiatives that build community support.

  - Establish the Kalihi-Pālama Community Development Corporation (CDC) to lead the rehabilitation and revitalization efforts. The CDC should be able and capable of receiving and disseminating funds for enhancing historic properties and cultural resources. (Another section of the Action Plan provides details on CDC's and the potential application to Kalihi-Pālama.)


Community leaders.

  - Partner and network with organizations that advocate the Kalihi-Pālama Heritage Corridor goals and objectives. Work with organizations that have a proven track record in historic preservation initiatives and that can provide guidance on planning and development.

    - Bishop Museum
    - Kalihi-Pālama Culture and Arts Society
    - Historic Hawai'i Foundation
    - University of Hawai'i Mānoa
    - Honolulu Community College

  - Organize a base of volunteers interested in promoting, identifying, and maintaining the historical and cultural properties of Kalihi-Pālama.

4.1.5 Implementing Activities

- **Inventory of Historical and Cultural Resources**
  The Kalihi-Pālama historical and cultural resources inventory identifies and makes recommendations on the preservation of the historical and cultural resources. When the Kalihi-Pālama area's historic buildings and cultural resources are protected and made the focal points of the community, they will serve to attract visitors seeking heritage tourism opportunities.

  Product: Inventory Report of historic cultural properties and resources in the area
  How: Private-public partnerships; utilize service learning options with the University of Hawai'i and Honolulu Community College; seek advice from Bishop Museum and State Historic Preservation Division as to inventory program development
  Who: Kalihi-Pālama Community Development Corporation; University of Hawai'i Architecture and Historic Preservation Program; Honolulu Community College; Bishop Museum; State Historic Preservation Division
  Duration: 1 Year
  Cost: $20,000—Archival and historical research, materials reproduction, report reproduction, supplies, transportation, professional fees
  Funding Strategy: Small grants

- **Prepare a Kalihi-Pālama Preservation Plan**

Older building along King Street.

The purpose of the plan is to guide the efforts to preserve and protect the valuable historical and cultural resources of the Kalihi-Pālama area. The plan is a road map for future activities with an eye toward achieving certain preservation goals. The plan may influence the direction of changes and development to be sensitive to historic preservation and cultural resource values.

Socially, the Kalihi-Pālama community benefits when there is pride in its history and mutual concern for the protection of its historical and cultural assets. Healthy physical growth is promoted when the community has a well-defined and concerted planning approach for the protection of historic structures and cultural resources. Environmentally, Kalihi-Pālama benefits when historic buildings are restored and rehabilitated rather than demolished and sent to a landfill.

Product: Kalihi-Pālama Preservation Plan Report
How: In-kind contributions, service-learning projects
Who: Kalihi-Pālama Community Development Corporation; University of Hawai'i Architecture and Historic Preservation Program and Department of Urban and Regional Planning; Honolulu Community College; Bishop Museum; State Historic Preservation Division
Costs: $20,000
Duration: 1 to 2 years
Funding Strategy: Small grants

- **Rehabilitate Buildings**

Product: Rehabilitated Buildings--Based on cultural and historical inventory, select buildings for rehabilitation and/or reconstruction. Implement "A Town Within A Town" guidelines
How: Public-private partnerships, service-learning projects, in-kind contributions
Who: Kalihi-Pālama Community Development Corporation, public agencies, private businesses, labor unions, business associations
Costs: Due to unique rehabilitation circumstances, cost estimates would be determined on a building-by-building basis
Duration: 2 – 3 years planning, design, and reconstruction
Funding Strategy: Multi-year grants; tax credits

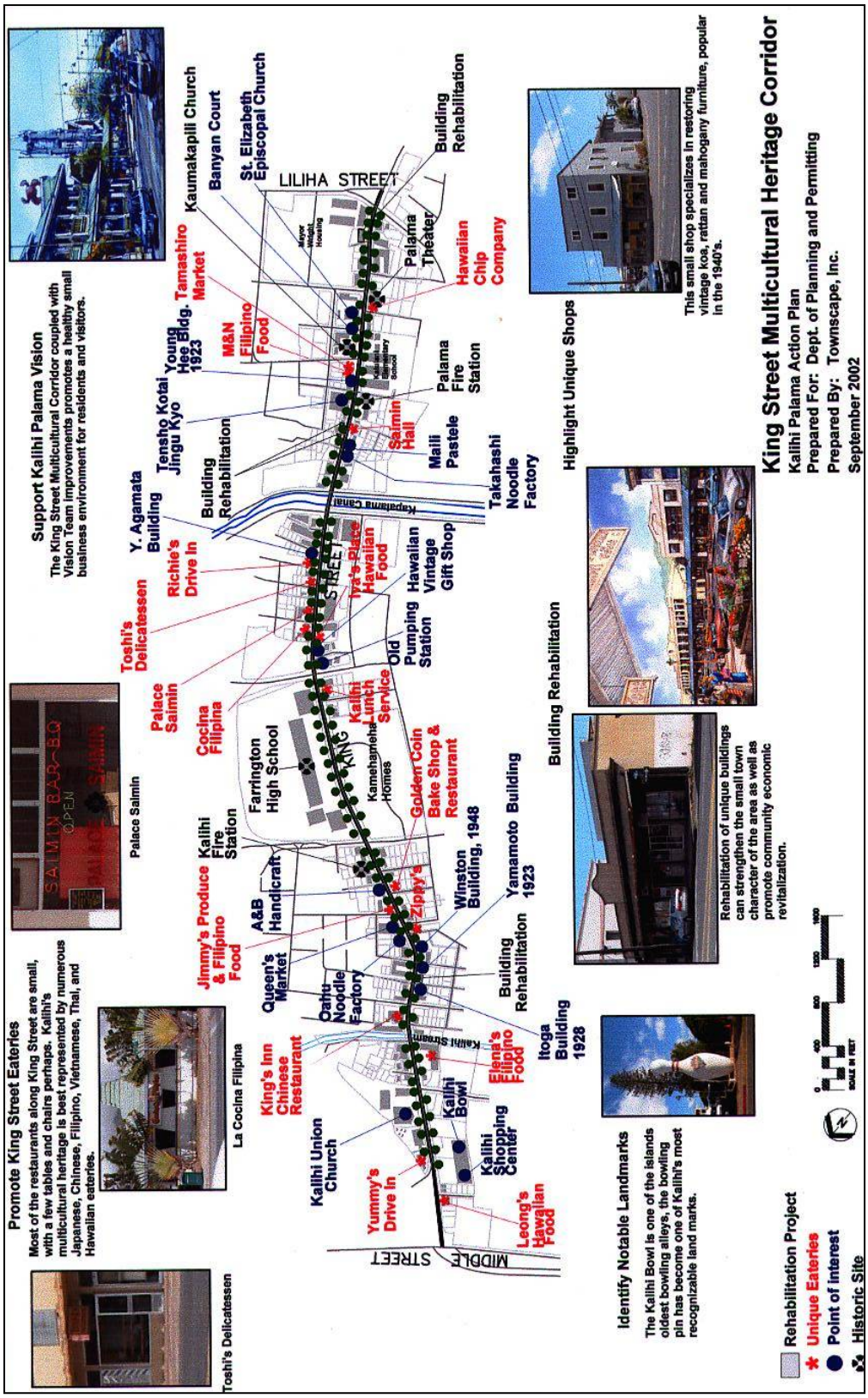


Figure 4-1: Multi-Cultural Heritage Corridor

- **Develop a Calendar of Corridor Activities**

Product(s): Festivals, Walking Heritage Trail, Trolley Tours, Kalihi-Pālama Eateries Directory, Z-cards
How: Public-private partnerships
Who: Kalihi-Pālama Community Development Corporation; private businesses; Kalihi-Pālama Business Association; City Office of Economic Development; State Department of Business, Economic Development and Tourism
Costs: Commensurate with scale of activities
Duration: Concurrent Preservation Plan development
Funding Strategy: Grants; in-kind contributions

4.1.6 Heritage Corridor Program Plan 4-Year Look Ahead

Table 4-1. Heritage Corridor Timeline

Activity	Year 1	Year 2	Year 3	Year 4
Submit grant application to conduct focused inventory of buildings with rehabilitation potential and associated costs.	→			
Conduct inventory in conjunction with UHM, HCC and other professionals involved with Historic Preservation initiatives.		→		
Submit grant application for multi-year funding for rehabilitation of select buildings based on inventory.			→	
Begin rehabilitation projects.				→
Organize partnerships.	→			
Develop calendar of events and sponsor activities.	→	→		

4.1.7 Financing and Funding

Paying for planned rehabilitation projects will require funds from private businesses or landowners. Other funding options are listed below:

- **Federal Funding Sources**

Save America's Treasures
Grants are administered by the National Park Service (NPS) in partnership with the National Endowment for the Arts (NEA). The NPS awards and administers grants for historic structures and sites, including historic districts, sites, buildings, structures, and objects. The NEA administers grants associated with collections, including intellectual and cultural artifacts, documents, and works of art.

Transportation Enhancements Funding
The Transportation Equity Act for the 21st Century (TEA-21) re-authorized the transportation enhancements program through 2003. Transportation enhancements include some of the following: acquisition of scenic easements and scenic or historic sites; scenic or historic highway programs (including the provision of tourist and welcome center facilities); historic preservation; rehabilitation and operation of historic transportation buildings, structures, or facilities (including railroad facilities and canals); preservation of abandoned railroad corridors (including the conversion and use thereof for pedestrian and bicycle trails); archaeological planning and research.

Federal Rehabilitation Tax Credit
The Tax Reform Act of 1986 [PL 99-514] created a 20% tax credit for the certified rehabilitation of certified historic structures and a 10% tax credit for the rehabilitation of non-historic, non-residential buildings built before 1936. A tax credit lowers the amount of tax owed.

National Trust for Historic Preservation Grant and Loan Programs
The National Trust for Historic Preservation provides leadership, education, and advocacy to save America's diverse historic places and revitalize communities. The following describes these grants and loans:

The **Preservation Services Fund** provides non-profit organizations and public agencies matching grants from $500 to $5,000 (typically from $1,000 to $1,500) for preservation planning and education efforts. Funds may be used to obtain professional expertise in areas such as architecture, archaeology, engineering, preservation planning, land-use planning, fund raising, organizational development, and law as well as preservation education activities to educate the public.

The **Johanna Favrot Fund** for Historic Preservation provides non-profit organizations and public agencies grants ranging from $2,500 to $10,000 for projects that contribute to the preservation or the recapture of an authentic sense of place. Individuals and for-profit businesses may apply only if the project for which funding is requested involves a National Historic Landmark. Funds may be used for professional advice, conferences, workshops, and education programs.

The **National Trust's Community Partners** administers the loan programs described below. Eligible applicants are tax-exempt, non-profit organizations and local governments; organizations may enter into partnerships or joint ventures, provided the applicant is pivotal to project execution. Eligible projects involve the stabilization of historic properties in conformance with the Secretary of Interior's Standards.

- The **National Preservation Loan Fund** provides loans to establish or expand local and statewide preservation revolving funds; to acquire and/or rehabilitate historic buildings, sites, structures and districts; to purchase easements; and to preserve National Historic Landmarks.

- The **Inner City Ventures Fund** offers below-market rate loans of up to $150,000 to non-profit community organizations for site-specific projects and $200,000 for revolving funds to help revitalize older, historic neighborhoods for the benefit of low- and moderate-income residents. Funds may be used for acquisition, rehabilitation, and related capital costs for projects that offer housing. Priority is given to organizations and neighborhoods participating in the National Trust's Community Partners Program.

The National Endowment for the Humanities

The National Endowment for the Humanities was founded by Congress in 1965 to promote progress and scholarship in the humanities and arts. Non-profit education or

cultural institutions, such as schools and historical societies, are eligible for grants. Grants may be used for renovation and adaptive reuse.

The Preservation Technology and Training Grants (PTTG)
PTTG is among the few preservation and conservation grants programs devoted to training, technology, and basic research. The purpose of the grants programs is to ensure an effective and efficient system of research, information distribution, and skills training in all of the related historic preservation fields. Proposals are accepted annually.

- **Hawai‘i Funding Sources**

Historic Hawai‘i Foundation (HHF)
The Historic Hawai'i Foundation works to preserve the unique architectural and cultural heritage of Hawai‘i. The Hawai‘i Preservation Services Fund was created by a $100,000 grant from the HHF to the National Trust for Historic Preservation for grants throughout Hawai‘i. Grant applicants must be non-profit incorporated organizations, public agencies, or educational institutions capable of matching the grant amount dollar-for-dollar. Grants range from $1,000 to $10,000. Awards are made in the following categories: consultant services, preservation education, co-sponsored conferences.

Bishop Museum
Designated the State Museum on Natural and Cultural History in 1988, Bishop Museum’s mission is to record, preserve, and tell the stories of Hawai‘i and the Pacific. The Hawaiian and Pacific Studies Department offers services integral to the completion of archaeological reports. These include expertise in archaeological inventory survey, archaeological data recovery excavations, Geographic Information System, field mapping, graphic illustrations, and databasing and historical archaeology.

State Historic Preservation Division
The State Historic Preservation Division (SHPD) works to preserve and sustain reminders of earlier times which link the past to the present. SHPD's three branches, History and Culture, Archaeology, and Architecture, strive to accomplish this goal through a variety of activities.

Current view of King Street.

Artist's rendering of King Street Multi-Cultural Heritage Corridor.

4.2 RESIDENTIAL NEIGHBORHOOD REVITALIZATION – KALIHI UKA PARK AND SCHOOL

4.2.1 Introduction

The Kalihi Uka Park and School site was selected as a model project because this area provided an opportunity to include many of the guidelines in a number of different areas of focus. The park, school, commercial buildings, and surrounding residential uses were included in the concept plan. This project includes four of the five areas of focus: 1) open space and recreation, 2) revitalization, 3) beautification, and 4) activity center. The goal of this project is to create an activity center for social interaction and enhancement of the environment to create an inviting place for the community to gather.

Kalihi-Uka Park open field.

Kalihi Uka Park and School is located along Kalihi Street between Nobrega and Lehua Streets in Kalihi Valley. The tax map key (TMK) number for the park is 1-3-35:1 and the TMK number for the school is 1-3-36:15. Because of the small size of the school property (1.11 acres), the school uses the park as its playground during recesses. The park size is 1.2 acres. Access to the park is hampered by the extensive fencing that defines the boundaries of the school and the park because the school is owned by the State and the park is owned by the City. To access the park, children need to walk down a ramp that exits onto the sidewalk of Nobrega Street, then to the entrance gate to the park. This situation poses a safety issue for the children because of the need to travel off the school property to enter the park.

This project would include traffic calming applications for safe streets, revitalization of commercial buildings along Kalihi Street, landscaping along the streets, landscaping within the park, landscaping within the school grounds, and replacing street lighting with character-style lighting along Kalihi Street and adjacent residential streets. This project can be used as a prototype neighborhood revitalization effort that can be applied to other areas in Kalihi.

4.2.2 Existing Conditions

Preliminary recommendations in the City's Parks Master Plan (which is not yet finalized) indicated that Kalihi Uka Park should be turned over to Kalihi Uka School because of the small size of the park of approximately one acre. The Department of Education (DOE) is not interested in accepting the property due to concerns with loitering, graffiti and other nuisances. In addition, the Kalihi-Palama community, i.e., Kalihi Valley in particular, opposes the transfer of the park to DOE because the park is used frequently for community activities. If DOE gains jurisdiction over the park, the park would be closed after school hours and would not be available for community use unless arrangements can be made with DOE for use of the facility.

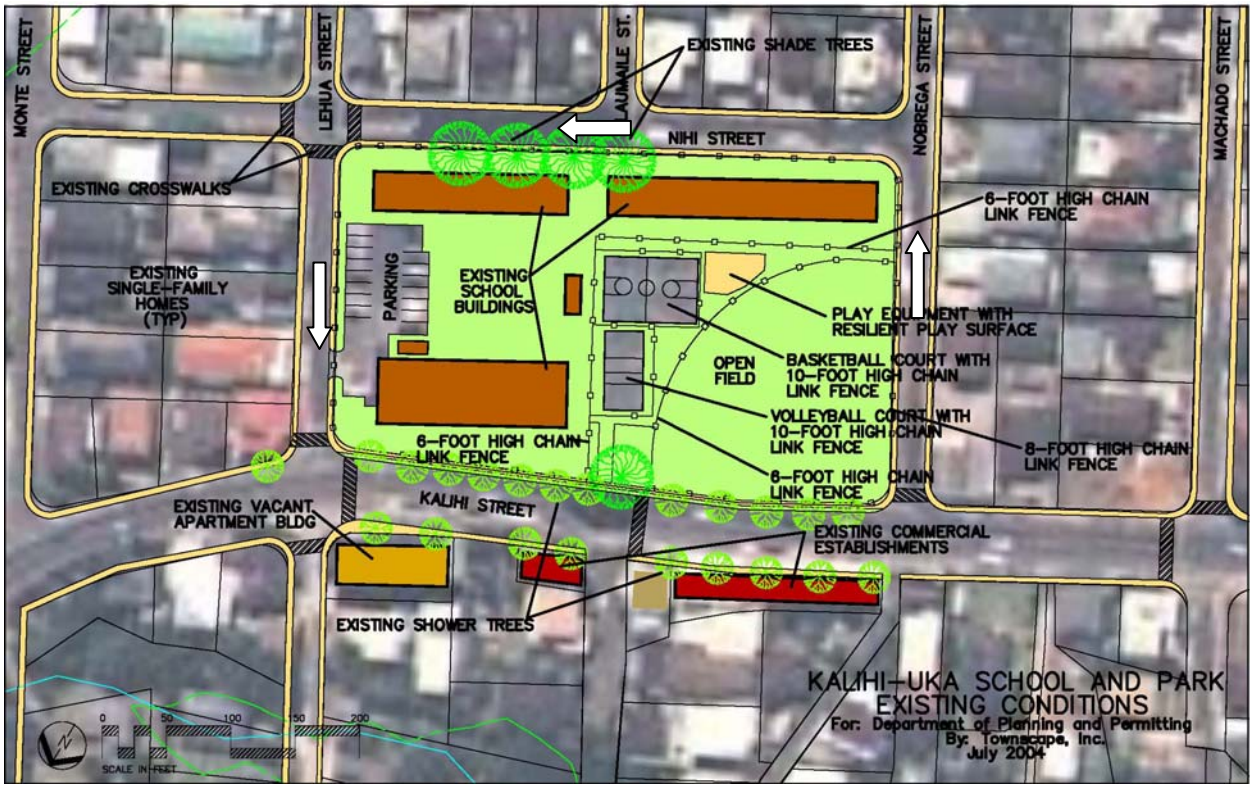


Figure 4-2: Kalihi Uka School and Park Existing Conditions

The open space area of the park is in the shape of a baseball field and is grassed. A wall and 6- to 8-foot high fencing enclose this open space area and no baseball facilities or landscaping are present. Beyond the wall and fence, the ground elevation is 3 to 4 feet higher than the open field

and that area contains play equipment, a basketball court, a volleyball court, and a parking lot for approximately four cars. The volleyball and basketball courts are also enclosed with 10-foot high chain link fences. An asphalt ramp leading down to the open field also has a wall and a 6-foot high fence that separate the park from the school facilities. Except for one large monkeypod tree near the parking lot, no other trees or shrubs are present in the park.

Asphalt ramp down to open field.

Kalihi Uka School contains three buildings with a 15-car parking lot. Two classroom buildings line the Nihi Street side of the property. The administration building and cafeteria front Kalihi Street and the parking lot is along Lehua Street. A small open field area is located in the center of the property and is grassed with no trees. An office in the administration building has been set aside for the park.

Kalihi Street, fronting the school, park, and commercial buildings, has sidewalks and landscaping. However, the side streets lack landscaping, except for a small section of Nihi Street adjacent to the school. Residential streets in this area have a 30-foot right-of-way that includes a 20-foot wide pavement with on-street parking on one side and 5-foot sidewalks on both sides of the street. According to the City, residential streets in this area are classified as "various", i.e., roads that are owned by more than one entity, such as City, private, and State.

4.2.3 Proposed Improvements/Actions

There are numerous fences and an interior wall that separate property boundaries and the various recreational activities. For example, fencing separates the State DOE property from City-owned park land. The Action Plan proposes that these internal fences and walls be removed and the land graded to gradually descend from the school to the open field of the park. Currently, children from the school, using the park during recess, need to exit onto Nobrega Street or the park's parking lot to enter the park's open field; this could pose some hazardous conditions. The fencing that demarks the State and City property should remain and access gates be built into the existing fencing so that children may safely access the park. In order to facilitate movement and aesthetic quality, the fence and wall that separate the hard court facilities and the lower ball field should be removed. This will require re-grading of the site to provide a smooth transition from the school to the park.

The 8-foot high fence that encloses the existing park site could be lowered to a 4-foot high fence similar to the fence height that encloses the school grounds. If any ramps are needed to transition from the school to the park grounds, handrails should be used in lieu of fencing.

Play equipment in park.

Site inspection and discussions with teachers at Kalihi Uka School indicated that the soil within the park site is very rocky and uneven and, therefore, dangerous when the children are running in the field. Thus, the park may need additional soil to cover the rocks and level the ground. Landscaping should be added to provide shade for the children on both the school grounds and the park. Although the park appears to be constructed for baseball, the park is not equipped for that sport. Backstop, baseball diamond, and pitcher's mound are not available. This field is used

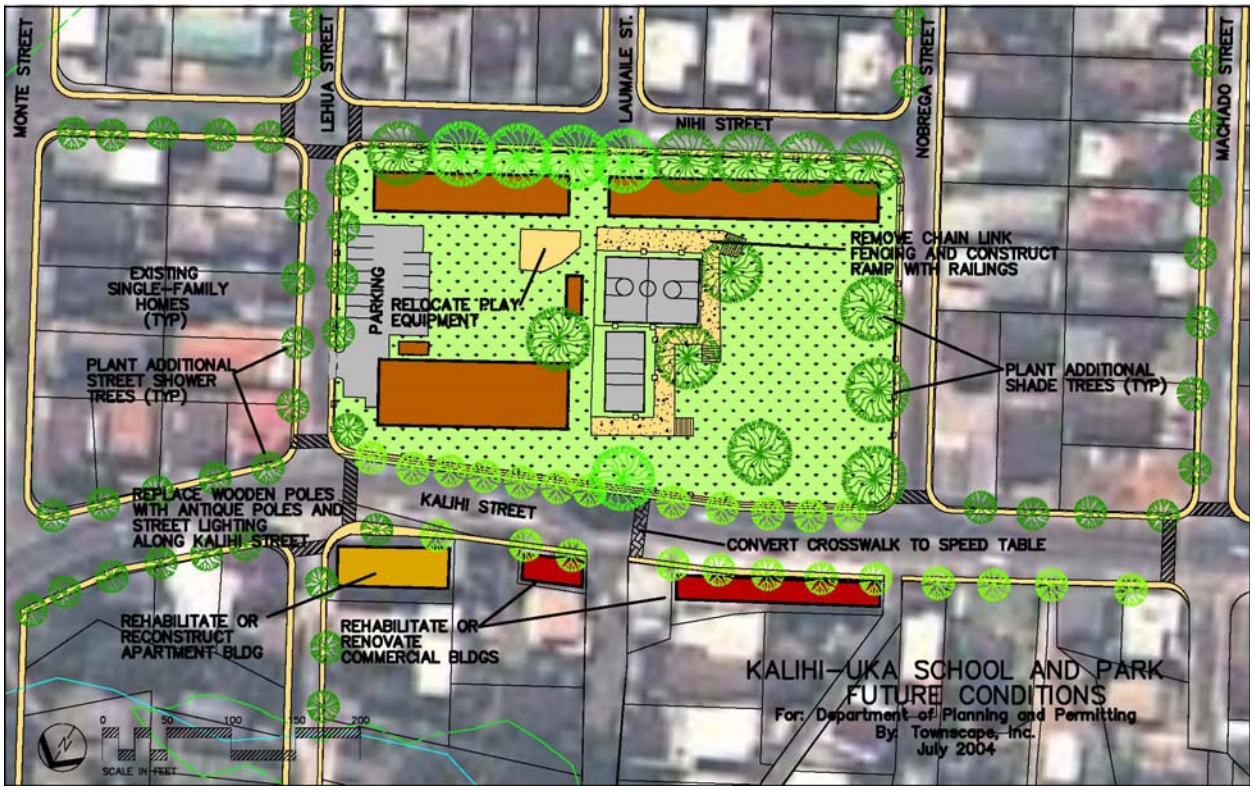


Figure 4-3: Kalihi Uka School and Park Future Conditions

by the school during recesses and by the community for informal outdoor play and community events.

The play equipment that is currently adjacent to the basketball court should be moved, possibly to the open space area on the school grounds to separate these two uses. Smaller children could come within harm's way from the quick movements related to basketball.

An existing bus stop fronting the school is near a crosswalk on Kalihi Street. Visual observation indicated that people disembarking the bus use this crosswalk, which is not ADA compliant. Because of heavy vehicular traffic on Kalihi Street, pedestrians tend to wait at this crosswalk for a significant period of time before being able to cross the street. The crosswalk should be turned into a speed table or other traffic calming measure to slow traffic in this area and it should be designed with ADA requirements. The only other traffic calming measure that has been constructed in Kalihi-Pālama is located at Kohou and Houghtailing Streets and no other traffic calming measures are planned for this area. A bench or bus shelter should also be installed at the bus stop.


Lehua Street scene.

Residential streets in the vicinity of the school have been improved with curbs, gutters, and sidewalks. However, there is no planting strip or trees along the residential streets, except for Kalihi Street. Trees should be planted along the side streets for shade and aesthetics provided that improvements meet ADA requirements. These trees should be planted within the right-of-way or within the adjoining property if the shoulder precludes the installation of trees.

Other revitalization strategies for Kalihi Street include store front restoration along the neighborhood commercial strip. As a matter of consistency, "A Town Within a Town Plan" (1993) outlines various revitalization standards and should be used to guide restoration efforts. Since trees have already been planted in this vicinity, decorative-style street lighting should be installed. For safety reasons, however, sufficient lighting should be a priority so as not to create dark areas. The vacant apartment building on the corner of Lehua and Kalihi Streets should be revitalized or reconstructed. Section 4.8 of the Action Plan provides detail as to how a Community Development Corporation may assist with establishment and operation of a community-owned institution.

4.2.4 Cost Estimate

The cost of this project would be in the range of $200,000 to $300,000 depending on the number of trees and street lights. This cost would include grading and re-grassing of the property, removal of internal fences and walls, street trees, character-style lighting, speed table, park trees, and relocation of the play equipment.

Renovation costs for the commercial and apartment buildings would be an initiative of the respective landowners. Renovation costs could range from $60 to $100 per square foot depending on the level of repair work. Reconstruction of the buildings could range from $100 to $150 per square foot depending on the type of reconstruction.

4.2.5 Implementation Strategy

For the park and school, a partnership would need to be established between the City and the State. For private properties, landowners would be responsible for the upgrades to their property. Because of the urbanized nature of the area, no special permits or approvals will be required. However, the typical approvals and permits, such as construction plan approval, street tree plan approval, grading permit, and building permit would be required. This project is a straight-forward design and construction effort.


KALIHI
LAUMAU

Artist's rendering of Kalihi Street Revitalization.

4.3 MIXED-USE REVITALIZATION

4.3.1 Introduction

Pu'uhale Road near Zippy's.

The mixed-use areas of Kalihi-Pālama occur generally mauka and makai of King Street for a few blocks. These areas contain single-family homes, apartments, retail commercial, office commercial, manufacturing, and industrial uses. Many of the streets are narrow with no curbs, gutters, sidewalks, or trees. Street lighting in some areas is inadequate and creates dark, unsafe conditions that promote crime.

The goal of the mixed-use revitalization project is to make the streets safe for pedestrians, residents, businesses, and vehicles by improving the street conditions with sufficient night lighting, beautifying the area with landscaping, and providing safe movement of pedestrians and vehicles. This project will encompass a few blocks and it could be used as a prototype pilot project that can be applied to other mixed-use areas within Kalihi-Pālama.

4.3.2 Existing Conditions

The area that was selected as the pilot project is makai of King Street from Mokauea Street to Gulick Avenue and between Wilcox Lane and King Street. This area was selected because many of the streets have a setback established by the City for roadway improvements and the existing street and lighting conditions are below current standards. These substandard conditions contribute to unsafe streets for both pedestrian and vehicular traffic.

Streets within this area have a variety of existing right-of-way widths from 20 to 56 feet. Some of the streets are privately owned and others have a "various" jurisdiction. According to the City, residential streets in this area are classified as "various", i.e., roads that are owned by more than one entity, such as City, private, and State. Several of the roads within this area have a setback requirement that was established by the City. Certain improvements are required according to City Ordinance when an owner or lessee is issued a building permit to construct or reconstruct a building on the property, in an area zoned for any use other than residential or agricultural.

The setbacks vary from 5 to 20 feet. These setbacks are generally for roadway widening or improvements, such as sidewalks, curbs, and gutters. Streets that have established setbacks include Gulick Avenue and Waterhouse and Kopke Streets. Gulick Avenue has a few parcels with a 5-foot setback. Along Waterhouse Street, there is a 5-foot setback on both sides of the street. Kopke Street has a 20-foot setback on two blocks on the eastern side of the street.

Waterhouse Street.

In general, setbacks are enforceable when the cumulative cost of the project is more than $100,000 over a 12-month period and where alteration would result with an increase in the floor area of the existing building. Also, roadway setbacks may exist in residential-zoned properties. In those instances, the City would construct the future road widening improvements; however, private improvements would be done so as to recognize the existence of the setback line.

The lot sizes in this area range from 1,500 sq. ft. to 17,700 sq. ft. However, the typical lot size is about 3,200 sq. ft. Because of the small lot sizes, acquiring the setback may cause a hardship for the landowners. In the case of a property on the corner of Kopke and Waterhouse Streets, the lot size is about 1,500 sq. ft. If the setback along both Kopke (20 feet) and Waterhouse (5 feet) Streets were acquired, the lot size would be reduced to about 700 sq. ft. This is the most extreme case in the area. If some of these smaller parcels were combined with adjacent properties, acquiring the setbacks may be more feasible.

4.3.3 Proposed Improvements/Actions

Despite the setback constraints on some of the properties, Gulick Avenue and Waterhouse Street have been identified for acquisition of the setback for roadway widening and beautification improvements as an initial step towards enhancing this area. The improvements would include sidewalks, street trees, and underground utilities. Street lighting throughout this area from

Mokauea to Umi Streets and from Wilcox Lane to King Street should be assessed for adequacy and additional lighting installed, if needed.

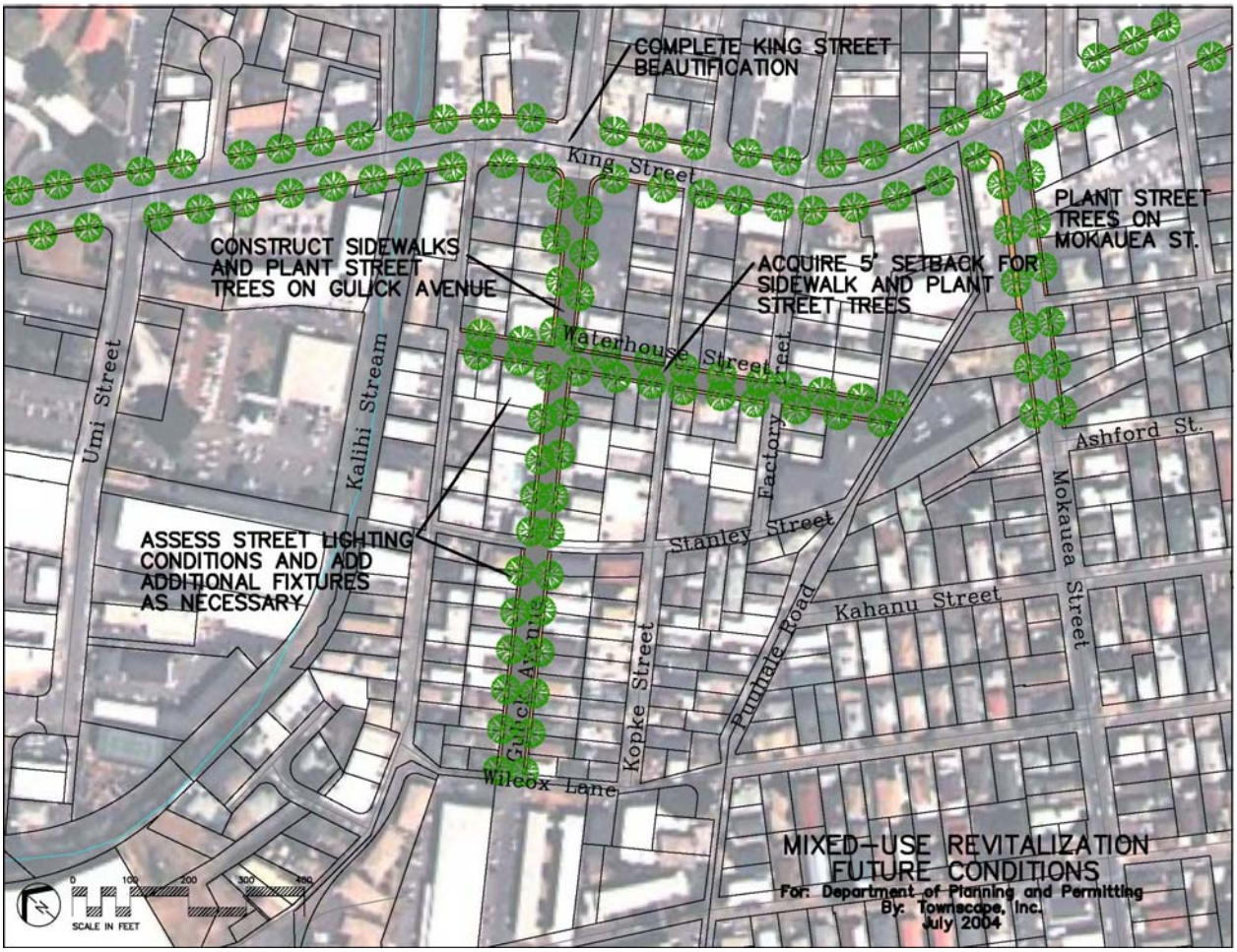


Figure 4-4: Mixed-Use Revitalization Future Conditions

On Mokauea Street, the sidewalks should be improved and street trees planted. The improvements throughout this area should be an extension of the King Street beautification project that is currently being constructed. As other improvement projects move east and west of this area, Mokauea Street can also be incrementally improved.

In the future, as properties become consolidated into larger parcels, setbacks along other streets in this vicinity should be acquired and improved. The one-way street circulation system through this area should be maintained so as not to impact on-street parking, which is a necessity for the businesses in the area.

A transportation plan that addresses vehicular and pedestrian circulation for the entire study area should be considered to improve circulation, especially in the areas below School Street.

4.3.4 Cost Estimate

This project is estimated to cost between $1,200,000 to $2,000,000 for 6-foot wide sidewalks on both sides of the street, streets trees, new lighting, site work and demolition. To reduce cost, sidewalks on only one side of the street could be considered.

4.3.5 Implementation Strategy

This project would be a capital improvement project of the City and County of Honolulu. The setbacks should be acquired and improvements constructed by the City. Permits and approvals required include a construction plan approval, street tree plan approval, and building permit.

4.4 INDUSTRIAL REVITALIZATION

4.4.1 Introduction

Colburn Street.

Most of the southern side of Kalihi-Pālama, below Dillingham Boulevard, is zoned for industrial use. However, multi-family and single-family uses still exist within these zones.

It is anticipated that the residential uses will eventually be replaced by industrial uses. However, until such time that the area does not have full-time residents, improvements that can accommodate pedestrian traffic and large vehicles should be considered, especially near Pu‘uhale School. Students that go to Pu‘uhale School live within these industrial areas and typically walk to and from school. In an effort to provide safe streets for the children, this area was selected for improvement.

4.4.2 Existing Conditions

Typical existing street scene.

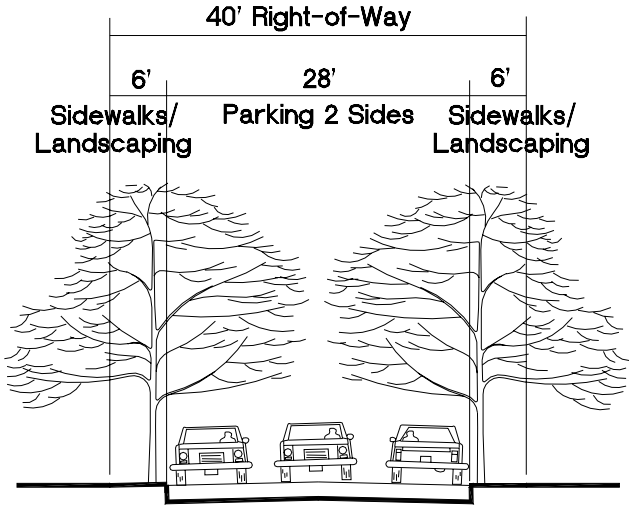
The area around Pu‘uhale School from Nimitz Highway to Dillingham Boulevard between Pu‘uhale Road and Mokauea Street was identified as the pilot project area for industrial revitalization. The internal streets include Colburn, Hau, and Kalani Streets. Hau and Kalani Streets are privately owned and Colburn Street has a “various” designation. The right-of-way width of these streets is 40 feet with a pavement width of approximately 16 feet and dirt shoulders.

This area contains overhead utilities and has poor drainage facilities. During and after storm events, the streets throughout this area are flooded.

4.4.3 Proposed Improvements/Actions

Improvements along the internal streets should consider sidewalks for pedestrians and street trees for shade and visual relief from the built environment. These improvements would eliminate on-street parking that businesses depend on for employees or customers. To continue on-street parking, a one-way system along these streets should be considered. The 40-foot wide one-way road could include:

One 12-foot wide travel lane
6-foot wide sidewalks, both sides
8-foot wide parking, both sides



TYPICAL CROSS SECTION

This roadway configuration will be able to accommodate pedestrian traffic, large vehicles, and on-street parking. This type of roadway improvement could also be used for a two-way system,

similar to the streets in the Kalihi Kai area. Streets in Kalihi Kai also have a 40-foot right-of-way with an identical configuration noted above. Vehicles yield to on-coming traffic by pulling over into driveways prior to proceeding. Pu‘uhale Road and Mokauea Street should also include improved sidewalks and street trees.

A drainage study should be prepared for this area to eliminate flooding. Drainage improvements should be part of the street improvements.

There are six contiguous vacant parcels owned by Hawaiian Host between Dillingham Boulevard and Colburn Street that total 30,000 sq. ft. These parcels could be purchased and developed into a park for residents in the neighborhood.

Figure 4-5: Pu‘uhale School Industrial Revitalization Future Conditions

Current makai view along Pu'uhale Road.

Artist's rendering of improvements along Pu'uhale Road.

4.4.4 Cost Estimate

The estimated cost for this project would range from $2,000,000 to $2,500,000. This cost includes street trees, 6-foot sidewalks on both sides of the street, new street lights, and grading. To reduce cost, consideration should be given to constructing sidewalks on one side of the street rather than on both sides of the street.

4.4.5 Implementation Strategy

Although the streets through this area are private, the City has initiated projects whereby the improvements are owned by the City. Alternatively, the landowners could collaborate and contribute funds to construct the improvements, similar to the Sand Island Business Association improvements. The City could offer some tax exemptions to the landowners to help ease the financial burden. Approvals and permits required include construction plan approval, street tree plan approval, and a building permit.

4.5 PARKS PROGRAM

The Parks Program focuses on ways to finance additional parks and facilities through public and private funding opportunities because there is a shortage of park acreage and park facilities. This park program could be administered by a Community Development Corporation (CDC) or in conjunction with the City when planning or improving existing City parks. This section discusses ways that the community can participate with the City to improve existing parks or to develop new parks in an effort to provide the required park acreage and facilities, based on City standards.

Loʻi Kalo pond.

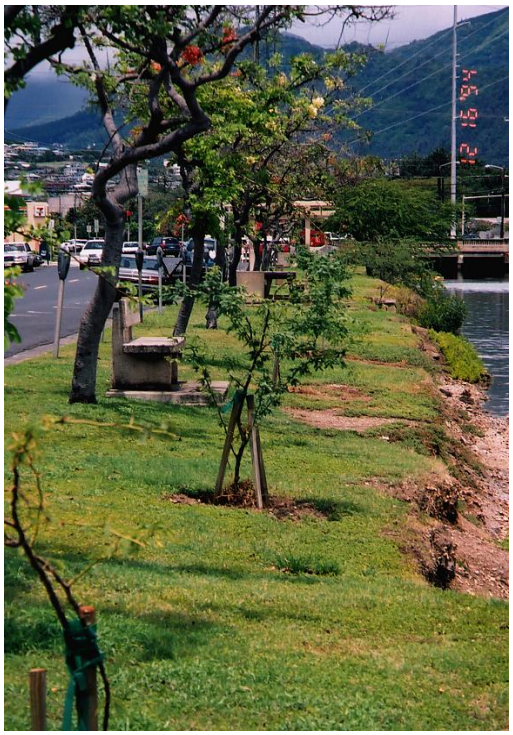
The Kalihi-Pālama project area has a deficit of approximately 200 acres of park lands, based on City standards. In addition, the existing parks lack adequate park facilities and size when compared to those same standards. The deficiencies of acreage and facilities are attributed, in part, to the early development of the Kalihi-Pālama area prior to the establishment of park criteria.

4.5.1 Program Goals and Objectives

- **Update public facilities to meet changing public demand**
  - Emphasize multiple uses at various parks, for example, redefine the use of Loʻi Kalo Park to fulfill recreational, cultural, and educational goals of the Kalihi-Pālama community.
  - Emphasize the historic aspects of parks in the Kalihi-Pālama area by inventorying historically and culturally significant parks.
  - Use culturally and ethnically significant plants and trees in public park landscaping to represent the Kalihi-Pālama community, for example, restore lama trees to Kapālama or plant a tree for every ethnic group represented in the community. Landscaping should also consider the microclimate to ensure sustainability.

- **Manage the public realm efficiently and economically**

  Utilize community-based partnerships with the City Department of Parks and Recreation to address issues of park maintenance and operation, the timing of maintenance activities, obsolete rules and regulations, and generating community interest to care for parks through an "Adopt the Park" program.



Kapālama Canal landscaping and benches.

- **Reclaim abandoned property and/or purchase vacant property for safe public park use**
  - Establish parks and playgrounds near schools and residences where there is vacant property available for acquisition.
  - Ensure park safety with adequate lighting, off-street parking, emergency phones, traffic calming devices, adequate police patrols, and ADA-compliant infrastructure.

- **Combine recreation with other functions**
  - Implement the Kapālama Canal Beautification Plan (1980).
  - Provide linear parks by landscaping bikeways and pathways throughout Kalihi-Pālama .
  - Apply urban forestry plans to the Kalihi-Pālama area.
  - Provide more public landscaping of highways, schools, and existing parks to create more shade that would soften the dense urban environment.

4.5.2 Financing a Park Organization

While the City may be willing to pay for some of the costs for park acquisition and renovation, additional funds will be needed. One of the most effective ways to continue to meet the needs and demands for parks and recreation is through private and public partnerships. The most common method for funding parks is to combine local, public sector, and private sector funds with funds from State, Federal, and additional private sector sources. Many communities (through a non-profit organization in most instances) leverage local money by matching outside funds through a variety of funding sources for land acquisition and facilities construction.

4.5.3 Funding Characteristics and Specific Funding Options

The following table summarizes the various public and private funding resource characteristics and the advantages and disadvantages:

Table 4.2. Funding Characteristics

Source	Provides Funds	Repayment	Advantages	Disadvantages
Taxes	Immediately	By all taxpayers immediately	Preserves borrowing ability; saves on interest costs	Insufficient funds; may not equate payment to benefits received.
Special Assessments and Special Districts	Immediately	By assessing customers at construction; if bonded 10-30 years	Makes funds available immediately; matches payments and benefits	Requires legislative approval; may seriously impact assessed customers
User Charges	Immediately	By rate payers immediately	Eliminates need for borrowing or reserves	Impractical for large projects; may make rates erratic from year-to-year
Reserves	In future	By rate payers each year until reserve is adequate	Eliminates need for borrowing; improves financial stability of system	Can be politically difficult; hard to protect reserves for intended uses; impractical for large projects
Negotiated Exactions or Impact Fees	Immediately	By developers or customers immediately	Requires new customers to pay for impacts they place on system	Political problems—anti-development; ineffective in no growth areas; affects housing affordability
Grants	Immediately	No repayment	Source of free money	Reporting and administration burdensome; may not be in accordance with county priorities
Public-Private Ventures	Varies	By private investors and taxpayers	Total costs to county government reduced	Complicated coordination; time consuming

Source: Urban Parks Institute.

4.5.4 Funding Considerations and Options

Funding for a park organization is typically divided into two types: funding for operations and funding for capital projects. In order for a park organization to accomplish its goals, both types of funding would be necessary. Operation funds support the annual budget that pays for salaries, programs, and rent. This budget would need to grow as the organization grows and develops. Capital funds, on the other hand, are one-time expenditures used to build or restore a landscape or facility. Capital budgets are generally larger and a capital fundraising campaign may last several years.

According to a study by the Urban Parks Project for Public Spaces, a non-profit's operating budget may fall into three levels: small ($1,700 to $45,000), medium ($100,000 to $450,000), and large ($1 million to $23 million). An organization with a smaller level operating budget functions as assistance providers and public advocates. Funds may be sufficient to pay staff salaries and/or administrative costs; conduct fundraising activities, public programs, or events; and produce publications. These organizations are comprised primarily of volunteer staff. Mid-level operations maintain roles as co-managers or sole managers. Greater financial depth

allows for a larger share of funding for administration and professional staff, fundraising, public programs and events, maintenance and operation, public relations, marketing, and membership development and services. Large operations have roles as co-manager and sole manager. They are able to allocate larger portions of funds to the above-mentioned areas and may spread services into visitor services or facilities rentals.

Finding funds to cover even a modest operating budget is one of the biggest challenges facing a park organization. This section suggests different private and public sources for revenue generation.

1. **Endowment Income and Investment Fund Income** (i.e., interest, dividends, and capital gains) occasionally may replace annual fundraising. To be successful, this strategy requires a dedicated and enormous fundraising campaign that would not be likely until an organization is large, well-established, and considered financially credible.

2. **Trust Funds** for land acquisition and facility development is administered by a private advocacy group, or by a local commission. Money may be collected from a variety of sources, including municipal and county general funds, private grants, and gifts.

3. **Local Foundations** are typically the first sources for funding a new organization. Local foundations are typically approached for seed money, start-up grants, and occasionally for capital campaigns; they may require matching funds.

4. **Individuals**, typically through membership dues, are a common source of revenues for a new organization. Key to this strategy is to tap individuals who care deeply about a park and are willing to contribute at a higher level. Individuals can contribute funds raised through events. For example, some groups have developed extensive **catalogues** of ways for individuals to invest in parks, from sponsoring a waste receptacle to a child's term in summer camp.

5. **Private Corporations** are a likely source of funds. This may be an effective strategy among corporations with giving programs, with offices near parks, or with employees who are part of the park's organization. Should a park begin to enhance the corporation's image, funds have the potential to grow.

6. **Contract for Services** with a municipality is a common form of government sources. A contract specifies services that a park organization would perform with a specified

budget. A government entity may also make a grant to the organization in support of the park.

7. **Earned Income** can come in the form of rental income, program fees, or admission sales.

8. A **Leasing Plan** that programs and enlivens park spaces into a coordinated whole can change a park's image and revitalize it. Should a park department be willing to cede some control through a contractual agreement, a park organization could then recycle the income from fees and sales into its own budget. This can be a substantial, stable, and long-term source of operating income.

To access private-sector funding sources, a park organization is most likely to have a tax-exempt designation under Section 501(c)(3) of the U.S. Internal Revenue Code of the Internal Revenue Service. This designation indicates that the purposes of the organization are charitable, religious, or educational and as such, will qualify funds from a donor as tax deductible (a considerable incentive) or, in the case of foundations, be an eligible candidate for charitable funds. This ability to tap private funds makes a non-profit an attractive partner to municipal park departments and presents an incentive to match the private funds. In the early stages, a group may use the tax-exempt status of a third party and as it matures, achieve its own designation.

4.5.5 Park Program Plan 4-Year Look Ahead

This section recommends a 4-year look into the future for the goals, objectives, and funding for a park organization and program.

Table 4-3. Kalihi-Pālama Parks Organization Program Plan

Activity	Year 1	Year 2	Year 3	Year 4
Organize Ad Hoc Parks Committee to participate in non-profit organizing activities	→			
Apply for organization seed funding for project planning and organization.		→		
Develop Parks Organization Business Plan		→		
Ad Hoc Committee to develop and submit 501(c)(3) application			→	
Develop detailed park program for Capital Improvements or Program Operations			→	
Facilities design and permits process			→	
Facilities construction begin				→
Multi- year fundraising activities		→	→	

4.6 LO'I KALO PARK

4.6.1 Introduction

Lo'i Kalo Park.

Commonly referred to as "Fat Man Park," Lo'i Kalo Park is located at 1243 Lo'i Kalo Place, TMK 1-6-5:31. The City is the fee owner and in 1999, the community group, Nā Hoaaloha o Lo'i Kalo, adopted the park. The community vision and goal for Lo'i Kalo Park respond to changing public demand for the use of the park as a cultural and educational learning center. As a result, there is a need to review and possibly revise the Adopt-A-Park agreement between the City Department of Parks and Recreation and Nā Hoaaloha o Lo'i Kalo community organization to change the designation to a cultural park and to give Nā Hoaaloha o

Lo‘i Kalo more flexibility in the activities and actions needed at the park, such as planting trees or other landscaping.

4.6.2 Existing Conditions

New pavilion.

Lo‘i Kalo Park is accessed via School Street onto Lo‘i Kalo Place. The park is designated as a passive recreational mini-park by the City. It is bordered by Kapālama Canal to the west and residential apartments and homes along the remaining park boundaries. The park is owned by the City and is approximately 1.877 acres. The Board of Water Supply (BWS) owns an inactive pump station (known as Jonathan Springs) at the park site. The BWS plans to use the station for water quality monitoring in the future. Adjacent to the BWS pump station is a gravel parking lot off Lo‘i Kalo Place that can accommodate approximately eight to ten cars. A horseshoe pit is located within the parking lot. The entire park property is fenced and there is no interior park lighting.

A pavilion is located at the makai end of the park. Funds to construct the pavilion were provided by the City. The Nā Hoaaloha community group coordinated efforts with a labor union, that provided a project supervisor, and with HCC, that provided two apprentices from the carpentry and masonry program. The pavilion is often used by neighborhood schools for cultural learning. There is no comfort station due to the park size and “passive” use designation. A drinking fountain is located next to the pavilion.

The park environment is host to a variety of endemic trees and shrubs: kukui, kamani, hala, hau, noni, kō (sugar cane), he‘e poi, niu, lama, and pua aloalo (native white hibiscus). According to community members’ research of Bishop Museum records, the remains of a medicinal heiau are believed to be located on the property. Archaeological data recovery would be needed to confirm the presence of this heiau. A pond, approximately 500 sq. ft., is located in the center of the park with drainage into Kapālama Canal. The south banks of the pond are cemented. The park is in good condition and is home to a flock of ducks.

Figure 4-6: Existing Lo‘i Kalo Park

Prior to the community organizing to adopt the park, Lo‘i Kalo was known as a place of illicit activity. The park was overgrown and unkempt; the public restroom facility was not usable and heavily covered with graffiti. In general, the park was neglected and unsafe. The park has benefited greatly by the community’s care. The restroom was demolished and replaced with a pavilion. Nā Hoaaloha has organized clean-ups (an on-going activity), coordinated kūpuna-led tours for school children, constructed a new pavilion, and planned neighborhood security watches. Hawaiian cultural practices now conducted on-site include tapa making, carving poi boards to pound poi, and gathering noni for personal use and kukui and kamani nuts for making lei.

4.6.3 Proposed Improvements/Actions

The ideas presented below for Lo‘i Kalo Park offer park users a unique cultural environment to enjoy while promoting needed support for educational and community-sponsored activities.

Kupuna explaining uses for native plants.

- Review the Adopt-A-Park agreement that currently exists between the City Parks and Recreation Department and Nā Hoaaloha o Lo‘i Kalo to allow more flexibility to perform activities and make changes within the park, such as landscaping.

- Create public and private management structures that ensure public access and security measures, control costs, and provide adequate oversight by the City as well as sufficient flexibility to the Nā Hoaaloha organization to fulfill the community plan.

Update facilities and public spaces to meet changing user demands or conditions by:

- Reopening taro patches as a cultural learning experience and for consumption of taro
- Reconstructing pond walls to hold the water in-place
- Constructing terraced gardens for the growth of other plants, such as sweet potato
- Organizing the community to build a traditional grass house (Hale Pili) for use as a classroom
- Interpret traditional cultural property to educate people
- Signage markers for the various plant species and the medicinal heiau
- Adaptive reuse of the BWS pump station into a comfort station since none exists.

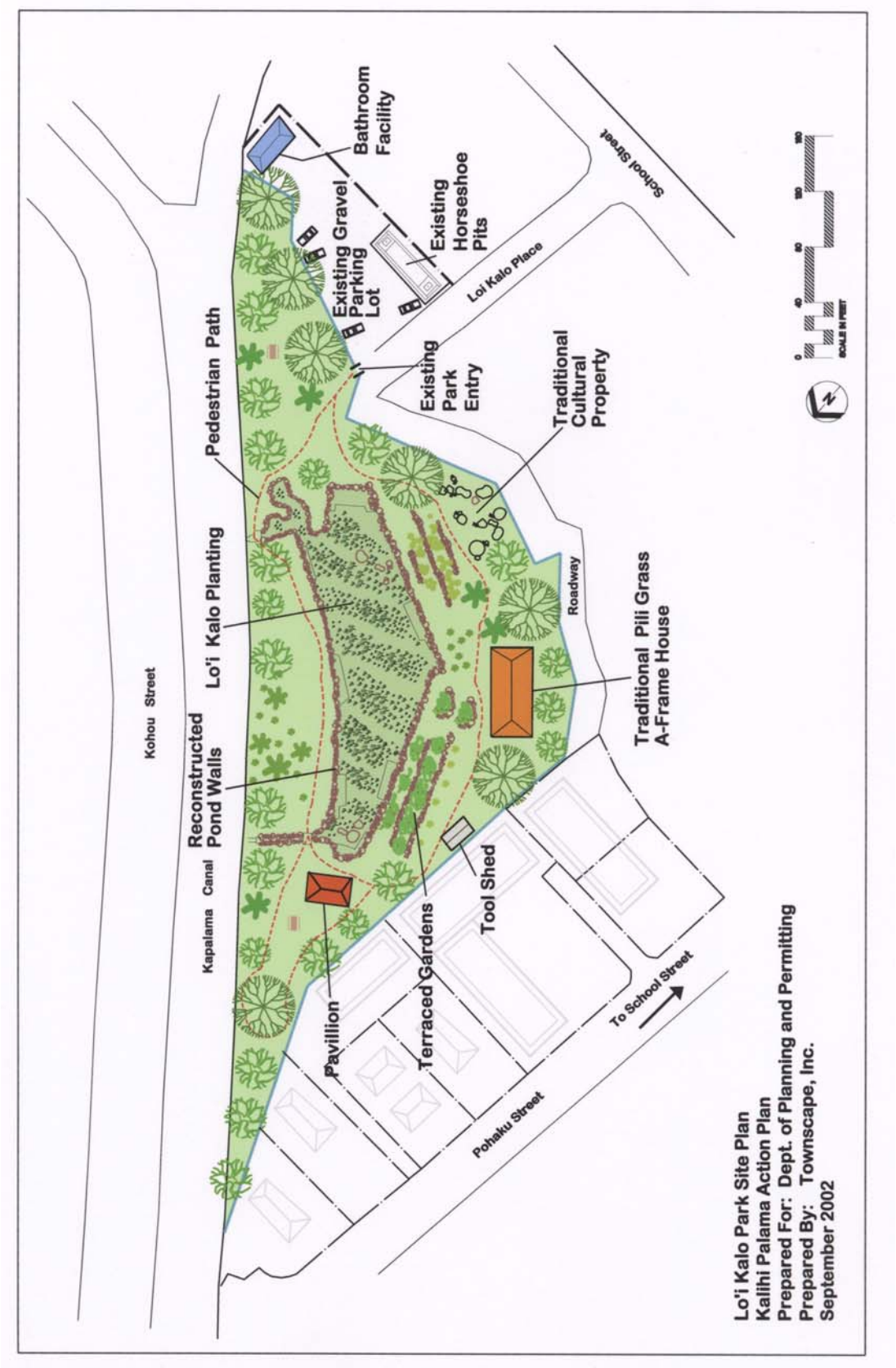


Figure 4-7: Lo‘i Kalo Future Conditions

Security at the park is a big issue that will need to be resolved because the park is in a very secluded place and people tend to congregate in the dark parking lot area. The following suggestions may provide security improvements:

- Installation of interior park lighting
- Increase citizen patrol of the park
- Clearly marked and visible pedestrian pathways throughout the park

4.6.4 Cost Estimate

The cost for the improvements is estimated between $130,000 to $200,000 for the construction of the Hale Pili, conversion of the pump station to a restroom, terracing, pond walls, tool shed, and lighting.

4.6.5 Implementation Strategy

A public-private partnership will be necessary to implement the planned improvements. Capital improvement projects could be financed by the City. Partnerships with Nā Hoaaloha o Loʻi Kalo or other private companies and unions in the Kalihi-Pālama area could provide discounted labor, supplies, and equipment. Non-profit organizations could apply for funding grants to match public funds or to provide additional money for particular projects within the park.

Approvals and permits needed would be construction plan approval, building permit, and possibly a grading permit for the terraced gardens.

Current view of Lo‘i Kalo Park.

Artist's rendering of Loʻi Kalo Park.

4.7 DECORTE PARK

4.7.1 Introduction

DeCorte Park was identified by the community as needing additional park facilities. Improvements would include planting shade trees, covering open drainage channels, and constructing stairs to access the lower ball field. The goal is to make the park a more inviting, enjoyable, and safe place for leisure and recreation.

DeCorte Park makai view.

4.7.2 Existing Conditions

DeCorte Park is 3.9 acres in size and contains a softball field, restrooms, two playing courts, a tot lot, and two parking lots. The TMK is 1-3-27:1 and is owned and maintained by the City. The park is accessed via Perry Street and Maliu Street dead-ends at the park boundary. A foot path to the park begins at Kamohoali'i Street and extends alongside the tot lot into the park. The park is located in the back of a residential neighborhood and abuts the base of Kapālama Ridge. The larger parking lot can accommodate ten vehicles with one space reserved for handicap parking. The second parking lot is located adjacent to the tot lot and can accommodate four vehicles. The comfort station is approximately 1,000 sq. ft., contains a covered open space area, and is handicap-accessible.

A softball field occupies the makai end of the park and is at a lower elevation from the rest of the park. A ramp leads down to the ball field for the physically challenged. The ball field is separated by a retaining wall and fence from the upper section of the park. This upper section of the park contains a large open space that lies between the softball field and playing courts, is adjacent to the comfort station, and abuts the base of the Kapālama Ridge. A chain link fence separates the open space from Kapālama Ridge. The two playing courts are

Dangerous open drainage channel.

suitable for volleyball and basketball. The courts are fenced and open drainage channels have been installed around the court area.

A new tot lot with a parking lot is located across from the DeCorte Park parking lot along Perry Street. The play area with equipment is approximately 1,600 sq. ft.

4.7.3 Proposed Improvements/Actions

The park appears to be well maintained, based on a visual assessment of the site. However, the park could use additional landscaping and park amenities, such as picnic tables. Like many of the parks in Kalihi, the park is substandard in size. A vacant lot at the end of Maliu Road is currently vacant and contains 4,733 square feet. The TMK is 1-3-27:76 and it is privately owned with a zoning designation of R-3.5. This lot could be acquired by the City to expand the park acreage and provide additional park facilities. A suggestion made by community members was to relocate the existing play equipment to an area near the restrooms. The play equipment is currently located next to an electric substation on the Perry Street side of the park, which the community feels is unsafe should an explosion occur at the substation. If the lot is acquired, there is a possibility of relocating the play equipment to this new site.

Ramp to baseball field.

This park is used by the community for various community activities other than baseball games, such as Easter egg hunts. However, access from the upper park to the baseball field is via a long, wheel-chair ramp that descends from the restroom, alongside the parking lot, then alongside the length of the baseball field. Therefore, it was recommended that a gate and stairs be installed to provide easier access to the ball field from the upper areas of the park.

The park also lacks landscaping for shade. The only trees on the site are a few alongside the ridge next to the courts and one plumeria tree near the restroom.

Proposed park improvements include:

- Planting shade trees in the open space area of the park
- Placing grates over the open drainage channels for safety
- Purchasing vacant lot located at Maliu Street for additional park facilities
- Add night lighting for security
- Install a gate with stairs to access the upper open space to the ball field
- Consider picnic tables.

Figure 4-8: DeCorte Park Improvements

4.7.4 Cost Estimate

The estimated cost for these improvements is between $50,000 and $60,000. These costs include drainage grates, trees, lights, and the stairs with gate. If the vacant lot is purchased, the tax assessment value of the lot is approximately $160,000 and would need to be added to the total cost.

4.7.5 Implementation Strategy

These improvements would be an initiative of the City. The lead agency would be the Department of Parks and Recreation in conjunction with the Department of Design and Construction.

4.8 COMMUNITY DEVELOPMENT CORPORATION

To implement some of the recommendations of this Action Plan, a Community Development Corporation (CDC) could be established. This section describes how a CDC can be created to implement projects.

4.8.1 Introduction

Since their inception in the 1960's, CDC's have made tremendous contributions to the health and well-being of communities across the U.S. Community economic development, embodied in Community Development Corporations, represents a strategy among local communities to define their own needs, control their fate, and create viable local communities. CDC's are the principal vehicle for community economic development. While CDC's cannot do everything alone, they can be a central catalytic force in a community.

Home in need of revitalization.

4.8.2 Background

A CDC is a locally created and community-owned institution. Born during the War on Poverty era, CDC's received federal funding and were codified under the Equal Opportunity Act's Special Impact Program. The model CDC was organized in 1964 in the Bedford-Stuyvesant neighborhood in Brooklyn, New York. At the onset, CDC's engaged in a range of activities, including management and finance of large and small commercial projects, operating medium to small manufacturing companies, and financing small retail businesses. They were heavily involved with the development and rehabilitation of housing and human services programs. A common strategy (and one that is still used today) was to purchase abandoned or tax-delinquent properties (both public and private) that were viewed as harmful to the community. Federal and private funds and a combination of contract and community labor were used to rehabilitate them.

By the late 1970's, CDC's began to supply equity capital, loans, incubator space, planning, marketing, and accounting assistance rather than starting and managing their own businesses. The few new business ventures that did open, tended to be small and sought out specialized markets. By the 1980's, sharp drops in Federal funding affected core operating expenses, which resulted in reductions in staff size and a greater tendency to be brokers of various projects. This dramatic decline in Federal subsidies resulted in a narrower focus on housing development. There was, however, a parallel increase in corporate and charitable support for community development, which served to usher in a new generation of organizations. "Intermediaries," an innovation of community development, receive grants and low-interest loans from foundations, banks, corporations, and the public sector and use this financial pool to provide grants, loans, and credit enhancements to other CDC's.

Home in need of revitalization.

While CDC's are active in a wide range of community-improvement and community-building activities, the vast majority of CDC's today are still involved with creating affordable housing. Between 1960 and 1990, for example, CDC's produced approximately 14% of all Federally subsidized housing units, excluding public housing (Vidal, 151). In recent years, CDC's have developed ideas and strategies that build upon past experience. "Passive tools" like zoning exceptions, business and building code waivers, and tax breaks

are spreading. There are a variety of new forms of financial organization, for example, Community Loan Funds (CLF's) or revolving loan funds.

Most evaluations of CDC's point to the lack of core support as a barrier to their ability to build institutional strength. Three factors contribute to successful CDC's: skilled staff, strong leadership, and sufficient external support (Shiffman, 1989). The future of CDC's now revolves around partnerships and collaborations among many community institutions. In general, the mix of activities conducted by a CDC depends on community needs, staff capacity, and the availability of funding and technical assistance.

4.8.3 What is a CDC?

A CDC is generally organized as a non-profit 501(c)3 corporation. CDC's can evolve into complex structures due to their range of purposes. A CDC will typically use a subsidiary structure that reflects its range of activities, with for-profit or non-profit arms and functional divisions, such as property management, construction, rehabilitation, and social services.

Community leaders.

A CDC can impact communities by leveraging resources commonly garnered from outside its own community. Accomplishments are often the result of community-based effort, diverse resources, and support from other institutions, such as government agencies, intermediaries, foundations, banks, education and training institutions, trade associations, and technical assistance providers. Regardless of the range of activities undertaken by a CDC, there are generally three basic types of assistance they need: funding, technical assistance, and political support. These three elements, when coordinated into programs, meet the particular needs of the CDC and its communities.

Some CDC's work on two levels: first, they focus on "smaller catchment" areas within their neighborhoods (for example, where there is a large housing presence to direct and facilitate coordinated service efforts) and second, they act as catalysts, brokers, incubators, organizers,

etc., to bring needed services and initiatives to distressed neighborhoods. As a comprehensive initiative, a CDC's program may address the following aspects of community life:

1. Economic opportunity and security, for example, job training and development, revolving loan funds, commercial revitalization, and development.
2. Adequate physical development and infrastructure, including housing, transportation, public amenities, and services.
3. Safety and security: broad initiatives include land-use zoning, community policing, and crime prevention.
4. Well-functioning institutions and services, i.e., schools, parks, and recreation.
5. Social capital: promoting a rich, diverse social fabric and strong community voice.

What is important is the attention paid to the interrelationship among these five areas of community life in order to understand a neighborhood's strengths as well as needs and to further shape strategies that will have a combined impact over time. What is required is an integrative and comprehensive planning approach that recognizes the social, economic, and physical needs in order to develop opportunities for personal, group, and community growth.


Sand Island Park.

As an instrument of community revitalization, a CDC's program plan builds from the assets present in the community that are in distressed situations. Through multi-year strategic investments, a parcel of land, for example, is utilized in a way that is consistent and contributes to a community's economic and social vitality. As a diverse enterprise, CDC's commonly undertake two or three different but related problems. "Strategic clusters," i.e., one field of work materially reinforces the other, best describes the work CDC's currently pursue. This synergy helps to make various programs more effective in combination than individually. Moreover, there is the simple inescapable fact that a lack of funds results with each activity having to address more than one function.

4.8.4 Kalihi-Pālama Action Plan -- Related Areas of Involvement

CDC's are commonly involved in six related areas which are described below. This section reviews how the Kalihi-Pālama Action Plan could be assisted by a CDC-type organization. A

CDC will rely on a high degree of collaborative enterprise to become successful. Collaborative efforts, therefore, must be intensive, extensive, and continuous.

Community Planning: By enlisting people's creativity and vision, a community plan can develop a sense of optimism and common ownership. A practical community plan focuses energy and resources among many supporters and investors who can make a redevelopment program work. The Kalihi-Pālama projects listed below would involve many stakeholders and would involve complex undertakings in terms of planning and development. A CDC organization could potentially convene stakeholders to initiate project dialogue for large projects, such as HCC, College Town, Multi-Cultural Marketplace, or redevelopment of OCCC.

Commercial building in need of revitalization on King Street.

Economic Development and Market Revitalization: Fundamental issues in this area deal with business vacancies, deferred maintenance, inappropriate commercial tenants, lack of credit, and the constant struggle for customer traffic. Dealing with economic development and market revitalization reinforces job preservation, stabilizing the residential base, building home ownership, and maintaining a mix of incomes. Implementation of the King Street Heritage Corridor could potentially increase economic activity and market demand.

Employment and Individual Opportunity: Neighborhood development programs offer employment opportunities and affect quality of life. Some CDC's have concluded that the location of the job is less important than the destination of the paycheck and how it is used. In areas where welfare recipients and unemployment are high, programs concentrate on basic skills, job readiness, and retention. A Kalihi-Pālama CDC should make an effort to recruit, train, and build capacity among all of its community members relative to the operation of the CDC itself. Further, a related set of issues affects the employment opportunities that are developed as a result of the programmatic efforts. The CDC should attempt to advocate for economic development projects that provide opportunities for employing community residents.

Quality of Life: Establishing community control involves transforming and renovating buildings as well as making areas safe and inviting for residents and investors. Inclusion or enhancement of parks to break up the dense urban environment can also improve the quality of life.

Kalihi-Uka Park.

Youth and Families: Healthy, well cared for people are less likely to contribute to criminal activities. Statistically, the Kalihi-Pālama area consists of a high percentage of low-income families, due in part to the high number of immigrant families. A CDC could assist the community by coordinating programs for learning the English language and job training.

Education: Charter schools may represent an opportunity for CDC's to help shape the future of public education in some communities. It is important for a CDC to find the right role, developing or co-developing a facility, brokering a location and helping with financing, or marshaling community leadership. Other options for a CDC include the development of an education "portfolio" of activities. The Roosevelt "Village Center" in Oakland, California, acted on their vision for social services, youth development, and other after-school activities by establishing parent and youth councils and eventual governance of the Center. A local CDC helped the Council to branch into neighborhood clean-ups, traffic calming, and playground rehabilitation.

4.8.5 The Need to Plan For A CDC

Establishing a CDC will require careful planning. The following questions are meant to set the tone for the kinds of issues that should be considered during the initial planning phases of a CDC:

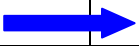
- Does the CDC organizational plan address the needs of all of the area's residents, particularly those most in need—e.g., the poor; the disabled; the homeless; the chronically ill; large families; the unemployed and underemployed; single heads of households; and victims of racism, sexism, and class discrimination?

- Given the problems and needs, are the plans, goals, and proposed activities accomplishable? Are priorities set? If so, what is the time frame and who will implement the project?
- How are organizational roles determined? Are there gaps in services, activities, or development functions? How are these gaps to be filled?
- Does the plan contain capacity-building strategies for staff, boards, and constituencies within the community?
- How, when, and by whom is the plan evaluated and modified?

4.8.6 CDC Implementation Program

The following is a three-year timeline for the establishment of a CDC:

Table 4-4. CDC Implementation Timeline

Activity	Year 1	Year 2	Year 3
Kalihi-Pālama Vision Group organizes interested community members, businesses, financial institutions, and community organizations to participate in preliminary CDC organization activities			
Establish a CDC "Interim Group" that applies for planning and development funds to assist with organizing activities			
Interim group consults with legal counsel, accounting, financial, and/or human resource professionals to assist with specific organizational policies and procedures			
CDC Interim Group submits 501(c)(3) application			

APPENDIX A

PHYSICAL ENVIRONMENT

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APPENDIX A
PHYSICAL ENVIRONMENT

This section presents an overview of the region's major environmental resources. This overview offers important insight into the environmental dynamics of this significant Honolulu region. The proposed projects and land use guidelines of the Action Plan should be grounded in an understanding of these environmental elements.

A.1 LOCATION

The Kalihi-Pālama Action Plan project area is located on the south side, Kona district, of the Island of O'ahu. The project area is defined by the northern boundary running along the Ko'olau Mountain ridgeline and the coastline of Honolulu Harbor, including Sand Island, marking the southern border. Likelike Highway, Fort Shafter, and Middle Street denote the western edge of the project area. Pali Highway and Liliha Street define the eastern boundary. Thus, this area consists of Neighborhood Board Areas 14, 15, and 16.

A.2 CLIMATE

View from Kapālama Canal to the Ko'olau Mountains.

The climate of the Kalihi-Pālama area varies considerably from the crest of the Ko'olau Mountain Range to the coastline. The lower elevations are semi-arid, with a mean annual rainfall of around 20 inches. The rainfall increases further inland with the middle portion of the project area receiving about 80 inches of rain per year and over 120 inches per annum in the upper reaches of the watershed. Heavy rains, due to the winter storms, generally occur between October and April.

Prevailing winds in the Kalihi-Pālama area are the northeasterly trade winds, with a mean wind speed of 11.4 mph. The average low temperature is about 70° F and the average high temperature is 84.4° F. Lower average temperatures are found in the upper conservation areas. The normal relative humidity is 68%.

The State Department of Health operates an air quality station in Liliha, which is in the eastern half of the project area. The year 2000 sampling for particulate matter (PM_{10}) ranged from 7 to 65 micrograms per cubic meter ($\mu g/m^3$) and averaged 15 $\mu g/m^3$ in a 24-hour period. The State and Federal Ambient Air Standard for a 24-hour period is 150 $\mu g/m^3$. The sulfur dioxide (SO_2) sampling recorded no determinable amounts of SO_2. The State and Federal Ambient Air Standard for SO_2 for a 24-hour period is 365 $\mu g/m^3$. Thus, the air quality in the area is very good.

A.3 GEOLOGY

The geology of the Kalihi-Pālama area is derived from one major geologic feature, the Koʻolau Mountains. Formed from massive basalt flows some 2 million years ago, erosional forces concentrated the flow of water into streams and created the major valleys of Nuʻuanu and Kalihi. The relatively flat floor of Nuʻuanu Valley is due to several lava flows in the Late Pleistocene from the Makuku cone and other cones that covered the ancient alluvial flows. The highest point in the Kalihi-Pālama area is Puʻu Lanihuli at 2,770 feet above sea level. Geologic processes created major landforms and topographic characteristics with the most prominent being Nuʻuanu and Kalihi Valleys, the central plain, and coastal area.

Water-bearing characteristics of the Koʻolau Mountains have a significant influence on water resources of the area. In the rift zones on the flanks of the Koʻolau Range, the intruded molten lava cooled in the fissures and formed water storage compartments of what is known as dike-impounded groundwater. These dike complexes are generally located at high elevations and retain rain-fed percolating water 200 to 300 feet above sea level. Natural seepage occurs through mountain springs that continuously discharge perched and dike impounded groundwater. Approximately 54 million gallons per day (mgd) is drawn from dike compartments on Oʻahu.

A.4 STREAMS

There are three streams in the project area: Nuʻuanu Stream, Kapālama Stream, and Kalihi Stream. The Environmental Protection Agency, in 2001, declared all of the water bodies in the Kalihi-Pālama project area to be "impaired" as part of their revised 303(d) designations. The following is a brief description of the streams:

Kalihi Stream.

Nu‘uanu Stream is what Timbol and Maciolek (1978) refer to as a “locked or filled-in channel,” where part of the original channel is blocked. It forms a series of waterfalls, some of the more well-known being Kapena Falls and Waikahalulu Falls. Waikahalulu Falls is located in Lili‘uokalani Gardens and is relatively small at approximately 20 feet high. There are also several waterfalls in the valley, one of which is visible near the crest of the Pali Highway. A swimming hole known as Alapena Pool at the base of Kapena Falls is still in use. Unfortunately, Nu‘uanu Stream, especially in the Kapena Falls area, is the single most frequently identified site of exposure for recreationally acquired leptospirosis. Ten confirmed cases were associated with this site between 1985 and 1992, including one fatality.

Nu‘uanu Stream also supports the 25-acre Nu‘uanu Freshwater Fish Refuge, which is stocked with catfish and tilapia and is located at Nu‘uanu Reservoir #4. The Reservoir is open three times a year (May, August, and November). A lottery is held by the Division of Aquatic Resources, of the State’s Department of Land and Natural Resources (DLNR), to determine fishing times for anglers. The Reservoir, built in 1910, was originally constructed for municipal water supply but was never used for that purpose. The dam is not designed to current standards. Thus, the structural integrity of the earthen dam may pose a liability as many downstream properties are vulnerable to flood damage in the event of dam failure. As part of the West Honolulu Watershed Study, dated May 2003, it was noted that an assessment of the dam is needed to determine its structural integrity.

Kapālama Stream is a “vegetation-removed channel realigned stream” (Timbol and Maciolek, 1978). A four-month study, conducted in 1971, showed that all samples of coliforms exceeded the State Water Quality Standards. The results gave a strong indication of sewage contamination possibly from illegal household connections or cesspool leakage. The banks on either side of the canal are not stabilized between North King Street and Nimitz Highway and are undergoing visible erosion. Mangrove has become established at the mouth of the canal, which reduces channel capacity and destroys the natural riparian ecosystem.

Kapālama Stream.

Kalihi Stream is a "revetment-style modified channel," where one or both banks of the stream are reinforced but the channel bed is not (Timbol and Maciolek, 1978). The United States Geological Survey has operated a gauge station (no. 16229000) near the 464-foot elevation since 1913. There are no water diversions above the gauge station. The drainage area is 2.61 square miles. The lower areas of the stream are subject to flooding due to insufficient channel capacity; the banks of the stream are not stabilized and subject to erosion during flood stage flows.

January 2002 data indicate that Kalihi Stream flows were 242% of the median for January (1914-2001). Stream flow over the past 3 months was 134% of the median for those months and was 104% of the yearly median over the past year.

A.5 SOILS

The general categories of soils classification in Hawaii show four soil orders for the Kalihi-Pālama area.

Table A-1. Soil Order for Kalihi-Pālama Area

Soil Order	Description
Entisols	Soils found on very young geologic deposits, such as beach sand, alluvial deposits, and volcanic cinders. These soils are recent, man-made alluvial deposits, found mostly along the coastal stretches of Kalihi-Pālama.
Mollisols	Well-drained, relatively young soils that formed from coral, lava rock, or alluvial deposits. These soils are found in the lower areas and in Kalihi Valley.
Vertisols	These are fine-textured, plastic, and sticky soils that formed from talus material and alluvium on the floors of the valleys. These soils are generally found in the mid to upper sections of the valleys, are not well suited to the construction of roads and building foundations, and are of limited value for agriculture.
Andisols-Inseptisols	Are young, but not recent, and have weakly developed natural soil horizons. This order includes nearly all soils derived in volcanic ash and many strongly weathered soils that have been developing for many thousands of years. In Kalihi-Pālama, these soils are found on the valley walls and ridgelines.

A.6 HYDROLOGY

The hydrology of the Kalihi-Pālama area is determined by a combination of geology, topographical characteristics, soils, vegetation in the conservation district, and urban coverage. Water budget estimates for O'ahu indicate the rainwater is dispersed as 65% evapo-transpiration and 35% surface water runoff and groundwater recharge. Although a technically precise water budget analysis is beyond the scope of this report, the following is a general profile of the water resources in the project area:

- Total Kalihi-Pālama project land area: 8,579 acres
- Average rainfall: 20 to 120 inches annually
- The average annual rainfall for the entire area is approximately 48 inches.
- The average total annual water input[1] totals 11 billion gallons per year, or about 30 mgd.
- Approximately 65% of this water evaporates. The remaining 35%, or about 10.8 mgd, flows to the ocean as runoff or percolates into soils and rock formations to become part of the underground aquifer system. Approximately 2.1 mgd is the average daily volume of water entering the Kalihi-Pālama groundwater system. The groundwater is drawn from the basal aquifer, which draws from a larger area of confluence. The water system is supplemented by the importation of about 2 mgd from outside of the project area.

A.7 ENDANGERED PLANTS AND ANIMALS

Upper watershed vegetation.

There is uncertainty regarding what the original landscape was prior to human contact, including European contact. The US Fish and Wildlife Service (USFWS) broadly speculates that natural communities providing habitat for endangered native plants and animals in the Kalihi-Pālama area consisted of the following sub zones: lowland dry forest and shrub lands in the coastal and plains area, lowland mesic forest and shrub lands in the lower valley and ridge sections, and lowland wet forest and shrub lands in the upper valleys. Before Western contact, Hawaiians harnessed stream water flow to create extensive wetlands for taro, which then became nutrient rich and emptied into man-made coastal fishponds. After contact by western cultures and the subsequent introduction of foreign diseases, the Hawaiian population declined, leaving many of the labor-intensive taro fields untended. These areas were soon filled for urban development.

The existing flora in the developed areas consists primarily of introduced ornamentals such as grasses, fruit trees, flowers, and various shade trees. Most fauna in the developed areas were also introduced and include mice, rats, and domesticated or feral animals, such as cats and dogs.

[1]Average annual rainfall equation: 48 inches X 8,579 acres = 34,000 acre-feet per year, or 1,483,000,000 cubic feet per year, or approximately 11 billion gallons per year, or 30 million gallons per day (mgd).

Vegetation in the upper portions of the Kalihi-Pālama area consists primarily of mixed-species of wet and mesic forest composed of native and introduced plant and tree species. Some alien plant species are considered to be pests, such as miconia *(Miconia calvescens),* that has been sighted in upper Kalihi Valley. Allspice *(Pimenta dioica)* has become naturalized on the mauka side of Nu‘uanu Stream at about the 425-foot elevation (Char, 1989).

The relatively natural, undeveloped lands contain remnants of mesic forest and are known habitat for native species such as the O‘ahu ‘elepaio, an endangered bird species. Approximately 1,977 acres are proposed for designation as critical habitat for the O‘ahu ‘elepaio. This area encompasses the central Ko‘olau Mountains above Kalihi and Kapālama. Although this area is not known to contain any ‘elepaio at present, they have been present in the area within the last 20 years and the area still contains suitable forest cover that provides an important habitat stepping-stone between subpopulations in the central and southern Ko‘olau units. Landownership in the ‘elepaio habitat is both public and private.

Alien animal species may also be found in the undeveloped areas. A colony of Australian Brush-Tailed Rock Wallaby has established itself in the lands west of the Kalihi Valley Homes housing project. Alien species can damage the natural environment. Feral pigs *(Sus scrofa)* spread leptospirosis and devegetate the forest floor with their to wallows. Recently, the two-spotted leafhopper *(Sophonia rufofasciata)*, an introduced insect from China, has spread throughout the lowland wet and mesic forests, causing a decline in the overall vigor over many acres of native forest in the upper Kalihi-Pālama area.

Honolulu Waterfront.

A.8 COASTAL RESOURCES

Much of the coastal areas of Kalihi-Pālama have been significantly modified in the past century. The last of the numerous Hawaiian fishponds along the coastline were filled in during the first half of the 20th century, creating additional lands that would become part of the Honolulu Harbor. Despite these modifications and reduced water quality, Honolulu Harbor and Ke‘ehi Lagoon still have estuarine characteristics that support the life cycles of native Hawaiian aquatic species, such as varieties of ‘o‘opu (goby) and ‘ōpae (freshwater shrimp). Coastal recreation is limited to Ke‘ehi Lagoon Park and Sand Island State Park. There are still remnants of coral reefs offshore; however, much of the inner lagoon

and harbor area has been dredged to facilitate use by deep-draft vessels and seaplane runways. These limited coral formations remain significant contributors to the existing marine populations in the area.

A significant environmental issue in the Kalihi-Pālama area is the proposed disposal of 1,800 cubic yards of contaminated dredged material from the Ala Wai Canal to the reef runway of the Honolulu International Airport. Community groups have voiced concerns over inheriting this displaced contamination from an adjacent neighborhood and the potential adverse effects of this material.

A.9 NATURAL HAZARDS

The 100-year flood hazards in the Kalihi-Pālama area are associated with a number of features: 1) insufficient channel capacity and the backwater effect due to restrictive bridge openings along lower Kalihi Stream, 2) low-lying areas are subject to tsunami inundation on Sand Island, and 3) the backwater effect from low bridge openings over the middle reaches of Nu‘uanu Stream, above School Street.

Kalani Street flooding.

The coastal areas of Kalihi-Pālama are also subject to flooding during winter storms and hurricanes. Local flooding problems are evident in urban areas such as Lower Kalihi, where heavy rains are slow to drain into the ground or storm drainage systems. This is especially evident in the Kalani Street area. In other parts of the project area, buildings and walls have been constructed close to stream courses to contain the flashy nature of storm water flow and to maximize buildable area.

The Ko‘olau Mountain Range is considered to be “extinct” so no volcanic nor volcano-associated seismic activity is expected in the project area. Intentionally set brush fires occur from time-to-time in the undeveloped areas in Kalihi-Pālama; this condition is especially acute during dry summer months. A Fire Management Plan, under the jurisdiction of the DLNR Division of Forestry, addresses this potential hazard threat. Since wild fires in the conservation district can be devastating to wildlife habitat, water resources, and soil conservation in the area,

measures should be taken to reduce the likelihood of fires in the upper reaches of the Kalihi-Pālama project area.

A.10 VISUAL AND SCENIC RESOURCES

The Kalihi-Pālama area affords panoramic views of the Wai‘anae Range to Downtown Honolulu and beyond to Diamond Head from upper neighborhood areas such as ‘Alewa Heights. From nearly anywhere in the plain and coastal areas, views of the Ko‘olau Range can be enjoyed without significant obstruction by tall buildings. High-rise structures in the project area are condominiums in the Nu‘uanu area near downtown Honolulu and the two Kūhiō Park Terrace apartment towers, which are currently being considered for replacement by buildings of lesser height. Utility poles constitute the significant vertical-rise features. Future developments of tall buildings will have a significant negative effect on the visual resources of Kalihi-Pālama. When new development occurs, consideration should be given to the height of the building so as not to impact the visual resources.

Kalihi and Nu‘uanu Valleys provide a beautiful backdrop to residential neighborhoods, particularly Kalihi Valley, Nihi Valley, Pu‘unui, and upper Nu‘uanu. However, the urban landscape in the lower residential, commercial, and industrial reaches of Kalihi and Kapālama are older areas that are somewhat dilapidated and are in need of revitalization.

A.11 CONTAMINATED AREAS

Aerial view of petroleum tanks, Honolulu Harbor.

The Comprehensive Emergency Response Compensation and Liability Act (CERCLA), commonly called SUPERFUND, establishes a trust fund for hazardous waste sites where no responsible party can be identified or found. Facilities identified as having releases or the threat of releases of hazardous substances are given an EPA identification number and listed in the Comprehensive Environmental Response and Liability Information System. When a site is listed in CERCLIS, a preliminary assessment (PA) is conducted to determine the scope of potential environmental problems. Once the PA is completed, the EPA determines whether the site is give a No Further Remedial Action Planned

(NFRAP) status or continues site investigations. A listed facility will remain on the CERCLIS with its NFRAP status noted, the NFRAP status signifies the ending of a CERCLA process.

Sites are listed in a national database that allows for two types of cleanup: 1) short-term removals, where actions may be taken to address releases or the threat of releases requiring prompt response and 2) long-term remedial response actions that permanently and significantly reduce the dangers associated with releases, or threats of releases, of hazardous substances that are serious but not immediately life threatening. These actions can be conducted only at sites listed on the Environmental Protection Agency's (EPA) National Priorities List (NPL). Table A-2 lists the CERCLA sites located in the project area. No sites are on the NPL.

Table A-2. CERCLA Contaminated Sites in the Project Area

Site	Location and Owner (in parenthesis)	TMK
Kapālama Incinerator	757 Kōkea Street (State of Hawai'i)	15018002
UNOCAL/Iwilei Tank Farm	411 Pacific Street (TOSCO Corp.)	15013010
Farrington High School	1564 N. King Street/1101 Kalihi Street (City and County of Honolulu)	16021005
Takamiya Property	850 Mo'owa'a Street (Haleakala Investment Co. Ltd.)	15023035
Aloha Tower Development Piers 8-14	Nimitz Highway	Multiple

With certain legal exclusions and additions, the term "brownfield site" refers to real property expansion, redevelopment, or reuse that may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Table A-3 lists the EPA brownfield sites in the Kalihi-Pālama area.

Table A-3. Kalihi-Pālama Brown Field Sites and Contaminant Type

Brownfield Sites	Contamination Type
Kūhiō Park Terrace	Dieldrin
Iwilei	Petroleum hydrocarbon, lead-containing paints, asbestos-containing materials
Kalihi-Kai Baseyard	Lumber treatment materials, oil
Ke'ehi Lagoon Park	Oil
Ke'ehi Industrial Lots	Unknown
Sand Island Reuse Facility	Unknown

A precedent for dealing with contaminated sites has been set in the Iwilei area with the construction of Home Depot and the recently completed Costco structure. The contaminated parcels were "capped" to prevent contaminants from resurfacing and causing threats to public health. Home Depot and Costco entered into a voluntary response program with the State Department of Health, and mitigation measures were used during the construction of both facilities and were subsequently approved by the State DOH. However, contamination that does not quickly degrade is preserved and the fluctuating groundwater flows may eventually spread subsurface contaminants to surrounding areas and to the ocean. This method of addressing the contamination issue conveys these environmental problems to future generations of Kalihi-Pālama area residents.

A.12 CRITERIA FOR ENVIRONMENTAL PLANNING

Based on the preceding information, the following environmental planning guidelines should direct land use and development planning for the Kalihi-Pālama area:

- Based on the EPA impaired water bodies designation for all water bodies in the Kalihi-Pālama area, there is a need to address the quality of stream and other surface waters. **Proposed land uses that may have a potential negative effect on stream water quality should be strongly discouraged and remedial actions on existing contamination sources should be employed.** Streams should be cleaned of debris.

- The popularity of stream recreation in Nu'uanu, specifically at the pool at Kapena Falls, is hazardous due to the presence of leptospirosis. This particular case of water quality improvement would include the **control or eradication of feral pigs from the conservation district.**

- **The banks of Kapālama Stream should be stabilized to control erosion between North King Street and Nimitz Highway.** Mangrove-infested areas at the mouth of the canal should be eradicated to maintain sufficient channel capacity and to allow the restoration of riparian ecosystems.

Kalihi Stream near Dillingham Boulevard.

- **Kalihi Stream banks should be stabilized to control erosion along the exposed banks at the lower reaches of the stream.** Flood control engineers should investigate non-concrete methods, pedestrian access, and native species habitats to retain the natural integrity of this stream. Each bridge across Kalihi Stream should be evaluated for replacement in order to convey the 100-year floodwaters and not inhibit the flow of debris associated with large-scale flooding events.

- **Proposed land uses should acknowledge the general water budget for Kalihi-Pālama and existing land uses should consider appropriate water conservation measures.** Strategies to increase the sustainable yield of the watersheds in the project area, such as replanting and infiltration enhancement projects, should be investigated and implemented.

- Beyond the critical habitat designation for ʻelepaio by USFWS, the **preservation of habitat for all native species in the project area** should be considered for proposed developments in or adjacent to the conservation district. An emphasis on the planting of native trees and plants should be made in the urban district to enhance cultural appropriateness as well as biotic habitats in the area. Promoting native tree, plant, and fern species in the upper watershed area as a multi-layered canopy may promote both hydrological, habitat, and culturally appropriate improvements of the entire project area.

- **Enhance the estuarine qualities of both near and offshore areas of Keʻehi Lagoon and Honolulu Harbor**. This plan strongly recommends serious consideration of ecosystem dynamics for any harbor, coastal, or offshore developments, including the reef runway.

- **Controlled public accesses should be developed to manage legal access to upper conservation district areas** in order to reduce the risk of fires and to prevent other damage to critical habitats as well as the primary watershed recharge area. Stewardship of the upper watershed areas can foster community participation in other improvement projects.

- **To preserve the existing view plane to and from the mountains in the Kalihi-Pālama area, building heights should remain low**. The proposed redesign of Kūhiō Park Terrace to a lower density, and therefore lower height, should be encouraged.

- **Clean up rather than capping should be the short- and long-term objective for addressing contaminated areas in Kalihi-Pālama**. Future generations of Kalihi-Pālama residents, employees, and visitors should be provided with the cleanest possible environment.

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APPENDIX B

HISTORIC AND CULTURAL PRACTICES

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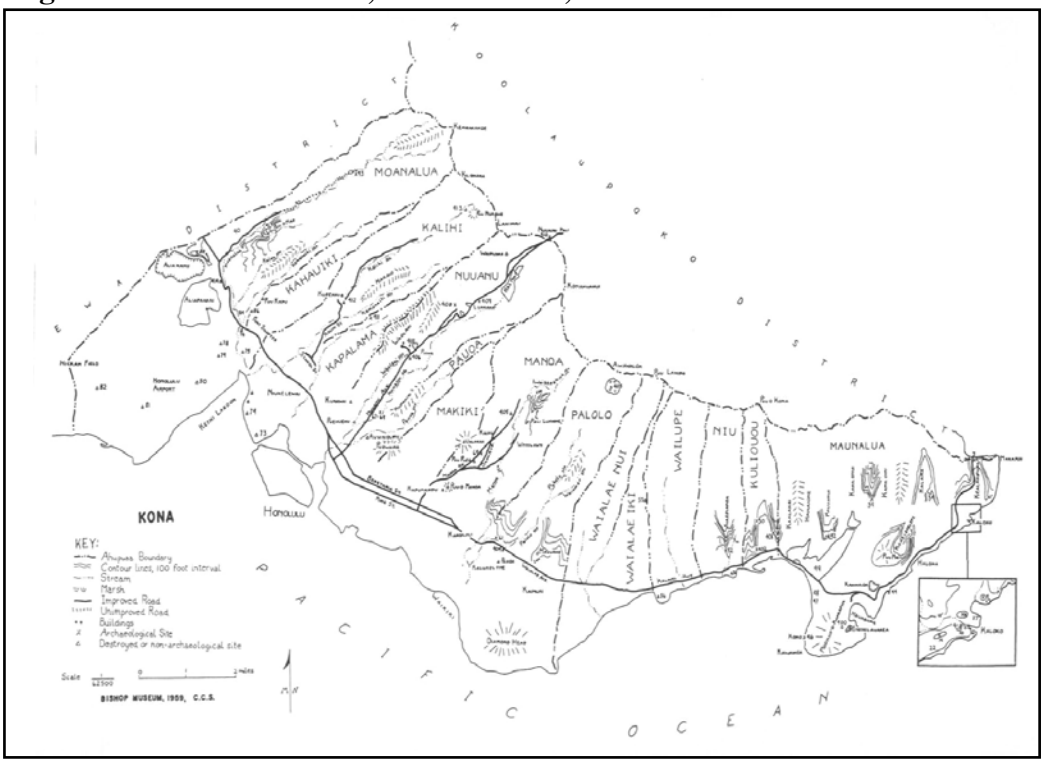
APPENDIX B
HISTORIC AND CULTURAL PRACTICES

This section provides information on the cultural and historic patterns of the Kalihi-Pālama project area. A historical and cultural understanding of the project area contributes to the understanding of how the area has changed over time and may also add clarity to a preservation program. The Kalihi-Pālama project area contains three ahupua'a: Kalihi, Kapālama, and Nu'uanu. This section also provides information concerning the Kona District of O'ahu and the development of Honolulu Harbor.

B.1 KONA DISTRICT, O'AHU ISLAND

On O'ahu, the term Kona refers to the area extending from Moanalua to Maunalua. Moanalua was named for two encampments (moana lua) at taro patches where travelers going from 'Ewa to Honolulu rested. Maunalua, commonly referred to as Hawai'i Kai, literally means two mountains. Kona was the domain of one high chief, Ali'i Nui or Mō'ī, island ruler, who parceled out to district chiefs, Ali'i 'Ai Pua'a, the various subsistence areas consisting of valleys,

Figure B-1. Kona District, O'ahu Island, circa 1959



Source: Sterling and Summers, Sites of O'ahu, Bishop Museum Press, Hawaii, 1978.

low lands, and shores.

The densest regions on O‘ahu were those adjoining Waikīkī. Ali‘i, Hawaiian chiefs, typically held residences at or near Waikīkī. In early times, Waikīkī was bordered by the great taro fields of Mānoa and the areas (Pauoa, Nu‘uanu, Waiolani, Kapālama, Kalihi, and Moanalua) between that valley and the sea, which, according to most accounts, was one continuous expanse of taro land and fish ponds.

The Kona district is subject to southerly storms in winter, but through most of the year, it is cooled by trade winds that sweep through the low gaps in the Ko‘olau mountain range at the top of Moanalua, Kalihi, Nu‘uanu, and Mānoa Valleys. These areas were abundant with rain, perennial streams, springs, pools, lush interior valleys, broad slopes, and well-watered low lands, fish pond areas, harbors, beaches, and lagoons. Kona, O‘ahu was considered the area richest in natural resources and most pleasant for abundant and comfortable living.

B.2 HONOLULU HARBOR

Honolulu Harbor was created by freshwater flows from Nu‘uanu Valley into the ocean. The flow of fresh water inhibited coral growth, forming a basin which would eventually form the harbor. Also taking shape as a result of fresh water flows were channels that were etched out through the coral reef. Sand eventually began to accumulate forming what would later become Sand Island.

Figure B-2. View of Honolulu Area Saltwater Fish Ponds in 1825 (Dampier 1825)

Source: Kamakau, S. M. "Ruling Chiefs."

B.2.1 Place Name

Puku‘i, in *Place Names of Hawaii* (1974), translates Honolulu to mean sheltered harbor. Other sources indicate that the Harbor was named “Fair Haven” or “Protected Bay.” The area from the harbor inland to Hotel Street, between Alakea Street and Nu‘uanu Avenue, was known as Kou. It is said to have been named after the Ilāmuku, or Executive Officer of Chief Kakuhihewa of O‘ahu. This name was used until the 1800’s.

B.2.2 Development of the Harbor Area

The first western use of the harbor occurred in 1794. The harbor channel at that time was approximately 200 feet wide, three-quarters of a mile long, and about 30 feet deep. The Hawaiian village of Kou had already settled the area. Fish ponds dotted the coastline toward the west from Nu‘uanu Stream to Ke‘ehi Lagoon.

Honolulu Harbor, early 1900s.

The growth of Honolulu Harbor can be attributed to several periods in Hawaiian history. Prior to the boom of the sandalwood trade, ships engaged in the Pacific trade would lay over to replenish supplies. Hawai‘i proved to be a good source of supplies, an ideal place for rest, and a good haven during the winter periods of the fur trade.

The sandalwood trade dominated harbor activities during the 1790’s; this was the advent of the shipping industry in Hawai‘i. The trade peaked between 1810 and 1820. As the area grew in importance, a fort was built to protect the harbor, hence, Fort Street. By 1820, the entire population of Kou was between 3,000 and 4,000. The village and surrounding areas were dominated by irregular clusters of grass houses that were located close to the harbor with three or four stores and a half dozen European-style wooden or stone homes.

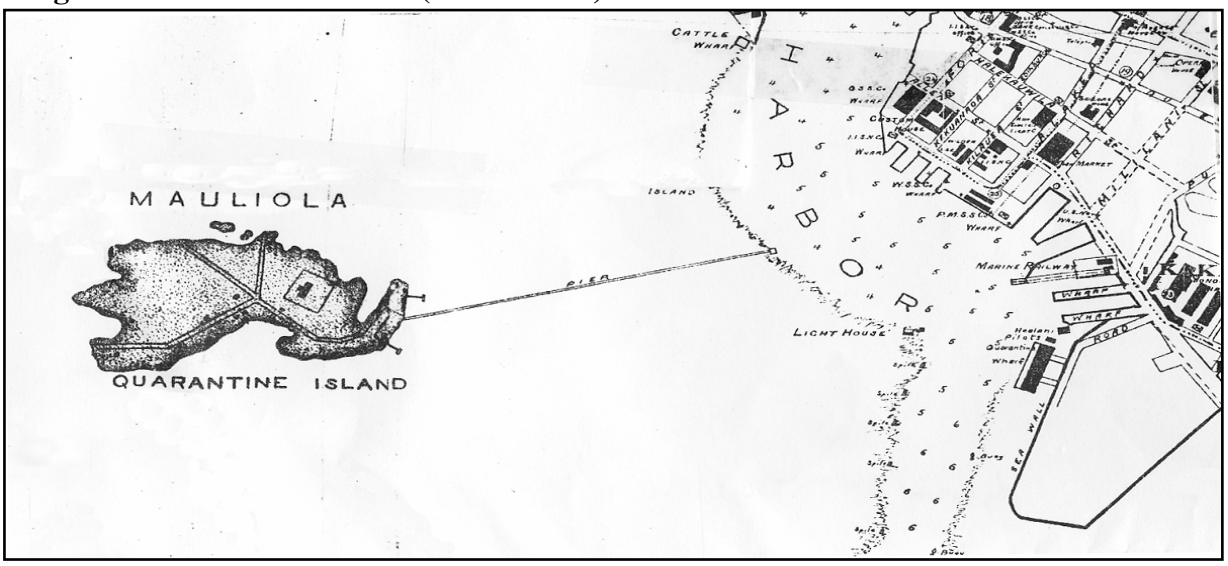
In 1819, two whaling vessels joined the other vessels at the harbor, thus commencing the whaling trade in the islands. Whaling ships stopped to repair and refit their ships and to buy beef, Hawai‘i-grown Irish potatoes, and other supplies. The whaling industry dominated harbor

activities for the next forty years. By 1825, the population had grown to 6,000 and the first harbor development activities would be marked by a sunken vessel being floated into place near the foot of Nu‘uanu Avenue to serve as the first terminal facility.

Around 1857, the fort was torn down and its coral blocks used as fill to expand the waterfront. Between 1857 and 1870, twenty-two acres of reef and tide land between Fort and Alakea Streets were filled in from harbor dredging to form “The Esplanade.” The harbor possessed five wharves able to handle ships of 1,500 gross tons, with berthing frontage of 600 feet. Continual alterations to the Honolulu Harbor encouraged the expansion of maritime commerce. In 1840, the population totaled 9,000 including nearly 600 foreigners. Streets were widened, houses and stores were built, and public works projects were initiated.

During the American Civil War, Hawaiian sugar became a profitable export. By 1892, the harbor had a total of 15 wharves. As the harbor continued to be deepened, the dredge materials were deposited on a shallow, off-shore reef originally known as Moku ‘Ākulikuli[1]. Commonly known as Quarantine Island, the raised reef was used to isolate ships with contagious diseases on board. Today it is known as Sand Island.

Figure B-3. Mauliola Island (Sand Island) 1901



Source: Map by Monsarrat 1901. University of Hawai‘i Map Collection.

[1] Other map sources indicate a name of Mauliola for what is now known as Sand Island.

As the sugar industry grew, the O‘ahu Railway and Land Company, Limited (OR&L) constructed a coaling station, another wharf, Piers 17 and 18 in 1901, and Piers 19 and 20 by 1916. Some of this infrastructure development spurred successful development of other agricultural products, such as pineapple.

By 1900, the eastern half of the harbor was considered fully developed with wharves, piers, and a 200 by 120-foot Channel Wharf (Pier 2) and shed. In 1905, the U.S. Army Corps of Engineers widened Kapālama Channel and dredged both Kapālama Channel and Basin. At the same time, Quarantine Island was filled and developed. By 1910, the population of Honolulu had swelled to 52,193. Maritime commerce, however, was seriously disrupted by World War I (1914-1918). Food shortages raised the cost of living. West coast steamers were called to service Atlantic areas and tourist traffic nearly ceased. Harbor improvements intensified as the island’s dependence on shipping was realized.

Construction of Aloha Tower began in 1921 and Kewalo Basin, approximately 55 acres, was constructed to ease congestion in Honolulu Harbor and provide docking for lumber schooners. By 1926, commercial fishing operations moved into Kewalo Basin. In 1926, the Advertiser reported that a plan to widen the channel to 100 feet was necessary to support the burgeoning pine growers who needed to get products from neighbor islands to the canneries. Pineapple growers financed the project.

A 1938 dock strike interrupted ocean shipping. However, improvements to shipping infrastructure and the commercial harbor continued at a constant pace. The city’s population was 154,000 in 1939; by 1940, it had grown to 200,000.

During World War II, the capacity of the harbor grew as Piers 39-40 and 51-53 were constructed. Channel widening, dredging, and support facilities construction continued into the post-war period. Oil pipeline systems connected all government piers to the oil companies. In 1954, Pier 38 was built to provide a direct loading area for refined petroleum products. Construction projects totaled $46.7 million in 1950. The City’s population climbed to 248,000.

With the advent of Statehood on August 21, 1959, the economy continued to grow and change. The city’s population hit 294,000 and construction funds reached $164 million in 1960. Sugar, pineapple, and diversified farming prospered. Diversified industries such as construction, oil refinery, steel mill, cement plant, garment industry, furniture, etc., also grew. The military poured money and personnel into bases on O‘ahu, further expanding the economy.

Honolulu Harbor, during the 1970's, continued to build infrastructure to accommodate container freights and shipping services. In 1971, about 20 berths were dredged to restore required depths. Improvements and expansion projects occurred at Kewalo Basin, Fort Armstrong container yard, and Sand Island.

Honolulu Harbor today,

In 1980-81, Honolulu Harbor's depth was increased and container handling facilities were constructed to consolidate freight operations on Sand Island. Planning for O'ahu's second deep-draft harbor at Barber's Point began.

In 1992, the enormous success of the Hawai'i maritime commerce earned Honolulu the distinction of ranking 7th out of 300, in Smith and Englander's *The Best Place to Live in America.* The city's population had grown to 377,000 and construction projects approached $1.2 billion. With the Aloha Tower Marketplace opening in 1994, Honolulu again earned the distinction of being the only harbor in the U.S. to combine a visitor attraction, retail and restaurant outlets, and a working commercial harbor facility.

Currently, 70 percent of the State's maritime cargo activity is attributed to O'ahu's commercial harbors.

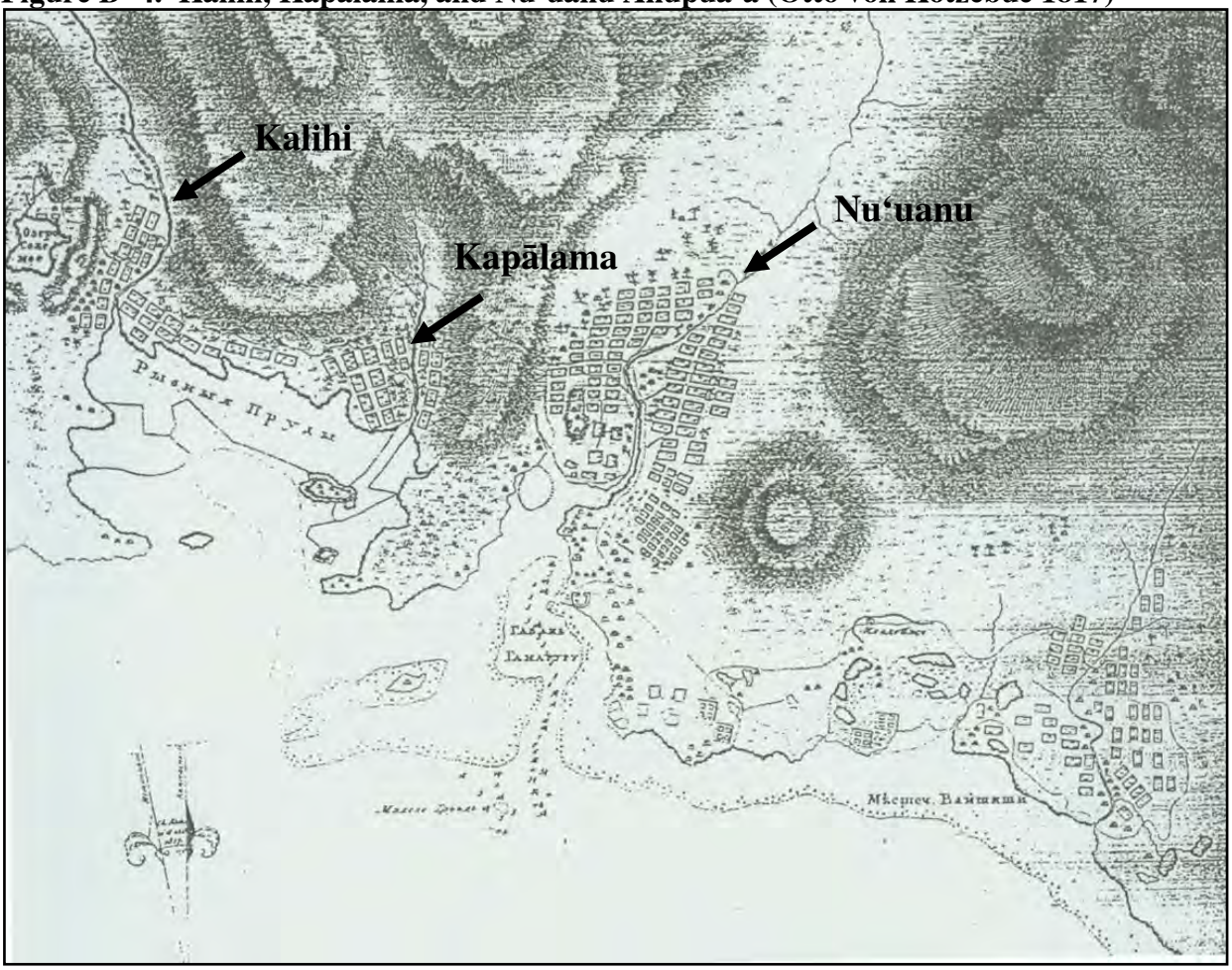
B.3 KALIHI AHUPUA'A

B.3.1 Place Name

Kalihi, according to Puku'i (1974), was named by Prince Lot Kamehameha V in 1856. Kalihi is also famous in legend as the home of Pele's sister, Kapo, and of Haumea, Pele's mother, who is identified with Papa, the wife of Wākea. She had many adventures at Kalihi.

The term, ka lihi, means the outside edge or boundary valley. Kalihi is also divided by sections that run from the mountain to the sea; Kalihi Kai, seaward Kalihi; Kalihi Uka, inland Kalihi; and Kalihi Waena, referring to central Kalihi.

Figure B- 4. Kalihi, Kapālama, and Nu‘uanu Ahupua’a (Otto von Kotzebue 1817)



Source: Landrum, Jim and P.C. Klieger. October 1991. Historical Literature and Documents Search. Kalihi, O‘ahu, Hawai‘i.

B.3.2 Nā Ka‘ao A Me Nā Mo‘olelo (Legends and Stories)

Kalihi is the setting of some of the more significant Hawaiian legends.

- **Papahanaumoku and Wākea in Kalihi**
  The Hawaiian language newspaper, “Ka Na‘i Aupuni,” in 1906, recorded the following concerning the legendary ancestors of the Hawaiian people, Wākea (male figure) and Papahanaumoku (female figure) who lived at Kilohana in Kalihi:

> O Wākea, he kanaka maoli no ia; a o kana wahine oia o Papa, i kapaia nohoi o Haumea, a o ko laua wahi i noho ai oia ka pali o Kilohana. Oia kela wahi kaola pali mawaena o ke awawa o Kalihi-uka. ame Koolau.
>
> Translation: Wākea is a man and his wife, Papa, who is called Haumea, they lived at the cliff of Kilohana. That trail cliff is between the valley of up land Kalihi and the Koʻolau.

Myths told of Papa, in her form as Haumea, center around themes concerning the food supply, necessary for the life of the ʻohana to increase the family stock. At Kalihi, Haumea mates with her children and grandchildren to give birth to the Hawaiian race. Kaʻieʻie heiau, a hoʻoulu ai type shrine, was dedicated to Haumea for the increase of food supply. One source credits the location of this heiau near King Street presumably in the vicinity called Kaʻieʻie in Kalihi Kai.

> "A visitor today to the uplands of Kalihi valley on the island of Oʻahu, . . . start just mauka of Kamehameha school grounds and go on to the center of the valley and look straight up toward the Koolau mountains, [you] will see a peak on the north eastern side of the valley. That is the peak or hill of Kilohana, the home dark with mist, of Wākea and Papa, the ancestral kupua [a supernatural being possessing many forms] chiefs of Hawaiʻi….Of Papa it is said that she was a woman more than mortal, a kupua, and that she bore many names, such as Papa, Haumea, and Kamahaʻikana . . . Wākea was a man and human and he was the husband of Papa when she was called Haumea. They left the border of Kahiki in the days long past, and became the parents of the Hawaiian people and lived on the hill of Kilohana which stands high up in the valley of Kalihi" (Sterling and Summers, p. 325).

The significance of the ʻulu, or breadfruit tree, as the personification of Haumea is captured in a koʻihonua (i.e., a genealogical chant) recorded in the newspaper "Ka Naʻi Aupuni." While much of the story takes place in Nuʻuanu, it is important to recognize the presence of Haumea in Kalihi as it is related in this story:

"O ka ulu wahi a keia moolelo oia kekahi kino o Haumea. A i ka wa kahiko o Hawai'i nei, ua lilo ka ulu he akua no kekahi poe; a ua hoomanaia ma ka inoa o Kamehaikana. A penei ke mele Koihonua a ka poe kahiko no Haumea ame kona kino kumu ulu:

"Wahine akua a Wākea
O Haumea wahine o uka o Kalihi
Noho i Kalihi, hele i kai
Komo i ka ulu, he ulu ia
Lo a ia kino hou ona, he ulu
O ke kino ulu, o ka pahu ulu o lau ulu ia nei
O ka lala ulu o Kamehaikana
O Kamehaikana ia o ko inoa ulu, a lau ulu
He lau ke kino o ia wahine o Haumea"

Translation: The breadfruit spoken of in this story is a body form of Haumea. And in ancient times of Hawai'i, the 'ulu [breadfruit] became a god for some people and was worshiped in the name of Kameha'ikana. Thus follows the genealogical chant of the ancient people for Haumea and her bodily 'ulu form.

The female god of Wākea
Haumea woman of upland Kalihi
Lives at Kalihi, go seaward
Enters the 'ulu tree, a 'ulu
She has gotten a new body form, a 'ulu
A 'ulu body, a trunk and leaves she had
The breadfruit branches of Kameha'ikana
Your name is Kameha'ikana
Greenery is the body of this woman Haumea

- **Wākea and Kumuhonua**

Pahukikala is a place in Kalihi that is related to a battle between the chiefs Wākea and Kumuhonua.

> Wākea and Haumea were kind to the Koolau people. When Kumuhonua heard that they had returned and were living as chiefs of Paliku, he sent messengers around O‘ahu to raise an army to fight. The Kona men responded but the Koolau men did not. They were in favor of Wākea. When Kumuhonua declared war again, the Ko‘olau men under Kali‘u came up to Nu‘uanu and Kalihi. In the battle Kumuhonua’s hip was pierced with a spear and killed near a pool. The place is called Pahu-kikala (Pierce-hip) to this day. Wākea became chief of the whole island of Oahu” (Sterling and Summers, p. 326).

- **Regarding Kapoulakina‘u and Kamohoali‘i**

Kapo, also known as Kapoulakina‘u and Laka, was born of Papa, or Haumea, while she was living in Kalihi Valley with Wākea, her husband. Some say that Kapo was born from the eyes of Papa. She was of high rank and able to assume many shapes at will. One source indicates that there is a stream said to be Kapo, the daughter of Haumea and Wākea, and patron of the hula, and a cliff that was Kamohoali‘i, elder brother of Pele, and lord of sharks.

> Kapo-ula-kina‘u, Kamohoali‘i, Pele-honua-mea are the three wonderful ones who came from Wākea and Papa. A very sacred tapu of the gods rests upon her. Birds never sing about her tapu home up Kalihi valley. There at noon when the sun is shining brightly she may be seen on the hillside beyond the upland of Kilohana where stands her tapu stone into which she entered, shaped like a house in front, like a fish’s tail behind” (Poepoe translated and quoted in Beckwith, p. 186-187).

A map of Kalihi dated 1883 indicates the place names of Popoulu and Kapo within the waoakua (i.e., the uninhabitable mountain region where deities dwell) region of the ahupua‘a. Sterling and Summers, quoting Poepoe, speak of Kapo and Kamohoali‘i:

> Look now at the sides of the steep cliff to the right equal in height with the side of Kapo. This hill is Kamohoali‘i. This is own [sic] brother of Kapo. He was born from the top of the head of Haumea. He is the beloved brother of Pele, the one who saved the fire when she battled with Kamapua‘a (Sterling and Summers, p. 324).

- **Kane and Kanaloa in Kalihi**

The gods Kane and Kanaloa are associated with activities related to ‘awa drinking. With ‘awa as their principal food, they must have water with which to mix it (Beckwith, p. 63). Westervelt, quoted in Beckwith, relates the following story:

> Kane and Kanaloa journeyed along the coast of the island until they came to Kalihi. For a long time they had been looking up the hillsides and along the water courses for awa. At Kalihi a number of fine awa roots were growing. They pulled up the roots and prepared them for chewing. When the awa was ready Kanaloa look for fresh water but could not find any. So he said to Kane, “our awa is good, but there is no water in this place. Where can we find water for this awa?”
>
> Kane said, “There is indeed water here.” He had a “large and strong staff.” This he took in his hands and stepped out on the bed of lava which now underlies the soil of the region. He began to strike the earth. Deep went the point of his staff into the rock, smashing and splintering it and breaking open a hole out of which water leaped for them to mix with their prepared awa. This pool of fresh water has been known since the days of old as Kapukawaiokalihi (63).

B.3.3 ‘Ōlelo No‘eau

Traditional sayings, or ‘ōlelo no‘eau, represent the most dramatic qualities of the Hawaiian people. There are typically underlying messages that, when understood, can convey humor, wisdom, and eloquent poetry. The ‘ōlelo no‘eau presented here were compiled and translated by Mary Kawena Puku‘i and published in *Olelo No‘eau* by the Bishop Museum Press in 1983.

> “Ka ua ko‘i lipilipi o Kalihi”
> The adz rain of Kalihi (‘Ōlelo No‘eau. #1625)

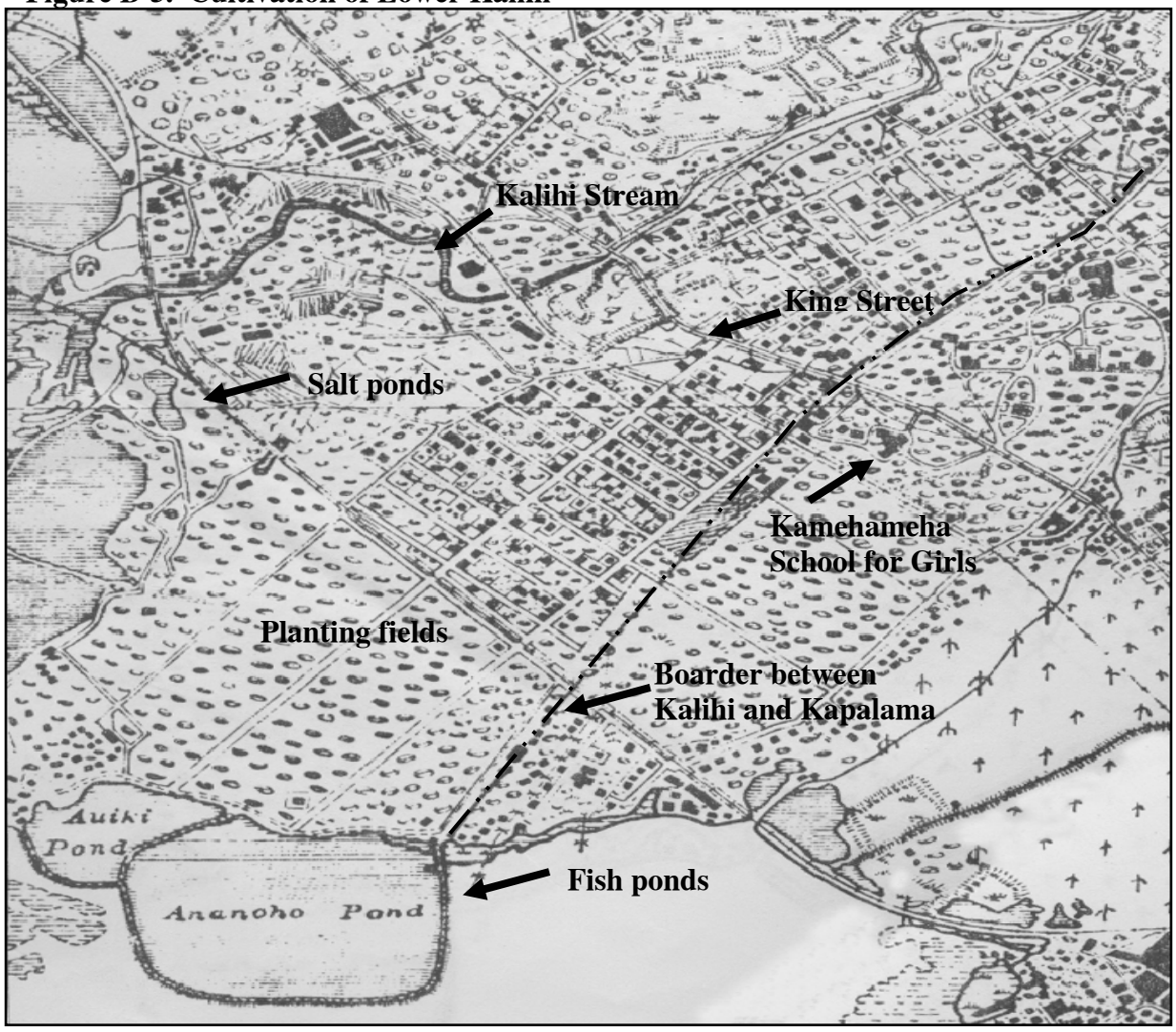
This story entitled, “Ka ua poo lipilipi o Kalihi” describes a story between two lovers who hide in the forest to indulge in passion without the girl’s parents knowing. A little patter of rain begins to fall and the two lovers pay no mind. The rain had not cleared for several days and nights and the two slept while the rain fell. When they woke, they found their heads had been

sharpened and flattened from the long sleep while the rain fell, day and night. Thus the rain is called ‘the rain that sharpens the head in Kalihi (Poepoe quoted in Sterling, p. 326).

B.3.4 Ahupua‘a Description

The ahupua‘a of Kalihi is situated between the ahupua‘a of Kahau‘iki to the north and Kapālama and upper Nu‘uanu to the south. It is an amphitheater-headed valley typical of leeward O‘ahu. Kalihi is located on the southern, leeward coastal plain of the Ko‘olau volcano and comprises a part of the Honolulu plain. Kalihi Stream is the primary waterway located in the ahupua‘a. The old lagoon has been mostly filled with sediments and the shallow fringe was used by traditional Hawaiians for fish ponds.

Figure B-5. Cultivation of Lower Kalihi



Source: U.S. Army, 1909-1913. University of Hawai‘i Map Collection.

The settlement of Kalihi Valley indicates intense use of the uplands and the convergence of numerous streams creating tidal flats and estuaries in the lowlands. Handy and Handy in *Native Planters* (1940) detail the traditional agricultural and farming practices of indigenous Hawaiian planters of Kalihi:

> Extensive terraces covered all the flatland in lower Kalihi Valley for approximately 1.25 miles on both sides of the stream. Above this the valley is too narrow for terraces for a mile or more; but in upper Kalihi there are numerous small areas that were developed in terraces (Native Planters, p. 79).

B.3.5 Historical Descriptions

The earliest recorded references to this area are provided by the descriptions, maps, and drawing of the Western explorers who sailed through Hawaiian waters in the early 1800's.

In 1816, Otto von Kotzebue and his fellow travelers from the Russian ship *Riurik* explored the areas to the west of Honolulu. His journal describes his passage through the region from Nu'uanu through Kalihi, to Moanalua, and beyond to 'Ewa. His map of southeast O'ahu shows extensive lo'i to either side of Kalihi Stream and a number of fish ponds; it marks trails that he followed from Honolulu to 'Ewa.

John Papa I'i, a prominent leader in the Hawaiian Kingdom during the 19th century, recalls his childhood, circa 1810, and makes reference to the taro patches of Kalihi. He also makes note of the extensive trail network utilized at that time, an indicator of the important role Kalihi had in connecting the population centers of O'ahu:

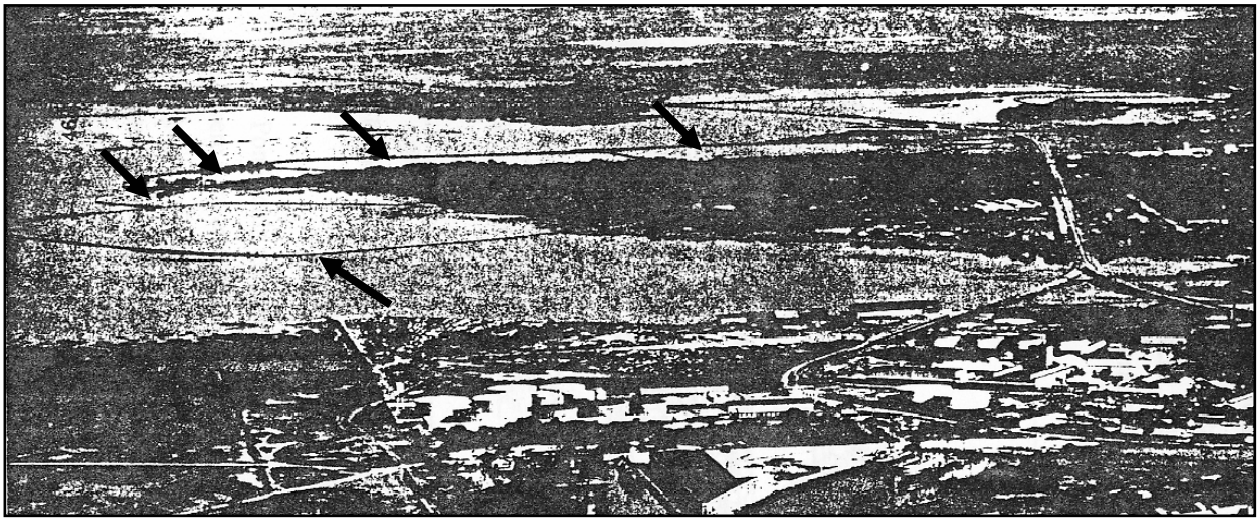
> When the trail reached a certain bridge, it began going along the banks of taro patches, up to the other side of Kapālama, to the plain of Kaiwiula; on to the taro patches of Kalihi; down to the stream and up to the other side; down into Kahauiki and up to the other side; turned right to the houses of the Portuguese people…. (I'i, 95).

Another traveler, Bennett, provides a description of Kalihi Valley, circa 1834 – 1835:

> The valley of Kalihi succeeds to that of Anuuana, but is less bold and diversified in its scenery. Human dwellings and cultivated lands are here very few, or scattered thinly over a great extent of, probably the finest soils in the world. The commencement of the valley is a broad pasture-plain, the tall grass waving on every side, and intersected by a footpath . . . Kalihi has a pass to vale of Kolau similar to the pari of Anuuana, though more precipitous, and only employed by a few of the islanders who convey fish from Kolau to Honorurur. I descended it in company with a native guide, but found the task difficult, and scarcely practable with out the aid afforded by the boughs of trees (Sterling and Summers, p. 322).

B.3.6 Loko I'a: Native Hawaiian Fish Ponds

Kalihi had a shallow seaside area, now the shore of Kalihi basin, that was once ideal for building fish ponds, termed loko i'a. Loko i'a were man-made enclosures in which fish and other aquatic organisms were raised and harvested. The loko i'a located in Kalihi as well as the surrounding ahupua'a were productive fisheries that were utilized during the early historical period and into the 20th century.



Five Kalihikai fish ponds, 1924.
Source: Spear, Robert, et. al., March 1997. Final Archaeological Excavations at Kuwili Fish pond.

Table B-1. Loko I‘a Located in Kalihi

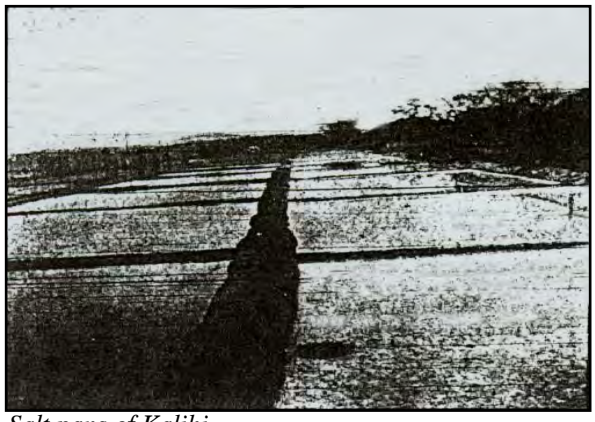
Fish pond Name, Location, and Acreage	Description
1. Ananoho, Kalihi Acres: 52 Type: Loko Kuapā A fish pond of littoral water whose sides facing the sea consist of a stone or coral wall usually containing one or more sluice gates.	An oval-shaped pond 52 acres in area. The walls approximate 4,700 feet in length and average 6 feet in width. They are primarily of coral and average 3 feet in height. There are now two houses on the wall but houses and mākāhā (gate) are modern. No visible surface remains but location known.
2. Au‘iki, Kalihi Acres: 12 Type: Loko Kuapā	A small adjoining pond partly filled. It is 12 acres in area with a 900-foot wall. No visible surface remains but location known.
3. Pahouiki, Kalihi Acres: 14 Type: Loko Kuapā	The smallest of the pahou fish ponds, being 14 acres with a wall 1,050 feet in length. The wall is of coral, with one house and two mākāhā now. No visible surface remains but location known.
4. Pahounui, Kalihi. Acres: 26 Type: Loko Kuapā	A 26-acre pond with a wall 2,600 feet long. The walls are of coral with one house and two mākāhā. It adjoins but does not open to Apili pond. No visible surface remains but location known.
5. Apili, Kalihi Acres: 28 Type: Loko Kuapā	Apili is 28 acres, with a wall 1,500 feet long. Apili literally, snared or stuck. The pond was famous for superior flavor of its fish, particularly the awa, which, eaten raw, esteemed a rare treat. No visible surface remains but location known.

Source: U.S. Fisheries Report (1903), DMH Planners, Inc. (1989), and Handy (1940).

B.3.7 Salt Pans of Kalihi

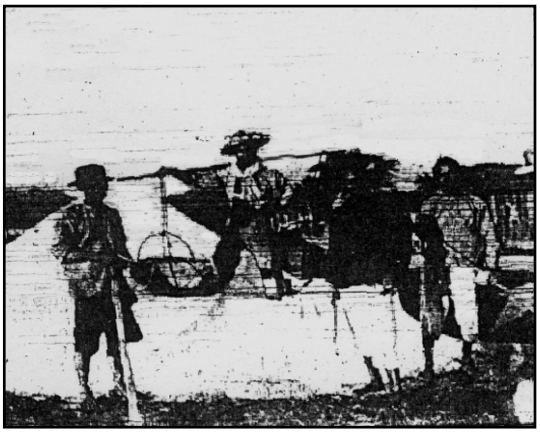
Salt works also occurred in Kalihi. One salt field was located adjacent to Apili fish pond. Wall’s map of 1902 notes salt beds. Malo provides the following description for traditional salt cultivation:

> Salt was one of the necessaries and was a condiment . . . Salt was manufactured only in certain places. The women brought sea water in calabashes or conducted it in ditches to natural holes, hallows, and shallow ponds (kaheka) on the sea coast, where it soon became strong brine from evaporation. Thence, it was transferred to another hollow, or shallow vat, where crystallization into salt was completed (Hawaiian Antiquities, p. 123).



Salt pans of Kalihi.
Source: Paradise of the Pacific, 1906.

Honolulu salt beds, located in Kalihi Kai were featured in an article that appeared in the *Paradise of the Pacific* publication in 1906. Rev. W.D. Westervelt wrote:



Workers at Kalihi salt beds.
Source: Paradise of the Pacific, 1906.

In the western part of Honolulu, on the uplands which rise from the harbor….Almost directly south…lie the salt beds. The native name for the land district is Kalihi. The salt beds are in the part of the district known as Kalihi ma kai or Kalihi by the sea. Here the trains of the O'ahu Railway are passing almost every hour of the day. The passengers look out upon long rows of apparently shallow beds of encrusted water.

B.3.8 Māhele of 1848 and Land Commission Awards

In 1848, under the legislation of the Māhele, individuals were given the opportunity to claim land they resided on and/or held in active cultivation. Land Commission Awards were issued to Quiet Land Titles, between 1846 to 1855, to persons who filed claims to lands between 1846 to 1848. These lands could then be sold freely on the market. Over 100 Land Commission Awards were recorded for Kalihi. The Land Commission register and testimony documented Native Tenant claims in terms of the types and uses of garden plots, the type of crops grown, irrigation systems, location of homes, and boundaries. The traditional Hawaiian practice of maintaining residences, dispersed within and throughout agricultural fields, continued in Kalihi until the mid-19th century. The settlement pattern, according to Land Commission Awards, included claims for houses and garden plots on the natural terraces on both sides of Kalihi Stream, predominantly in lower Kalihi Valley and on the flat lands seaward of the valley (Folk et. al., p. 9).

B.3.9 20th Century Kalihi

Very little documentation specifically describes the Kalihi ahupua'a in the 20th century. Kalihi, like Kaimuki, was the end of the trolley line which moved along King Street to Fort Shafter. Prior to the construction of the H-1 Freeway, North King Street was the main road from West Honolulu to downtown Honolulu. King Street, in Kalihi, became host to numerous "Mom and Pop" grocery stores, saimin stands, and barber shops. By the 1960's, Kalihi and the surrounding

Pālama area were chosen as Honolulu's primary focus for the Federally funded Model Cities program. In 1965, Kalihi became associated with light industrial uses mixed with public housing and single-family residences and became known as the "gateway to Honolulu." In order to balance the industrial dominance, the City enacted new initiatives for low- and medium-density apartments to establish a more residential feel to parts of Kalihi. Today, Kalihi remains a mix of industrial, residential, and commercial uses. Reminders of the past, such as Farrington High School, Pālama Theater, Kaumakapili Church, and numerous pedestrian-friendly shops still dot Kalihi, especially along King Street. Residential areas are also situated along the mauka slopes and within the busy industrial and commercial areas.

B.3.10 State and National Historic Sites

The Kalihi-Pālama Action Plan study area has 31 registered historic sites, 25 of which are on the state register and 25 are on nationally recognized sites. Nineteen of the sites appear on both lists. In the Kalihi ahupua'a, there are 4 sites as follows:

Table B-2. State and National Historic Sites

Site Name	Location	Date Added to Hawai'i Register	Date Added to National Register
Kalihi Fire Station	Kalihi	7/19/80	12/2/80
Bishop Museum Complex	Kalihi	9/10/80	7/26/82
Farrington High School	Kalihi	6/28/93	-
Fort Shafter, Palm Circle Area	Kalihi-Kahauiki	-	10/26/84

B.4 KAPĀLAMA AHUPUA'A

B.4.1 Place Name

At least two sources offer possible explanations for the origin of the place name Kapālama. One traditional account states that Kapālama refers to the name of the grandmother of Lepe a moa, the girl born in the form of an egg who, wrapped in tapa and sweet smelling plants, was taken and raised by her grandmother in Kapālama and Honouliuli (Sterling and Summers, p. 319; Beckwith, 1970, p. 428). The Native Hawaiian scholar David Malo offers another explanation:

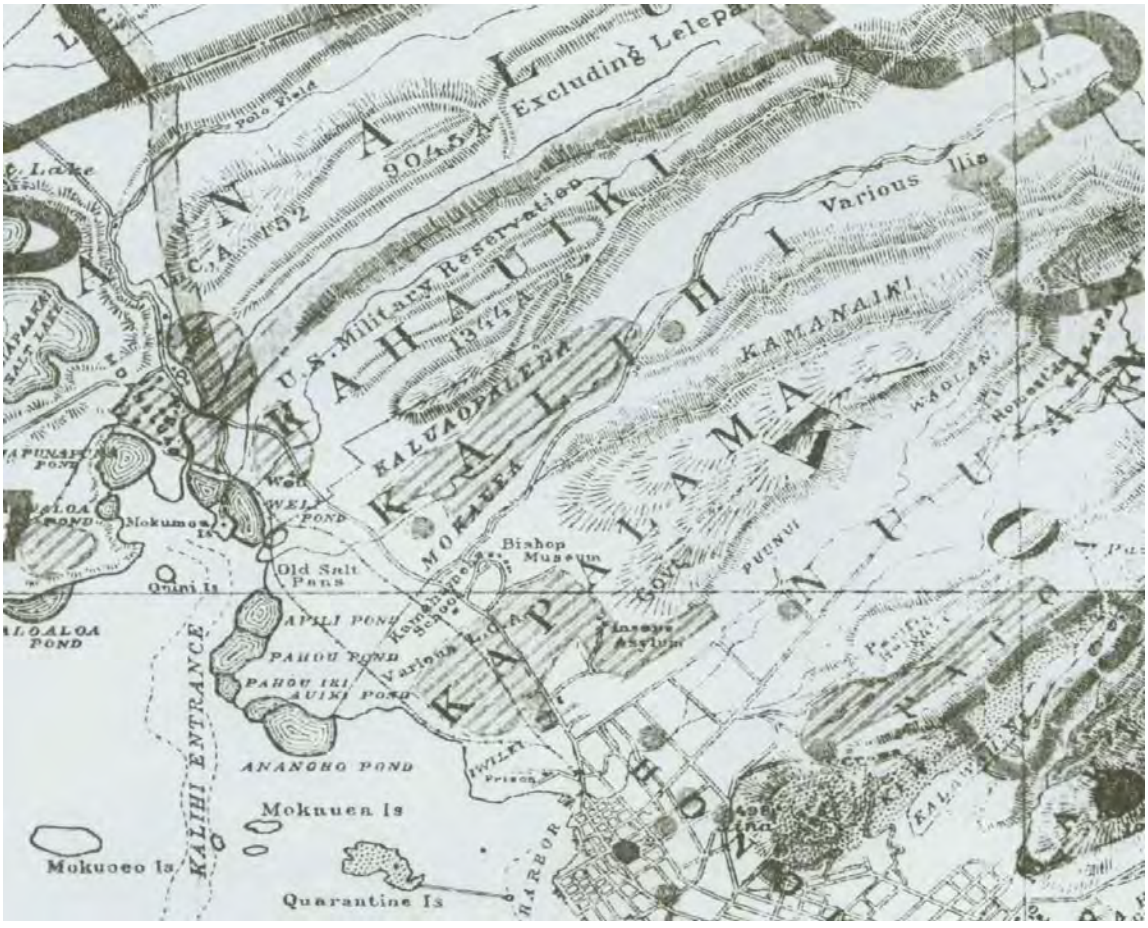
> Ho'onoho ia means to put in an establishment, placed under care of a guardian. Such an establishment was surrounded by an enclosure, pa, made of the sacred lama. This special care or guardianship was called

> Pālama. It is said that an establishment of this kind was anciently placed at that suburb of Honolulu, which to this day bears the name of Kapālama (p. 139).

B.4.2 Nā Kaʻao A Me Nā Moʻolelo

The area located within Kapālama, known as Niuhelewai, served as the home of the wahine akua (female deity) Haumea, who refused to let anyone pass through her sacred lands. The famous voyager, Kaulu, wishing to go sightseeing, surrounded her house with the fish nets of Makaliʻi while Haumea slept. When she awoke, she tried to cut through the net but became entangled and tired and fell asleep. Kaulu set her house on fire and Haumea was consumed by the flames (Sterling and Summers, p. 320).

Figure B-6. Kapālama, Kalihi, and Portion of Nuʻuanu Ahupuaʻa, 1902



Source: University of Hawaiʻi. Map Collection.

B.4.3 Ahupua'a Description

Kapālama is situated between the ahupua‘a of Nu‘uanu to the south and Kalihi to the north. Unlike the river valleys of Kalihi and Nu‘uanu, Kapālama contained two smaller streams, Kapālama and Niuhelewai. The stream-associated flood plain became a part of the Honolulu plain between Iwilei to the south and Kalihi to the north. The makai area, currently known as Kapālama Basin, is part of the Honolulu Harbor protected shoreline (Borthwick, et.al., p. 6). Traditionally, Kapālama offered desirable environmental conditions for traditional Hawaiian subsistence practices. For example, I‘i (Fragments, p. 95) specifically mentions “taro patches” along the banks of Kapālama Stream. The well-watered flood plain allowed for the development of extensive lo‘i (wet land taro) systems, as well as a protected shoreline and fringing reef that permitted easy ocean access to productive near-shore fisheries, affording intensive marine exploitation (Borthwick).

B.4.4 Historical Descriptions

In the 1780’s, a decisive battle was waged at Niuhelewai between the O‘ahu Mō‘ī Kahahana and Ali‘i Kahahawai of Maui. Kahahana, the ruler of O‘ahu, was tricked by his uncle Kahekili of Maui into killing his wise Kahuna Ka‘opulupulu, thereby opening the way for his own occupation of O‘ahu. Kamakau writes that “the districts of Kona and ‘Ewa were attacked, men, women and children were massacred until the streams of Makaho and Niuhelewai…were choked with bodies” (p. 138).

A number of noteworthy events occurred between the years 1786 and 1800. First was the discovery in 1786 that Honolulu was a safe harbor for Western deep draft ships, an event that signaled the start of trade with foreigners in the Hawaiian Islands (Spear, p. 7). Kamehameha I unified his rule over all the islands in 1795. In 1809, the royal courts of Kamehameha I and Liholiho moved to Honolulu from the traditional site of Waikīkī indicating the new importance of the harbor area to the chiefs (Hammatt and Chiogioji, 1995).

Between the years 1803-1804, O‘ahu experienced “a pestilence called ‘ōku‘u,” thought to be cholera (Kamakau, p. 189). After it had subsided, many of Kamehameha’s warriors were dead and food sources low, forcing the chiefs to take up farming again (Spear, 7). “Kamehameha cultivated lands at Waikīkī, Honolulu at Kapālama and fed the people. He fished, made huge hauls, and gave food to the chiefs and people. Thus he cared for both chiefs and people” (Kamakau, p. 190).

John Papa I‘i, born in Waipi‘o, O‘ahu in 1800, provided an early account of the area:

> …The places Kamehameha farmed and the houses he lived in at those farms were show places He also lived in Honolulu, where his farms at Kapālama, Keoneula, and other places became famous. These tasks he attended to personally, and he participated in all the projects (Fragments, p. 69).

Kotzebue, from the Russian Ship Riurik, relates the following description of Honolulu including Iwilei, of lower Kapālama, in 1816:

> To the south, it is bounded by the ocean. Artificial fields planted with taro root, which might very well be called lakes, attracted my attention In precisely the same manner that the Islanders keep river fish here, they keep sea fish in the sea itself, where they sometimes take advantage of the surrounding reefs. By building a coral-stone wall from the latter to the shore, they form convenient stews in the ocean (Spear quoting Baratt 1988: 208).

The arrival of the missionaries in 1820 had a profound influence on the historical events of Hawai‘i. Lowell Smith was the founder and first Pastor of the Kaumakapili Congregational Church. The original location of the church was on Beretania and Smith Streets in modern-day downtown Honolulu. The first services were held in 1837. The present church is located on King Street at Keone‘ula in the vicinity of Ka‘iulani School. The church was named after the favorite bird, Kamanuwai, of the demi god ‘Ai‘ai. The bird fed on bonito fish that were caught with a magic lure; when the bird was hungry, it closed its eyes; thus, the name Kaumakapili, literally meaning perched with closed eyes.

B.4.5 Loko I‘a

Loko i‘a, or fish ponds dotted the Honolulu shoreline. Whenever possible, fish ponds were incorporated into the traditional production system. The kalo lo‘i, taro patches, of Kapālama provided nutrient-rich fresh water needed to reduce salinity, producing an algae rich environment, which in turn, fed the fish species being raised in the near shore waters.

Table B-3. Loko I‘a Located in Kapālama

Fish pond Name, Location, and Acreage	Description
1. Makaakukahi, Kapālama Acres: No information Type: Loko Wai, an inland freshwater fish pond, which is usually either a natural lake or swamp that can contain ditches connected to a river, stream, or the sea and which can contain sluice gates.	Reported in literature, but no precise location known.
2. Nameless, Kapālama Acres: No information Type: Loko Pu‘uone, an isolated shore fish pond usually formed by the development of barrier beaches building a single, elongated sand ridge parallel to the coast and containing one or more ditches and sluice gates.	No visible remains, but location known.
3. Nameless, Kapālama Type: Loko I‘a Kalo An inland fish pond utilizing irrigated taro plots.	No information provided in report.

Sources: U.S. Fisheries Report (1903), DMH Planners, Inc. (1989) and Handy (1940).

B.4.6 Mahele of 1848

In 1848, under the legislation of the Māhele, individuals were given the opportunity to claim land they resided on and/or held in active cultivation. Land Commission Awards were issued to Quiet Land Titles, between 1846 to 1855, to persons who filed claims to lands between 1846 to 1848. These lands could then be sold freely on the market. Over 100 Land Commission Awards were recorded for Kalihi. Kapālama remained a desirable holding of Kamehameha I, and it remained within the family dynasty through his grandchildren. Moses Kekuaiwa was awarded Kapālama in 1848. Moses died young and his sister Kamamalu inherited the ahupua‘a. At her death, the land went to her father, Mataio Kekuanaoa, Governor of O‘ahu. Ruth Ke‘elikolani inherited it and willed it to Pauahi, the granddaughter of Kamehameha I (Ball, 3).

Kuleana awards were made pursuant to the 1850 Kuleana Act, in which native tenants were able to claim their small lots. There were roughly 100 kuleana awarded in Kapālama. The bulk of awards were houses and lo‘i located on the flood plain.

B.4.7 20th Century Kapālama

The Kamehameha Boys School was dedicated in 1886 and the Girls School in 1893. The Girls School was located at the vicinity of today’s Kamehameha Homes, which is across from Farrington High School. In the late 1920’s, a decision was made by the Trustees to move the Girls School to Kapālama Heights because residences and businesses were moving closer and closer to the schools that were located in Kalihi. The move was completed in 1931, at which time the Territory of Hawai‘i purchased the parcel.

The OR&L Honolulu station was built in 1889 by B. F. Dillingham on land granted by King Kalakaua. A second terminal was built in 1924-1925. The railroad ran out of Honolulu to Waianae, around Kaena Point, and on to Kahuku and was significant to the development of the sugar industry on O‘ahu. The railroad prospered and provided plantation workers with easy access to Honolulu until the 1930’s, when the advent of improved roadways led to its decline. OR&L operations ended in 1947 but the Honolulu station remained active until 1962, serving the docks, canneries, and Kalihi stockyards. With the abandonment of the railway, the OR&L depot served as a bus station for a number of years; more recently, it was rehabilitated and is now used by State government agencies.

In 1925, additional harbor expansion engineered by the Army Corps of Engineers specifically targeted the Kapālama area. If the Army Corps of Engineers extended the Reserve Channel, referring to the west side of the harbor, the territory would build additional facilities at Kapālama Basin. Such facilities, it was reported, would create a new industrial area near Kapālama, albeit, not necessary (Borthwick, 1997).

The former lo‘i kalo lands that had been converted to rice fields in the 1880’s were becoming housing and industrial subdivisions, a land use change facilitated by the construction of the Kapālama Canal. The Canal channelized the only two streams located in Kapālama and allowed for sub-street storm drain runoff (ibid., 18).

During the last half of the 20th century, Kapālama continued to experience changes due to the expansion of urban Honolulu. Increased housing, industrial, and commercial activities continued.

B.4.8 Historic Sites

Table B-4 lists the historic sites in the Kapālama ahupua‘a:

Table B-4. State and National Historic Sites in the Kapālama Ahupua‘a

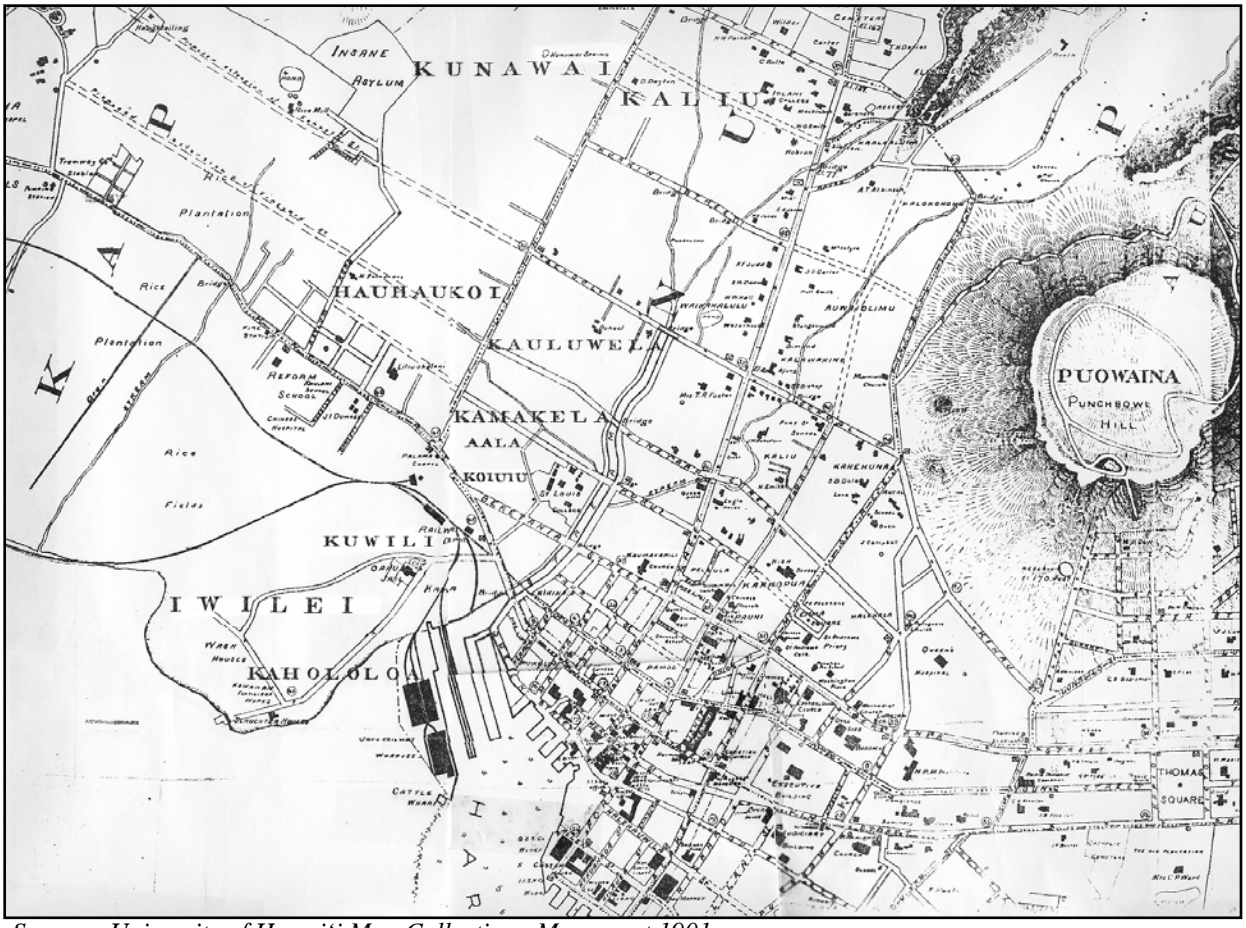
Site Name	Location	Date Added to Hawai‘i Register	Date Added to National Register
Pālama Fire Station	Kapālama	7/19/80	4/21/76 – 12/2/80
Tong Fat Company, Ltd.	Kapālama	-	1/11/80
OR&L Office & Station	Kapālama	8/17/87	2/12/79

B.5 NU‘UANU AHUPUA‘A

B.5.1 Place Name

The name Nu‘uanu refers to the chilling wind that blows over the pali from windward O‘ahu into the valley below; nu‘u, refers to height, and anu, means cool (Puku‘i, 1974).

Figure B-7. Lower Nu‘uanu Ahupua‘a, 1901.



Source: University of Hawai‘i Map Collection. Monsarrat 1901.

B.5.2. Nā Kaʻao A Me Nā Moʻolelo

Nuʻuanu is host to an extensive and significant array of indigenous Hawaiian legends and stories.

- **Papa and Wākea at Waolani**

  The first Hawaiians, Papa and Wākea, are associated with Waolani in Nuʻuanu. Kamakau provides their genealogy:

  > Wākea is born at Waolani in Nuʻuanu, Oʻahu. Kahikoluamea is the makuakane (male parent); Kūpūlanakehau the makuawahine (female parent). Papa was the wahine (wife) of Wākea. Her makuahine was Kahakauakoko and her makuakane was Kūkalaniʻehu. Papa gave birth to the islands and was called Papa nui hānau moku, Great Papa who gave birth to islands (Kamakau, Tales and Traditions, p. 129).

  Waolani (wao, upland region; lani, sky), a small valley above the present Oʻahu Country Club, was the site where Wākea and Haumea built the first heiau on Oʻahu.

  > At Waolani, in Nuʻuanu was where temples were first erected, because it was there that Wākea and companions lived. There were all the sacred division of the temples established, as is told by the people of old…(McAllister quoted in Sterling and Summers, p. 304).

The Hawaiian language newspaper "Ka Naʻi Aupuni" in a serialized story of Kamehaʻikana (1906) provides the following description of Waolani and its association with Wākea:

> O Wākea la ko Waolani
> O ku ka lepa la i Waolani
> O ka pae-humu la i Waolani
> O ka ilii i la i Waolani
> O ka anuu la i Waolani
> O ka mana la i Waolani
> O ka hale pahu la i Waolani
> O ka Moi la i Waolani

O ke kupala la i Waolani

Translation:
Wākea [progenitor of the Hawaiian race] was at Waolani
Kukalepe [carved idol] was at Waolani
The paehumu [surrounding image face] was at Waolani
The iliili [pebbled pavement] was at Waolani
The anuu [tall kapa covered structure] was at Waolani
The mana [prayer house] was at Waolani
The halepahu [drum house] was at Waolani
The moi [principal idol] was at Waolani
The kuapala [stand on which offering were placed] was at Waolani

Kamakau refers to the building of the first heiau houses for the gods.

> In Waolani, Wākea built the first heiau houses for the gods. These were Kupuanu‘u, Kupualani, Pāka‘alanalalo, and Pāka‘alanaluna. They were in the valley of Waolani. On the ridge that joins Waolani and Kapālama were two heiau, one overlooking the valley of Keanakamano and the other overlooking Nu‘uanu valley. These were the heiau where, it was said, most of the ‘e‘epa people lived and most of the people of wondrous fame who lived at Waolani (pp. 129-130).

- **Haumea as Kameha‘ikana**

The Hawaiian language newspaper, “Ka Na‘i Aupuni” published a serial of the story of Kameha’ikana and places significant events at Waikahulu near Puehuehu in Nu‘uanu:

> O keia ke mele a ka poe kahiko e hoike ana i ko Haumea noho ana i Kalihi a iho i kai nei lilo ai oia i ulu a kapaia kela kino ulu o Kamehaikana. E kakoo ana keia mele i ka mea i hoikeia ma ka moolelo e pili ana i ko Haumea iho ana mai uka mai o Kalihi a hoea i Waikahalulu ae nei, kahi ona ame Wākea, kana Kane i komo ai i loko o ka ulu a kapaia ai ka ulu o Kamehaikana, a oia hoi ke kino ulu o Haumea.

> Translation:
> This is the chant of the people of old showing Haumea living at Kalihi and going down to the sea and becomes the breadfruit and that ʻulu [breadfruit] body form is called Kamehaʻikana. What is shown in this story of Haumea's going down from the uplands of Kalihi and arrives at Waikahalulu, the place where her and her husband, Wākea, enter into the ulu tree and is called Kamehaʻikana, that is the bodily form of Haumea.

- **Kane and Kanaloa at Waolani**

Kane and Kanaloa, the gods of agriculture, fresh water, and land were said to have lived at Puʻiwa in Nuʻuanu with menehune.

- **Regarding Maikoha**

The chief god of kapa makers is associated with Puʻiwa at Nuʻuanu. Westervelt's version of this story is quoted in Sterling and Summers:

> At the foot of Nuuanu Valley is Pu-iwa, a place by the side of the Nuuanu stream. Here a father, Maikoha, told his daughters to bury his body, that from it might come the wauke-trees, from which kappa cloth has been pounded ever since (Sterling, p. 302).

- **Regarding Moʻoinanea**

Another legendary resident of Nuʻuanu was Moʻoinanea, the highest ranking of all moʻo (lizard people) who lived at Puʻunui.

> Moʻoinanea, led the migration of her people from Kahiki. They landed at Waialua on the North coast and swarmed overland to Nuʻuanu, which Moʻoinanea had chosen for her home, and there they spread throughout the islands. Moʻo were inveterate enemies of the Pele clan, and Pele's younger sister Hiʻiaka, had many desperate battles with moʻo in her travels through Oʻahu. Where ever there was a pool or natural pond there was a female moʻo who made it her home and guarded it jealously. There

were several mischievous mo‘o who dwelt near the Nu‘uanu pali, one of whom often assumed the form of Ku‘ilioloa, a mist-wrath in the form of a great dog that was feared by those who had to traverse the pali trail (Handy, Planters, p. 476).

B.5.3 ‘Ōlelo No‘eau

The poetic sayings about Nu‘uanu refer to the rain and wind common to the area.

1464 *Ka makani kā‘ili kapa o Nu‘uanu.*
The garment snatching wind of Nu‘uanu.

1468 *Ka makani kula‘i kanaka o Nu‘uanu.*
The wind of Nu‘uanu that pushes people over.

1601 *Ka ua pōpōkapa o Nu‘uanu.*
The tapa bundling rain of Nu‘uanu.
Refers to rain that makes people bundle their garments to prevent it from getting wet.

2299 *Na wāhine kia‘i alanui o Nu‘uanu.*
The women who guard the Nu‘uanu trail.
Hapu‘u and Kala‘ihauola were supernatural women whose stone forms guarded the Nu‘uanu trail near the gap. It was around Kala‘ihonua that the umbilical cords of babies were hidden to ensure their good health. When the new road over the Nu‘uanu Pali was made, these stones were destroyed.

1309 *Kāhiko o Nu‘uanu i ka ua Wa‘ahila.*
Adorned is Nu‘uanu by the Wa‘ahila rain.

B.5.4. Ahupua‘a Description

Nu‘uanu extends from the southern coast of O‘ahu inland to the crest of the Ko‘olau Range encompassing all of Nu‘uanu Valley[2]. The valley is one of the two great cuts on the leeward side of the Ko‘olau volcano carved by streams flowing from its summit. Lava ran down the valley from two cones, Makuku and an older cone on the opposite side. The upper reaches of the valley is marked by three formations, first, the Nu‘uanu pali, a sheer drop of 1,000 feet; second, to the east, the highest point of the valley known as Konahuanui (3,150 feet), and to the west, Lanihuli peak. The coastal area includes Iwilei and Honolulu Harbor. Flowing from the upper valley area towards the flood plain are the two major streams of the valley, Nu‘uanu and Waolani.

Handy made the following observations of Nu‘uanu and nearby ahupua‘a:

> In upper Nu‘uanu there were many small valleys that open to the main valley on either side of its stream. Traces of ancient terraces have been discovered in several valleys on the steep slopes above the streambeds, below the falls, and on small flat areas along the side of streams. Probably all of these small valleys were used for planting taro in the ancient times; Luakaha (stream) doubtless had many inland gardens, but there were no wet terraces that far up.
>
> In the Dowsett Tract below Nu‘uanu stream there were formally terraces. How far up is difficult to determine, but according to A.F. Judd there are traces of terraces on land now cultivated by a dairy.
>
> From Waolani to Kapālama the terraces were continuous on the level and gently sloping land between the Nu‘uanu and Waolani streams, past Wyllie and Judd Streets and throughout the section on the north side of the valley, down what is now Liliha Street. In many vacant lots, yards, and gardens above and below Judd Street traces of terraces may still be seen.

[2] The ahupua‘a of Honolulu, on the leeward side of the Ko‘olau mountain range, now includes Nu‘uanu Valley as well as Pacific Heights, Pauoa Valley, Tantalus and a portion of Waikīkī. The coastal width spans Kapālama Stream to the western edge of Mānoa Valley. This section will highlight Nu‘uanu Valley and its near shore areas.

> Hanaiakamalama (Queen Emma's place) and the area inland from Puiwa Road, which runs north and south off Nu'uanu Avenue, were formerly all in terraces, watered by ditches. Terraces were common from Mr. Wight's place on the seaward side of Dowsett tract, along the hillside and stream below Puiwa Lane and on the south side of Nu'uanu Stream as far as Laimi Road, and extended all the way down the valley from the stream.

B.5.5 Loko I'a

Kūwili and Kawa fish ponds were located at the shore areas of Nu'uanu. Between 1885 and 1890, rice fields began to replace taro plots along the banks of Kūwili fish pond. By the end of 1891, B.F. Dillingham and his two interrelated companies, the OR&L and Hawaiian Dredging Company, had filled in Kawa Pond and the reef area to form the OR&L wharves. Kūwili pond was intermittently filled with dredged materials from Nu'uanu Stream and Honolulu Harbor. By 1901, the pond was completely filled.

Table B-5. Loko I'a in Nu'uanu

Fish pond Name, Location, and Acreage	Description
1. Kawa, Nu'uanu Acres: No information Type: No information	No Information
2. Kūwili, Nu'uanu Acres: No information Type: Loko Pu'uone, an isolated shore fish pond usually formed by the development of barrier beaches building a single, elongated sand ridge parallel to the coast and containing one or more ditches and sluice gates.	No visible remains, but location known.

Sources: U.S. Fisheries Report, 1903; DMH Planners Inc., 1989; and Handy, 1940.

B.5.6 Historical Descriptions

The Battle of Nu'uanu in 1795 is perhaps the most momentous event to occur in Nu'uanu, when Kamehameha I drove O'ahu warriors up to the pali (cliff). Some accounts note that three hundred warriors were driven over the cliff while others say that the warriors jumped rather than surrendered.

The Russian explorer Kotzebue noted the state of cultivation of the valleys above the town of Honolulu in 1821:

> The cultivation of the valleys behind Hanarura is remarkable; artificial ponds support, even on the mountains, the taro plantations, which are at the same time fish ponds; and all kinds of useful plants are cultivated on the intervening dams (Klieger, p. 11).

Missionary Hiram Bingham described the Honolulu Plain from the top of Punchbowl in 1847:

> …having its fish ponds and salt-making pools along the sea shore, the village and fort between us and the harbor, and the valley stretching a few miles north into the interior, which presented its scattered habitations and numerous beds of kalo in its various stages of growth….Through this valley several streams descending from the mountains in the interior, wind their way some six or seven miles, watering and overflowing by means of numerous artifical canals, the bottoms of kalo patches, and then, by one mouth, fall into the peaceful harbor (Bingham, quoted in Ono, 1992).

There are various accounts of cultivation in Nu‘uanu under the direction of one or another ali‘i. Kamehameha I maintained extensive taro patches in lower Nu‘uanu, often cultivating them himself as an example to his people. The main center of cultivation was at Niolopa, which supplied a special variety of red taro (pi‘iali‘i) to the Royal Court (Klieger et. al., 1994). I‘i relates the following account of Kamehameha I:

> Kamehameha, with members of his high court, also gave much attention to farming, especially in Nu‘uanu, from Niolopa to Hapuu. He also farmed at Ualakaa in Manoa, in Waikiki and Kapālama.

Chief Boki, Governor of O‘ahu, continued Kamehameha’s farming activities after his death. In the 1820’s, Boki was also active in building roads throughout Nu‘uanu. According to I‘i, Chief Boki, had worked land in Nu‘uanu around the late 1820’s:

> Later Boki started a farming project in Nu‘uanu. It was a huge farm, extending from Laukaha to the gulch of Puwahanui (I‘i, p. 153)

In about 1850, Chief Paki, the father of Pauahi, had a great irrigation ditch built to carry water from about Luakaha to an area near the cemetery at the top of the first hill in Nu‘uanu Valley. Seven hundred men were employed in making this ‘auwai. Queen Emma had a plantation of

taro above her summer home in Nu‘uanu, Hānaiakamalama, in which the work was supervised by her father Paki.

- The Village of Kou

  What is now termed Honolulu was originally an area of flat land between the makai ends of Nu‘uanu and Pauoa valleys and the harbor. The lower district from Nu‘uanu Avenue to Alakea Street and from Hotel Street to the harbor sea was known as Kou. Kou was considered to be a major fishing village. The village itself seems to have extended westward from Pākākā Point (currently Aloha Tower, Pier 11), along Māmala Bay, to the fish ponds formerly located at the mouth of Nu‘uanu Stream and eastward to the current location of Alakea Street. The point served as a canoe landing.

  During the final days of rule by O‘ahu chiefs (during the seventeenth and eighteenth centuries), the village of Kou was the site of a major temple, Pākākā heiau[3], dedicated to Kūho‘one‘enu‘u. This heiau was probably used during the rule of the great O‘ahu Mō‘ī Kākuhihewa. Kamakau relates the following information about the heiau and its associated areas:

  > I had heard of the famous place of O‘ahu from Makuaka‘ūmana and came to see them for myself. Kou was the harbor, Māmala the entrance, Pākākā the heiau. Pūowaina was the place where men were burned, puhi kanaka; Hekili was the oven, imu pīka‘o, where chiefs captured in war were parched Honolulu was the ahupua‘a, a good and pleasant land that faced to the south. Most of it was fertile land with running water and springs that constantly irrigated the pond fields that surrounded the clusters of houses. The customary rain was the Kūkalahale and the Ki‘owao rain came down from the uplands, drenching the blossoming plants (Tales and Traditions, p. 6).

  The importance of Kou is best illustrated by the numerous heiau and vast trail network that bisect the area. A major trail led between the village of Kou through the low portion of the Nu‘uanu Pali pass onto the windward coast of O‘ahu. The presence of petroglyphs along this

[3] The term Pākākā means low and broad. Some speculate that the term Pā kākā, meaning courtyard for smiting is the spelling of the term.

trail is indicative of not only its heavy use but also the importance of the area to the rest of the island.

When Kamehameha established rule on O‘ahu in 1795, the royal court was moved from the traditional site of Waikīkī to Honolulu. The significance of western ships porting at Kou was enough to influence his building a residence at Pākākā. This area was noted for its gaming fields and a loku house for indoor games and stone konane boards, an ancient game similar to checkers. At the turn of the century, the harbor was well known and several hundred native huts were built along the muddy coast. Between the years 1809-1812, Kamehameha had a western style home built where Fort Street Mall is today. Pohukaina and Hali‘imaile (the old palace grounds and part of the State Library land) were the palace grounds for numerous chiefs.

As the population grew in Honolulu, the population of Nu‘uanu intensified and residences proceeded inland to the base of Punchbowl. Permanent houses were located along the banks of streams and in the middle and upper valley. Foreign trade continued to shift populations from Waikīkī to Kou.

B.5.7 Māhele of 1848 and Land Commission Awards

Under the legislation of the Māhele, individuals were given the opportunity of claiming land they resided on and/or held in active cultivation. These lands could then be sold freely on the market. Land initially awarded in Nu‘uanu were small segments within ‘ili, a subdivision of land withi an ahupua‘a, in part because Nu‘uanu was considered very valuable agriculturally and was therefore the seat of many royal landholdings. Eventually, large portions of Nu‘uanu Valley were purchased by the burgeoning missionary/merchant elite of Honolulu.

B.5.8 20th Century Nu‘uanu

By the end of the first decade of the 20th century, the character of Nu‘uanu changed drastically. Queen Street (along the waterfront) extended across Nu‘uanu Stream. Three substantial wharves extended south into the harbor from what had formerly been Kawa Pond. The harbors were all connected with railway infrastructure.

By 1911, two-story frame buildings along both King Street and Iwilei Road were housing a great range of business enterprises, such as stores, restaurants, a Japanese hotel, poi factory, wagon

maker, and harness maker. Ten years later, a large lumber company, Lee Lup and Company, had its main operation on the west side of Queen Street. The area continued as a railway and waterfront hub until the 1940's, when rail operations were shut down. Following ten years of debate, planning, and construction, in 1952, the new raised three-lane "mauka arterial"' of Nimitz Highway was opened for Diamond Head bound traffic. 'Ewa-bound traffic continued to use Iwilei Road and Queen Street for a few more years until the "mauka arterial" was completed.

In the mauka areas as well as the rest of the ahupua'a, rice and other more profitable crops began to replace taro cultivation. As land uses intensified, subsistence farming grew into cash cropping. These agricultural areas eventually gave way to housing developments.

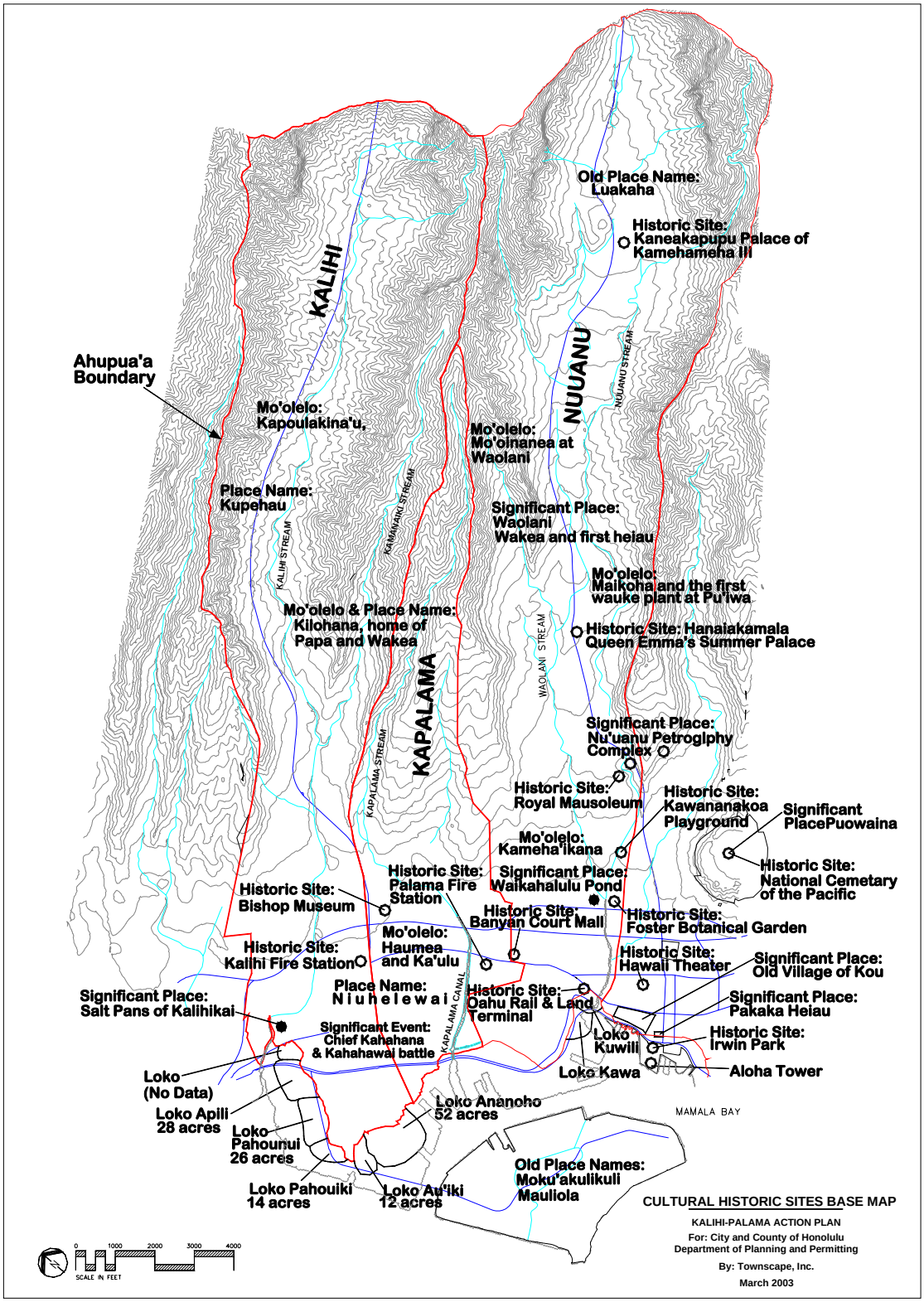
B.5.9 Historic Sites

The following table lists the historic sites in Nu'uanu ahupua'a:

Table B-6. Historic Sites of Nu'uanu

Site Name	Location	Date Added to Hawai'i Register	Date Added to National Register
Thos. Alexander Burningham Res.	Nu'uanu	9/30/88	10/13/93
Lihiwai (George Carter House)	Nu'uanu	9/29/80-11/26/86	7/26/82-6/5/87
Clarence Cooke Residence	Nu'uanu	9/14/85	8/20/86
Edgar & Lucy Henriques House	Nu'uanu	8/24/84	11/1/84
Kaniakapupu	Nu'uanu	6/13/86	10/15/86
Nu'uanu Petroglyph Complex	Nu'uanu	2/20/79	3/14/73
Punchbowl Cemetery Puowaina	Nu'uanu	-	1/11/76
Frederick Ohrt House	Nu'uanu	6/13/86	6/5/87
Queen Emma Summer Palace	Nu'uanu	8/11/78	8/7/72
Royal Mausoleum	Nu'uanu	1/29/81	8/7/72
James L. Coke Residence	Nu'uanu	11/12/85	8/20/86
Kawananakoa Playground	Nu'uanu	6/9/88	-
Georges de S. Canavarro House	Nu'uanu	1/7/80	5/28/80
Ewant Residence	Nu'uanu	5/20/95	-
Ripley Homestead	Nu'uanu	6/1/96	-
H. Alexander Walker Residence	Nu'uanu	7/30/82	4/24/82

Figure B-8. Cultural Historic Sites Base Map



B.6 CULTURAL PRACTICES ASSESSMENT

The purpose of this section is to begin to identify the various cultural practices that occur within the project area. The information provided here was presented in the "Primary Corridor Transportation Project Draft Cultural Practices Assessment Project Report" (2001) [herein referred to as Corridor Report]. Future studies may be needed to assess the cultural practices of the entire study area. The Corridor Report produced an inventory of cultural practices in an effort to assess the potential impacts of the bus rapid transit system on the identified traditional cultural practices. For the purposes of the Kalihi-Pālama Action Plan, a listing of cultural practices that were identified within the Corridor Report is presented here. Given the scope of the Kalihi-Pālama project area, this listing should not be considered exhaustive. The following cultural practices categories were inventoried as a result of the study (those practices that occur in the Kalihi-Pālama project area are indicated with an X mark; see Table B-7):

Table B-7. Cultural Practices Categories

Grouping	Category
X FOOD	X Ethnic food stores
	Ethnic food factories
	Ethnic produce gardens
	X Fishing and limu gathering
X DANCE	Ethnic dance studios and schools
	X Ethnic dance performances
X PHYSICAL PRACTICES AND HEALTH ARTS	X Ethnic martial arts studios and exhibitions
	Canoe paddling
	Canoe clubs
	Surfing areas
	X Acupuncture, shiatsu etc.
	Traditional games
ARTS, CRAFTS, AND MUSEUMS	Historical museums
	Art museums
	Craft exhibitions
	Arts and crafts workshops and studios
X FLORA	Ethnic floral gardens
	Lei-making areas and shops
	X Flora gathering areas and resources
THEATRE	Theatre
X RELIGIOUS PRACTICES	X Churches and other places of worship
	Shrines
	X Religious ceremonies
	Memorials and memorial markers
	X Cemeteries
	Na Iwi Kupuna
	Pilgrimages
X CULTURAL ORGANIZATIONS	X Ethnic cultural organizations, societies, and centers
	Language schools
MUSIC	Musical instrument factories
X FESTIVALS AND CEREMONIES	X Festivals that celebrate cultural practices
	Cultural parades
	Historical commemorations activities
MISCELLANEOUS	Ethnic book stores

The panel of experts defined cultural practice as:

(1) A traditional cultural practice that is being conducted in an urban setting; and

(2) Traditions, beliefs, practices, lifeways, and societal history of a community and its traditions, arts, crafts, music, and related social institutions (Corridor Report, p. 3).

B.6.1 Food

Foods represent a major cultural practice category and this section includes food specific to a cultural group, including the manufacturing and gathering of food.

Table B-8. Ethnic Food Stores

Name	Location	Description
Capital Market	2109 North School Street	Filipino market
Elena's Filipino Food	2153 North King Street	Ethnic (Filipino) gathering place
Jimmy's Produce & Filipino Store	131 North King Street	Filipino market
Marukai	2310 Kamehameha Highway	Ethnic market
P&P	2229 North School Street	Ethnic market
Pag Asa Foods	1825 Dillingham Boulevard	Filipino Market
Pālama Supermarket	1210 Dillingham Boulevard	Korean Market
Pastele Shop	2101 North School Street	Filipino Market
Pinoy Market (Filipino)	North King Street and Akepo Lane	Filipino food store
Sunny Mart	2215 North School Street	Samoan/Tongan market
Tamashiro Market	802 North King Street	Ethnic market
Yamasin Market	Vineyard Boulevard	Asian market

Table B-9. Fishing

Name	Description
Kapālama Canal	Pole Fishing

B.6.2 Dance

Information below lists dance practices and performances. Informants believe these dance practices and performances are understated. What is captured are dance performances that are part of festivals, parades, and celebrations.

Table B-10. Dance Practices and Performances

Name	Location	Description
Hula Supply Warehouse	Hikina Lane	Hula supply manufacturer
Queen Lili‘uokalani Keiki Hula Competition--Since 1976, Honolulu's Kalihi-Pālama Culture and Arts Society has staged the Queen Lili‘uokalani Keiki Hula Competition	Neal Blaisdell Center	Hula competition
Halla Huhm	1520 B King Street	Korean dance studio

B.6.3 Physical Practices and Health Arts

This category includes a listing of physical practices and health arts.

Table B-11. Ethnic Martial Arts Studios and Performances

Name	Location	Description
Lung Kong Physical Cultural Club	1432 Liliha Street	Martial arts groups

Table B-12. Acupuncture, Shiatsu, Lomilomi, and Other Healing Practices

Name	Location	Description
Toyo Shiatsu	1613 Colburn Street	Shiatsu massage

B.6.4 Arts, Crafts, and Museums

The following table lists historical museums, arts, craft workshops, and studios. It does not include the numerous private and unlisted areas that are used by artisans and crafts people.

Table. B-13. Historical Museums, Arts, Craft Workshops, and Studios

Name	Location	Description
Dole Cannery	680 Iwilei Road	Museum & cannery artifacts
Bishop Museum	1525 Bernice Street	Museum and artifacts
Classic Koa Factory	Unnamed street off of Alakawa Street	Koa furniture factory

B.6.5 Flora

Community members gather a variety of flowers, foliage, and other plant materials for lei making, sharing, ceremonies, and cultural activities. Gathering activities occur on private and public places. The most popularly gathered flora are:

- Ti
- Laua'e Fern
- Cultivated flowers, e.g., plumeria, orchids, ginger, heliconia, puakenikeni, etc.
- Hala fruit for lei making
- Kauna'oa found around roads and freeways
- Wiliwili and false wiliwili seeds

B.6.6 Religious Practices

In an effort to be inclusive as possible without political debate, this list includes all places of worship, religious ceremonies occurring within the study area, memorials, memorial markers, statues, and cemeteries.

Na Iwi Kupuna - Hawaiian ancestral remains – are found throughout the Hawaiian islands. Excavation beneath urban streets may potentially unearth human remains. There are statutory and regulatory procedures, in addition to culturally appropriate practices, that must be followed upon their discovery. These practices will be specific by area and to the wishes of descendents and native practitioners.

Table. B-14. Religious Practices

Name	Location	Description
All People's Mission Church	Waipa Lane	Church
*City Memorial Cemetery[4]	164 Judd Street	Cemetery
Hawaii First Assembly of God Church	Vineyard Boulevard and Pālama Street	Church
Hawaii First Samoan Assembly of God	1420 Pālama Street	Church
Higashi Hongwanji Betsuin	1685 Alaneo Street	Church
*Hauohenemona	Kamehameha IV Road	Church
*Honolulu Memorial Park	22 Craigside Place	Cemetery
Jikoen Temple	1731 North School Street	Church
Kalapu Taulanga Matai Tofe Tonga	North King Street	Church
*Kalaepohaku Cemetery (aka Puukamalii Cemetery)	1821 Kamalii Street	Cemetery
Kalihi Union Church	2214 North King Street	Church
*Kalihi Uka	1614 Monte Street	Church/Cemetery
*Kauilani Portuguese Cemetery	Kamanaiki and Violet Streets	Cemetery
Kaumakapili Church	766 North King Street	Church
Koboji Shingon Mission	1223 B. North School Street	Church
Korean Baptist Church	Waipa Lane	Church
Kotohira Jinsha, Daizaifu Tenmangu	1239 Olomea Street	Church
*Maemae Chapel Cemetery	401 Wyllie Street	Cemetery
*Maluhia Cemetery (aka Puea Cemetery)	1440 N. School Street	Cemetery
*Mauna Ala	2261 Nu‘uanu Avenue	Cemetery
*Nu‘uanu Memorial Park	2233 Nu‘uanu Avenue	Cemetery
*O‘ahu Cemetery	2163 Nu‘uanu Avenue	Cemetery
*Our Lady on the Mount Cemetery	1559 Monte Street	Cemetery
Samoa Tokailau Seventh Day Adventist Church	Banyan Street	Church
St. Elizabeth's Episcopal Church	North King Street	Church
*St. John's Catholic Church Cemetery	2324 Omilo Lane	Church/Cemetery
Tensho Kotai Jingu Kyo Hawaii Dojo	888 North King Street	Church
Brotherhood of the Holy Ghost of Pentecost Feast	Kaumualii Street	Religious Ceremony
Flores de Mayo Celebration	Kalihi Street	Religious Procession
Higashi Hongwanji Betsuin	1685 Alaneo Street	Bon dance
Jikoen Hongwanji	1731 North School Street	Bon dance
Koboji Shingon Mission	1223 B North School Street	Bon dance

[4] *Denotes additional information provided by authors and is not included in the Corridor Report 2001.

B.6.7 Cultural Organizations

Ethnic cultural organizations, societies, and centers are presented in this list.

Table B-15. Ethnic Cultural Organizations, Societies, and Centers

Name	Location	Description
Buck Toy Club	956 Vineyard Boulevard	Chinese social gathering hall
Jesse's Coffee Shop	1101 North King Street	Ethnic (Filipino) gathering place
Leong's Café	2343 North King Street	Ethnic (Hawaiian) gathering place
Lung Kong Kung Shaw	1432 Liliha Street	Chinese cultural society/organization
On Tong Society	Vineyard Boulevard	Chinese social gathering hall

B.7 SUMMARY

Kalo at Kunawai Pond.

Traditionally, Kalihi, Kapālama, and Nu'uanu ahupua'a all shared rich environments that contributed to the broader-based agricultural functions of the Kona district of O'ahu. Abundant rain, perennial streams, lush interior valleys, and well-watered low lands supported extensive agricultural practices of the district. In turn, productive wet land taro cultivation provided nutrient-rich waters that flowed through complex 'auwai, or ditch systems, which eventually fed numerous fish ponds that lined the coastal areas of all three ahupua'a. The Kalihi fish ponds managed to survive into the early 20th century.

This prosperous environment was also host to a rich and diverse indigenous folklore. Many Native Hawaiian chants and stories survive until today despite the destruction of a large amount of man-made remnants of the host culture. With the appearance of sugar cane and pineapple production, new comers to the island influenced the ethnic diversity of the area and those distinctions are recognized until today in Kalihi-Pālama via religious institutions, eateries, and ethnic specialty shops. These "historic buildings" that house these establishments, although not

on the State or National register of historic places, play an important role in the evolution of the area.

While all three ahupua‘a maintained intricate trail systems that connected island populations between Kona and ‘Ewa, Kalihi and Nu‘uanu served the very important function of providing access through the lower passes of the Ko‘olau Mountain. Albeit in a modified form, the project area is still host to the island’s major crossroads, the Likelike and Pali Highways.

Several modest Native Hawaiian villages were located along the coastal areas, Kou being the most noted among them. With the advent of foreign ships to Honolulu Harbor, tremendous change occurred in a relatively short period of time. Economic, social, and political factors, such as population increase, growing dependence on shipping and land transport, the appearance of sugar and pineapple production, and an ever-growing economy have all left their imprint on the Kalihi-Pālama area.

B.8 PLANNING IMPLICATIONS

- **The Kona District on O‘ahu was Known for Lo‘i Kalo and Fish Ponds**

  The archaeological record, historic narratives, and maps document numerous taro fields and fish ponds.

  Efforts to continue lo‘i production in the urban environment, such as the Lo‘i Kalo Park, should be encouraged and supported as the activity reclaims the area’s natural resources in an urban environmental setting and provides cultural and educational benefits to the families of Kalihi-Pālama.

- **The natural and cultural environments of Kalihi, Kapālama, and Nu‘uanu ahupua‘a were set apart from other ahupua‘a**

  Cool trade winds blew over the Ko‘olau Mountain Range. There were abundant rain, perennial streams, springs, lush interior valleys, and well-watered low lands

Upper Kalihi Stream.

and harbor areas. Within these ahupua‘a were critical trail networks that linked localities between east to west, and north to south. Rapid urbanization associated primarily with harbor activities either destroyed or severely altered the natural environment. The task still remains, however, to care for the island environment.

Community-based efforts are underway to clean Kalihi Stream. Efforts such as these should be supported and expanded to include the reintroduction of native biota where appropriate in Kalihi Stream, Nu‘uanu Stream, Kapālama Canal, and their associated mauka areas.

- **Kalihi, Kapālama, and Nu‘uanu ahupua‘a were the setting of significant legends**

The legendary ancestors of the Hawaiian people, Papa and Wākea, lived at Kilohana in Kalihi and built the first heiau at Waolani in Nu‘uanu. The Pele family maintained a presence at Kalihi. The famous ‘awa drinkers Kane and Kanaloa held session at Kalihi. Haumea did great battle with Kaulu in Kapālama at Niuhelewai. The art of kapa making originated at Pūiwa in Nu‘uanu. While most of the built formations of the indigenous culture have been destroyed, the songs, chants and legends of Hawai‘i’s indigenous people still remain intact and can foster appreciation among the families who now reside in the Kalihi-Pālama area.

Significant legends, songs, and chants can still be related to place names in the ahupua‘a today. The planned Kalihi-Pālama museum and tours should incorporate these major stories, and the actors and their extraordinary events, to locations during tours.

- **The archaeological and historical record of the project is largely incomplete**

Very limited archaeological and literary record of the project area exists. Yet Kalihi-Pālama is home to the Bishop Museum, the Historic Hawaii Foundation, and the Kalihi-Pālama Culture and Arts Society. A comprehensive literature survey and focused mauka and makai archaeological examination of the Kalihi-Pālama area sponsored by the Bishop Museum could potentially fill the information gaps that currently exist.

  - Expand literature research and archaeological investigations
  - Significant findings could then be translated into educational curriculum for schools through Kamehameha Schools and DOE partnerships

- **Kalihi-Pālama is a culturally rich and diverse area**

  Hawai‘i’s tourism industry has reached a level of maturity to the degree that a diverse menu of attractions is the key to the industry’s survival in the 21st century. One element of the diversification of the tourism industry includes the development of signature events and festivals that can contribute to a healthier visitor industry.

  The Kalihi-Pālama area, with its diverse ethnic make-up and central location, can host festivals that celebrate Hawai‘i’s island heritage by highlighting the unique contribution that the Kalihi-Pālama area has made to the island’s cultural and historical development.

- **Establish the Kalihi-Pālama Multi-Cultural Heritage Corridor**

  The Kalihi-Pālama vision called for the protection, maintenance, and creative utilization of the historical and archaeological sites in the area for the enjoyment of community residents, visitors, and future generations.

  The Kalihi-Pālama Multi-Cultural Heritage Corridor could be designated along King Street and incorporate walking or trolley tours to the significant places in the area.

Artists rendering of revitalized King Street.

- **Kalihi-Pālama is host to distinctive historic buildings**

  The unique position of Kalihi-Pālama relative to the area’s historic development is best exemplified in the various historic buildings located in the area, including those on the National and State register, such as the OR&L Terminal, Pālama Theater, Pālama Settlement, and Kaumakapili Church. These distinctive buildings serve as reminders to island residents of the multi-faceted history and key role that Kalihi, Kapālama, and Nu‘uanu played in the past, and will continue to serve in the future.

- A local Kalihi-Pālama historic sites register should identify the most important and significant historic buildings that the community deems worthy of preservation and/or rehabilitation activities.
- The "Town Within A Town" plan should be utilized as a schematic for the restoration of select historic buildings.
- A preservation plan should be outlined for the Kalihi-Pālama area. The Kalihi-Pālama Preservation Plan would propose key aspects to the preservation of the tangible and intangible cultural and historical resources of the Kalihi-Pālama area. At a minimum, the plan should discuss preservation organization, neighborhood concepts, and financing.
- The State Historic Preservation Division should be afforded the opportunity to review any future actions involving ground disturbance and building preservation provided by law.

- **Cultural practices should be integrated into the planning process for Kalihi-Pālama**

  Traditional cultural properties and the beliefs and institutions that give them significance should be systematically addressed in programs of preservation planning and within the historic preservation components of land use plans. Access to the resources central to traditional cultural practices should be respected, maintained, and enhanced when and where deemed appropriate. Significant cultural properties should be nominated to the National and State Historic Register.

APPENDIX C

LAND USE PATTERN

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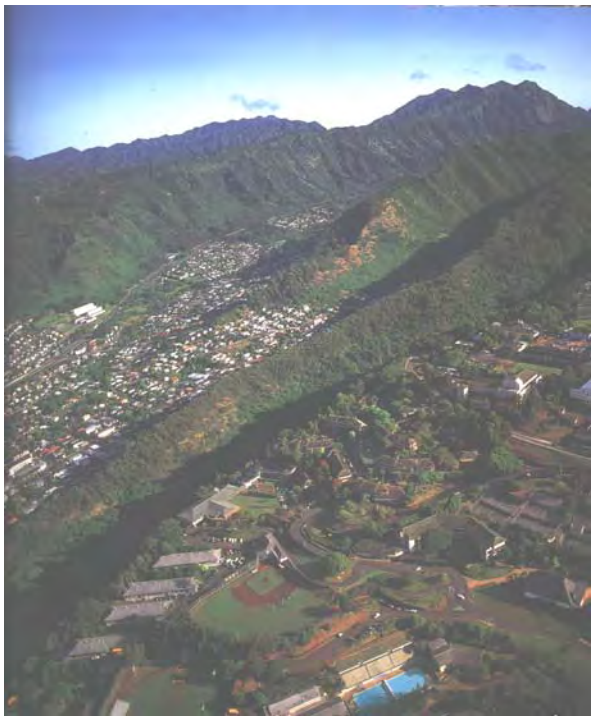
APPENDIX C
LAND USE PATTERN

This section reviews the land use patterns of the Kalihi-Pālama area. Included in this description are the existing land uses, land use classifications, and zoning. A discussion of land ownership is also included. Lastly, particular detail is paid to the draft "PUC 2002" since it will shape the growth and development of the Primary Urban Center for the coming 20 years.

C.1 EXISTING LAND USE

The Kalihi-Pālama project area is a large and diverse mix of residential, business, and industrial properties. The bulk of residential areas is located in the valley and ridge areas and is comprised of stable, typically low-density, residential neighborhoods. The areas makai of the H-1 Freeway are predominantly higher density residential, commercial, and industrial areas. Public facilities and institutions are also located south of H-1.



Kalihi/Nihi Valley and Ko'olau Mountains.

C.1.1 State Land Use Classification

The State Land Use Commission, pursuant to Chapters 205 and 205A, Hawaii Revised Statutes (HRS) and Chapter 15-15, Hawaii Administrative Rules, classifies all land in the State into one of four land use districts: Urban, Rural, Agriculture, and Conservation. The project area falls within the Urban and Conservation districts. Activities, uses, and development in the Urban district are regulated by County governments.

Table C-1. State Land Use Designation

State Land Use Designation	Acreage
Urban	4,466
Conservation	3,619
Total	8,085

Source: City and County of Honolulu, GIS Data, 2002.

C.1.2 City and County of Honolulu

The City and County of Honolulu (City) Land Use Ordinance (LUO) details the regulations of urban land uses. The Kalihi-Pālama project area serves a range of zoning districts, including Residential, Apartment, Business, Industrial, Military/Federal, and Preservation.

Table C-2. Land Use Ordinance

Zoning	Acreage
Residential	2,126
Industrial	1,424
Preservation (P-1)	435
Apartment	244
Business	191
Military and Federal	46
TOTAL	4,466

Source: City and County of Honolulu, GIS Data, 2002.

C.2 LAND OWNERSHIP AND ZONING

The analysis of land ownership in the Kalihi-Pālama project area indicates that there are approximately six major land owners who together own approximately 5,000 acres, or 62% of the project area: the United States of America (46 acres), the State of Hawai‘i (2,500 acres), City and County of Honolulu (1,567), Damon Estate (61 acres), Bishop Estate (726 acres), State Housing and Community Development Corporation of Hawai‘i (63 acres), and Castle and Cooke Properties, Inc. (30 acres).

The remaining acreage is comprised primarily of individually owned parcels. The Residential areas allow a range of Residential densities. Kalihi-Pālama Residential parcels range from 3,500 sq. ft. to 10,000 sq. ft. and are located throughout the project area, excluding the Conservation district. The larger, 10,000 sq. ft. Residential parcels are located mainly in the upper Kalihi Valley areas. It should be noted that Residential parcels are located within the Industrial Mixed-Use (IMX-1) areas of Kalihi Kai and Iwilei and within the Business Mixed-Use (BMX-3) areas along King Street.

The Apartment district allows for a variety of living environments via a range of Apartment densities. The Kalihi-Pālama project area contains A-1, Low Density, and A-2, Medium Density, Apartment districts. The areas zoned Apartment are located mostly in Liliha and Iwilei and are individually owned parcels.

With the exception of the Castle and Cooke, Damon, and Bishop Estates properties, the Industrial-zoned lands contain individually owned parcels. The project area contains an I-2, Intensive Industrial area that services the full range of industrial uses necessary to support the city. The Industrial Waterfront, I-3 designation, protects and sets apart the areas vital to the performance of port functions. The purpose of the IMX-1, Industrial-Commercial Mixed-Use, district provides diversified business and employment opportunities by permitting a broad range of light industrial and commercial uses.

There are three Business-zoned districts, B-1, Neighborhood Business; B-2, Community Business; and BMX-3, Community Business Mixed-Use, which provide a range of retail and business needs within and surrounding the Kalihi-Pālama area. Business-zoned properties are located along King, Liliha, and School Streets, with a few neighborhood-type businesses in Kapālama, Liliha, and upper Kalihi Valley. These are, for the most part, individually owned parcels. Lastly, the Military and Federal, F-1 district, identifies areas in Military or Federal government use.

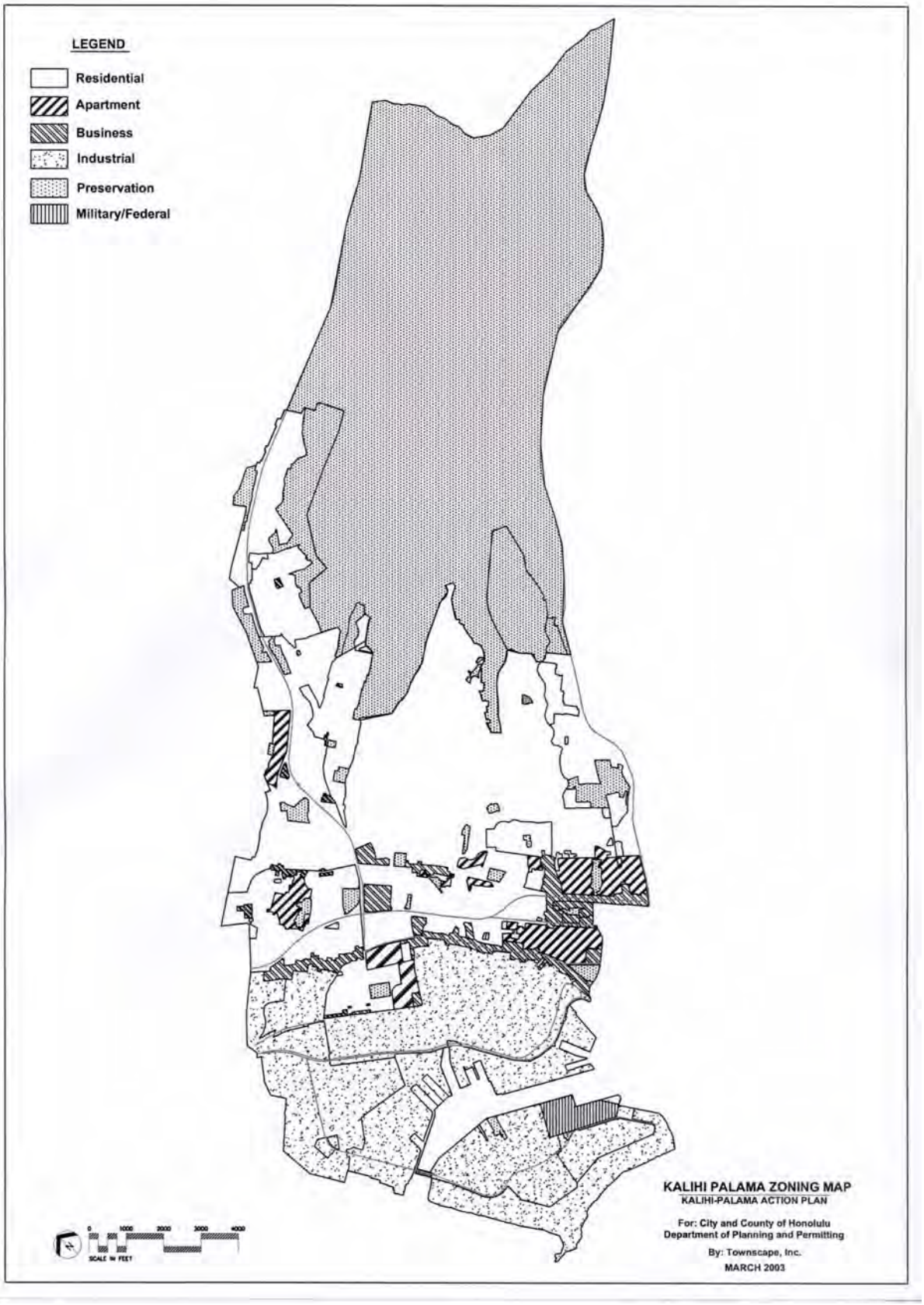


Figure C-1. Kalihi-Pālama Zoning Map

C.3 PROPOSED LAND USES BASED ON DRAFT PUC 2002

Since 1985, City Development Plans (DP), a mandate of the City Charter, have been adopted by ordinance for eight geographic regions of the island. The Kalihi-Pālama project area is located in the Primary Urban Center (PUC) Central, which extends from Māpunapuna in the west, to McCully/Mō'ili'ili in the east, and Honolulu Harbor to the south.

The DP will shape the growth and development over the next 20 years in the PUC. Most of the projected residential and employment growth will be directed to the PUC and 'Ewa (the Second Urban Center). Although, proportionately, 'Ewa will have the greatest amount of growth, the PUC is expected to gain both residents and jobs. The planning goal for the PUC is to enhance its livability while accommodating a moderate amount of growth.

The PUC Development Plan is currently going through a revision process. Based on the draft, dated May 2002, the Kalihi-Pālama Action Plan is relevant to the following DP policies below:

C.3.1 Protecting and Enhancing Natural, Cultural, and Scenic Resources

This element of the DP addresses the natural and cultural settings of the PUC, the need for open space, and the natural areas located in the PUC.

- **Preserve historic and cultural sites**
  The Kalihi-Pālama Vision and Plan support this policy by proposing the preservation of important community sites, by utilizing the "Town Within a Town Plan" for rehabilitation and revitalization, and by establishing a Kalihi-Pālama Multi-Cultural Heritage Corridor and community museum.

Historic Palama Theater.

- **Provide park and active recreation areas**
  There is a need for more parks and associated facilities in the Kalihi-Pālama area. Research indicates that between 150 to 250 acres of additional park space is needed. Moreover, among the recreational facilities that do exist, some are in poor condition and do not meet current

City standards. The DP recognizes the difficulty of acquiring additional park land in the PUC and proposes public and private partnerships for the joint use of facilities and recreational programs; optimizing park dedication through private sector contributions; and reassessing and reassigning, when needed, use of existing park land.

The Kalihi-Pālama Plan further suggests establishing a community development corporation that acquires land for park development. The O‘ahu Community Correctional Center (OCCC) site is expected to be available for alternative uses and could potentially fill some of the additional park space needs of the area.

- **Develop stream green belts**
  The Kalihi-Pālama community supports the development of stream greenways along the public portions of Kalihi, Kapālama, and Nu‘uanu Streams.

C.3.2 Cultivating Livable Neighborhoods

This DP element addresses the general land use policy for residential neighborhoods and the commercial districts that serve them. The DP acknowledges the over-development of single-family house lots in the mauka residential areas and the planning and design of residential streets that over-emphasizes the rapid movements of traffic. Additionally, research shows that streets in the Kalihi-Pālama area have a “various” jurisdiction, which results in roads at varying levels of maintenance and, therefore, quality. The commercial landscape in Hawai‘i has changed dramatically with the advent of supermarkets, shopping centers, and “big-box” retailers that have displaced smaller neighborhood stores. The Kalihi-Pālama community character is partly defined by the presence of numerous “mom and pop” shops.

- **Develop a system for collaborative neighborhood planning**
  The Kalihi-Pālama Action Plan directly addresses this recommendation.

- **Cultivate existing and new “neighborhood centers”**
  The DP finds that neighborhoods need central places for people to gather for various activities.

  The Kalihi-Pālama community is proposing a Multi-Cultural Heritage Corridor along King Street, a community-based redevelopment at OCCC, and a College Town type of development around Honolulu Community College in order to showcase the aesthetic

quality, intellectual vigor, as well as the products and culture of Kalihi-Pālama. In this way, there are places for people to gather, opportunities for economic return, and appropriately scaled development that should not threaten smaller businesses.

- **Mauka Residential Neighborhoods**
  Mauka residential neighborhoods refer to Residential areas with single-family residences and townhouse neighborhoods that are mostly located in the valley and ridge areas. The DP states that Lower Density Residential areas may have single-family residences and townhouse apartments at a density of five to twelve dwelling units per acre, with predominantly two-story building heights. Areas designated Apartment may have higher densities.

Residential neighborhood.

  - The Kalihi-Pālama single-family Residential area should remain Low Density with the current standard of 25 to 30-foot height standards.
  - The reference to areas with apartments that may have higher density is too vague to understand where and how a higher density apartment may affect the Kalihi-Pālama community.

- **In-Town Residential Neighborhoods**
  In-town residential neighborhoods refers to areas on the centrally located coastal plains of Honolulu that are planned for higher-density residential uses, which range from older two- to four-story walk-up buildings to 40-story high rise towers.

  - **Density**
    The DP recommends Medium to High-Density Apartment Mixed Use for areas close to transit lines and the major east-west arterials. Density may range up to 90 units per acre and 140 units per acre respectively. Kalihi-Pālama areas impacted would be Kalihi-Pālama between H-1 Freeway and Dillingham Boulevard and the coastal plain areas of central Honolulu, including Liliha.

The area designated R-5 along Kalihi Street, Dillingham Boulevard, and Pu‘uhale Road should remain in Residential zoning (R-5) because the parcel lots are too small to accommodate high-density development and are comprised of individual owners.

- **Building Heights**
  The DP recommends for Low Density Apartment, four stories or 40 feet; Medium Density should be 60 feet or the present height of the building.

  The area designated R-5 along Kalihi Street, Dillingham Boulevard, and Pu‘uhale Road should remain in residential zoning (R-5) due to the presence of small parcel lots that are individually owned. Therefore, buildings should remain at the current height.

C.3.3 In-Town Housing Choices

This element of the DP addresses the need for affordable housing in the PUC to serve families with young children, as well as young adults, elderly residents, and multi-generational households. The PUC is built-out and new housing is developed on lands that are either under utilized or where it is not economically feasible to maintain the existing uses or structures. This occurs in older, in-town areas with high land value and strong market demand for higher uses. The PUC has a high proportion of low- and moderate-income households and walk-up apartments that are important sources of affordable, in-town housing units.

- **Support the retention, rehabilitation and improvement of older, low-rent apartment buildings**
  The DP suggests relaxing zoning requirements to encourage the rehabilitation and improvement of these buildings.
  - This policy is supported since these types of older, walk-up apartments are affordable.
  - This policy could make it possible for a Community Development Corporation to succeed with a revitalization plan.

- **Provide incentives and cost savings for affordable housing**
  This policy is supported since it would allow a Community Development Corporation to proceed with a redevelopment plan.

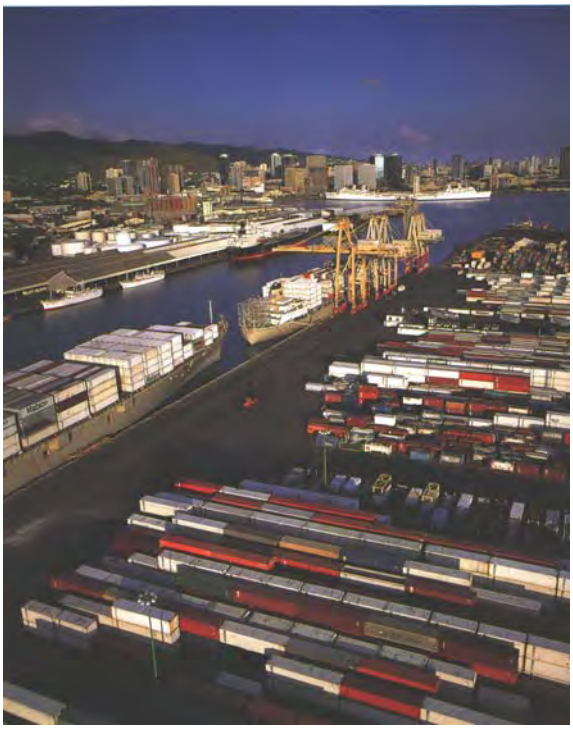
- **Improve the feasibility of redeveloping small lots**
  This policy is supported provided that a measure of affordability is set.

C.3.4 The Pacific's Leading City

This section of the DP addresses the importance of the PUC to the economy of O'ahu, and the state as a whole, and sets policy relating to the central Business and Industrial areas of the PUC.

- **Redevelop the Downtown/Iwilei Waterfront**
  This redevelopment involves rerouting through-traffic to a new Sand Island Parkway and harbor tunnel thoroughfare and replacing the makai portion of Nimitz Highway with a new shoreline pedestrian promenade and mixed-use commercial/recreational/residential complex. For other projects planned in the Downtown/Iwilei waterfront by the State Harbors Division, please see Appendix G.

    - Successful downsizing of Nimitz Highway is contingent upon the Sand Island Parkway construction.
    - Reducing the number of lanes on Nimitz Highway, coupled with the lane reductions planned for Dillingham Boulevard due to the proposed BRT, will redirect traffic through Sand Island or other surface roads. In the event of a closure of the Sand Island tunnel, traffic will be rerouted back to surface roads.
    - The new bypass on Sand Island will be used for commuters destined for Waikiki.



Honolulu waterfront.

- **Stimulate development of high technology and knowledge-based industries**
    - The Kalihi-Pālama area has several advantages in knowledge-based industries; industrial space, low rents, and Honolulu Community College, which serve to facilitate the assembly of "high-tech clusters."
    - The area surrounding Honolulu Community College (HCC), i.e., Dillingham Boulevard and King Street, presents opportunities for a College Town type of

development and should be zoned BMX-3. Thus, dormitories and supportive commercial developments for HCC would be allowed without displacement of industrial services.

C.3.5 Develop a Balanced Transportation System

This element of the DP discusses a balanced transportation system that reduces reliance on cars and improves alternate modes connecting neighborhoods and activity centers.

- **Improve the public transit system, including development of a rapid transit component**
  While a balanced transportation system is a supported goal, it is equally important to consider the impact that the BRT may have on the numerous businesses located along Dillingham Boulevard.

H-1 Freeway through Kalihi.

- **Implement the Honolulu Bicycle Master Plan**
  The Kalihi-Pālama community supports bike paths through their community.

- **Enhance and improve pedestrian mobility**
  There is high pedestrian traffic within the Kalihi-Pālama area and not all roadways are safe. The DP suggests pedestrian districts and corridors and a regional network of pedestrian facilities. The Kalihi-Pālama area should be considered a candidate for these types of treatments.

C.3.6 Infrastructure and Public Facilities

This section addresses the support systems that are vital to all PUC communities. Research indicates that the majority of the infrastructure for water, wastewater, and storm water is old and in need of repair or replacement.

Agencies should coordinate the planning and construction of infrastructure improvements so that services are available when needed and construction impacts to neighborhoods are minimized.

C.4 SUMMARY AND PLANNING IMPLICATIONS

- The Kalihi-Pālama Action Plan proposes to improve the quality of existing housing stock located in the IMX/IND and BMX areas and create safe streets for existing residents.

- Acquire vacant lots for additional park space.

- Establish a Community Development Corporation to accomplish the planning objectives set forth in this document, especially those related to housing, and acquiring vacant lands for park space.

- Maintain a business climate that supports the "mom and pop" shops located in the project area.

- Focus on opportunities for partnerships between public and private sectors, especially with large land owners such as Kamehameha Schools.

- Zoning change may be needed for the College Town to accommodate retail commercial, office commercial, and housing for students and teachers. Once a master plan is prepared for the area, recommendations on zoning designations should be included.

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APPENDIX D

SOCIAL AND DEMOGRAPHIC CHARACTERISTICS

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APPENDIX D
SOCIAL AND DEMOGRAPHIC CHARACTERISTICS

In order to gain an understanding of the social dynamics of the Kalihi-Pālama area, a number of interviews were conducted with individuals, community leaders, and community organizations. These interviews, along with the Community's Vision Statement and Values that were outlined as part of the initial visioning effort, provided an understanding of the social characteristics of the area. Demographic information from the 1980, 1990, and 2000 U.S. Census data was also used to see what changes have taken place over the last several decades. However, detailed demographic information from the 2000 Census was not available. Therefore, the City Neighborhood Profiles were also used to compare the differences in three neighborhood areas.

D.1 COMMUNITY PARTICIPATION

The following is a list of people and organizations that were interviewed or contacted:

1. Bernadette Young
2. Brian Maeshiro
3. Board of Water Supply
4. Community Implementing Group
5. Corps of Engineers
6. Dominic Inocelda
7. Edgar Akina
8. Hawaii Community Development Corporation of Hawaii
9. Honolulu Community College
10. Honolulu Police Department
11. I_2C Realty Corporation
12. Irene Fujimoto
13. Kalihi Business Association
14. Kalihi-Pālama Community Council
15. Kalihi-Pālama Health Center
16. Kaumakapili Church
17. Ken Harding
18. Lanakila Senior Center
19. Maryrose McClelland

Community meeting.

20. Native Hawaiian Legal Corporation
21. Neighborhood Board #14
22. Neighborhood Board #15
23. Neighborhood Board #16
24. Pacific Gateway Center
25. Queen Lili'uokalani Trust
26. Samoan Services Providers Association
27. Senator Norman Sakamoto
28. Senator Rod Tam
29. Senator Suzanne Chun Oakland
30. Susannah Wesley Foundation
31. Teresa Russell
32. Vision Group 6
33. Weed and Seed

Interviews with these organizations and individuals revealed that Kalihi-Pālama is a very diverse community socially, economically, and culturally. Their values are very similar to values most people desire in any community. Kalihi-Pālama has historically been the neglected "backyard" for the downtown urban core. This is evident by the aging infrastructure, buildings, and population.

Small businesses in Kalihi.

Despite the neglect, Kalihi-Pālama is very rich in cultural diversity. This area can be described as the "incubator" for new people and new businesses in Hawai'i; this is partly due to the fact that housing prices are low compared to other in-town communities, and commercial and industrial rents are lower despite its location near the heart of downtown Honolulu. These low prices and convenient location make for a very desirable and affordable place for newcomers to live, work, and play. This area has a mix of industrial, manufacturing, retail commercial, office commercial, single- and multi-family units, schools, and parks all within close proximity. Kalihi-Pālama "incubates" these new people until such time that they can afford to move to newer communities that contain the amenities they desire. This trend may be the reason why the population of Kalihi-Pālama has not changed significantly over time. In addition, much of the area between Dillingham Boulevard and King Street are zoned IMX. Therefore, if properties

were redeveloped, the owner would have been required to develop the site based on IMX zoning rather than rebuild to the existing residential use.

Small businesses along King Street.

Over the last several decades, the population of the Kalihi-Pālama area has been somewhat stable. The population in 1980 was approximately 78,800 people. In 1990, the population increased to nearly 79,200 people and the 2000 Census showed a decrease in population to approximately 75,800 people. This number of people accounts for about 8 percent of the total population of the island of O‘ahu.

Although the population has not changed significantly, the composition of the population has changed. According to the 1980 Census, the two largest ethnic populations were Filipino (24,878 people) and Japanese (19,378 people). The 1990 Census showed an increase of 2,813 people in the Filipino population and a decline in the Japanese population of 2,916 people. Breakdown of the ethnic groups from the 2000 Census was unavailable at this writing. However, since the population declined by about 3,400 people, when the 2000 data becomes available, a comparison of the ethnic groups should be performed to track population trends for this area.

POPULATION BY ETHNICITY

RACE	1980	1990	Difference
White	7,665	7,835	170
Black	325	393	68
Eskimo	121	190	69
Chinese	8,489	9,251	762
Filipino	24,878	27,691	2,813
Japanese	19,378	16,462	(2,916)
Korean	1,793	1,397	(396)
Vietnamese	326	846	520
Other Asian	15	972	957
Hawaiian	8,031	8,430	399
Samoan	4,500	4,183	(317)
Other Pacific Islander	77	523	446
Other Race	3,227	1,007	(2,220)
TOTAL	**78,825**	**79,180**	**355**

Based on interviews conducted, the Filipinos still have the highest number of immigrants arriving in Hawai‘i. The Pacific Islanders, mainly Micronesians, are also increasing in number. Other immigrants include Mexican, Korean, and Chinese.

Social organizations estimate that between 6,500 to 8,000 immigrants arrive in Hawai‘i in any given year and approximately 60 percent are of Filipino descent. Because the Filipinos have an established network in Hawai‘i, they tend to find jobs and housing quickly, whereas many Pacific Islanders end up in public housing, such as Kūhiō Park Terrace. Based on present yearly quotas, it is estimated that there is a 10- to 15-year waiting list of immigrants to Hawai‘i.


Large single-family home in Kalihi

Although the total population has declined, according to 2000 Census information, the population may actually be higher. Many of the large single-family homes in the area contain multiple families. The owners/landlords of these large homes tend to live on the second floor with the ground floor containing multiple rooms (apartments) that provide housing for new families or individuals arriving in Hawai‘i. In a recent house fire in Kalihi, there were 20 people living in a single-family home. Because multi-family dwellings are illegal in residential zoned areas, it is likely that the homeowners or landlords are not disclosing the total population of their dwelling in the Census survey. Notwithstanding, the current living conditions of some of these newcomers to the island are probably better than their previous living conditions.

Proportionately, this area has a higher number of social services organizations serving the Kalihi-Pālama population compared to the rest of the State. These social services organizations provide support to newcomers to the islands by helping them to understand the American way of life. These services include teaching them the English language, directing them to health care facilities that have people who speak their language, directing them to appropriate government agencies to receive benefits, and helping them to find jobs or teaching them how to own and operate their own businesses.

D.2 U.S. CENSUS AND NEIGHBORHOOD PROFILES

U.S. Census (2000) data was used to gather information on population, income, and housing characteristics. Specific Neighborhood Profiles were compiled using Census and City data. The population forecast for each neighborhood area was based on the City's Department of Planning and Permitting data.

D.2.1 U.S. Census

The U.S. Census Bureau conducts a survey of people, houses, firms, and other important data in the United States at the end of each decade. The Census information was used to gather data on population, income, and housing for the State of Hawai'i, the island of O'ahu, and specifically, the Kalihi-Pālama area. The State of Hawai'i consists of 354 Census tracts, 285 of which are located on O'ahu. The Kalihi-Pālama area is made up of 21 Census tracts (46 to 50 and 53 to 65), which were compared with both O'ahu and State of Hawai'i numbers. This data was used to determine how the Kalihi-Pālama area matched up to the statewide and island-wide statistics.

D.2.2 City Neighborhood Profiles

The City Department of Planning and Permitting uses the U.S. Census data to characterize neighborhood areas on O'ahu. These neighborhood areas generally follow along the lines of the Neighborhood Board boundaries. The latest data comes from the 2000 Census, although this data is not yet complete. The City's neighborhood area data for 1990 was used where 2000 Census data was not available. Similarly, where the City's neighborhood area information was not available, U.S. Census data was used.

D.3 POPULATION

During the period from 1950 to 2000, the Kalihi-Pālama population fluctuated and hit its peak in 1960. Over the 50-year period, the population increased by 2,841 people by year 2000. This represents a very small increase in population of only 3.9%. During that same time period, the population of O'ahu and the State more than doubled.

Kalihi-Pālama was one of the earliest urbanized areas and after years of expansion, growth has plateaued. As other areas were developed, Kalihi-Pālama continued to decline as the center for

the island and the state population. Table D-1 shows the reduction of Kalihi-Pālama's population on O'ahu from 20.7% in 1950 to 8.7% in year 2000.

Table D-1: Kalihi-Pālama Population Growth

Year	Kalihi-Pālama Population	% of Oahu Population	% of State Population	Net Change per Decade	O'ahu Population	State Population
*1950	72,988	20.7%	14.6%	- - -	353,006	499,794
*1960	83,627	16.7%	13.2%	10,639	500,394	632,772
*1970	78,281	12.4%	10.2%	-5,346	630,497	769,913
1980	78,825	10.3%	8.2%	544	762,534	964,691
1990	79,180	9.5%	7.1%	355	836,231	1,108,229
2000	75,829	8.7%	6.3%	-3,351	876,151	1,211,537

**U.S. Census data was used for those years before 1980 where City and County of Honolulu Department of Planning and Permitting data was not available.*

D.3.1 Demographic and Household Characteristics

A comparison of Kalihi-Pālama demographics and household characteristics from 1980 to 2000 shows interesting trends for the area, as indicated in Table D-2.

Table D-2: Kalihi-Pālama Demographics and Housing Characteristics: 1980-2000

				Change (1980-2000)	
	1980	**1990**	**2000**	**Net Change**	**%**
Population	78,825	79,166	75,829	-2,996	-3.8%
Race					
Asian	54,879	56,327	50,342	-4,537	-8.3%
White	7,665	7,769	4,240	-3,425	-44.7%
Hawaiian & Other Pacific Islander	12,608	13,266	8,918	-3,690	-29.3%
Population Under 18	22,992	19,051	17,901	-5,091	-22.1%
Population Over 64	9,511	13,459	14,310	4,799	50.5%
Housing Units	21,723	22,091	22,129	406	1.9%
Occupied Units	21,151	21,590	20,694	-457	-2.2%
Owner-Occupied	8,347	9,120	8,977	630	7.5%
Renter-Occupied	12,804	12,470	11,717	-1,087	-8.5%
Vacant Units	572	501	1,435	863	150.9%
Other than for Sale or Rent	303	245	492	189	62.4%
Housing Density (housing units/acre)	4.3	4.4	4.4	0.1	1.9%

The population of Kalihi-Pālama increased through 1990. However, the decade from 1990 to 2000 showed a decrease in the population of 3.8%. This could be the result of an old community that has been fully developed for a long time with relatively little opportunity for additional expansion. In addition, redevelopment of Industrial or Business-zoned properties reduced existing residential uses.

The population under the age of 18 decreased by 22.1% since 1980 while the population over 64 increased by 50.5%, suggesting that this community is aging, with fewer young families moving to the area.

D.3.2 Kalihi-Pālama Compared to O‘ahu and the State

Table 5-3 provides some comparative numbers for Kalihi-Pālama, O‘ahu, and the State. The demographic data shows that the Kalihi-Pālama community has a relatively large population over the age of 64 with 14,310 people. This number represents approximately 19% of the population for the Kalihi area as compared to 13 % for O‘ahu and the State. This high percentage of people over the age of 64 may be the result of early urbanization of the area and a lack of new development over the last several decades, therefore limiting new housing opportunities for younger families.

Kalihi-Pālama also has a proportionately large number of residents of Asian, Hawaiian, and other Pacific Islander background and a relatively low number of those of White background when compared with O‘ahu and the State. This may be due to the high percentage of foreign-born persons in the area.

There are few vacant units in the Kalihi-Pālama area, which may be a result of low median contract rents. Statistics indicate that Kalihi-Pālama has a significantly higher percentage of persons below poverty when compared to O‘ahu and the State. Reasons for this condition may be the lower rental prices that attract those with lower incomes, the disproportionate presence of public housing in the area, the large population of foreign-born residents who may lack job skills, and the lower educational attainment of those in the Kalihi-Pālama area.

Table D-3: Kalihi-Pālama Comparison with Oahu and the State of Hawai‘i

2000	Kalihi-Pālama	O‘ahu	State of Hawai‘i
Population	75,829	876,156	1,211,537
Kalihi-Pālama % of Population	100.0%	8.7%	6.3%
Race			
Asian	50,342	403,371	503,868
White	4,240	186,484	294,102
Hawaiian & Other Pacific Islander	8,918	77,680	113,539
Population Under 18	17,901	208,758	327,251
Population Over 64	14,310	117,737	160,601
Housing Units	22,129	315,988	460,542
Occupied Units	20,694	286,450	403,240
Owner-Occupied	8,977	156,290	227,888
Renter-Occupied	11,717	130,160	175,352
Vacant Units	1,435	29,538	57,302
Other than for Sale or Rent	492	14,763	25,584
Homeownership Rate	54.6%	54.6%	56.5%
Housing Density (housing units/acre)	4.4	0.8	0.1
1990			
Population	79,166	836,231	1,108,229
Place of Birth			
Native Born	65.9%	84.3%	85.3%
Foreign Born	34.1%	15.7%	14.7%
Persons Below Poverty	13.1%	7.2%	8.0%
Employed Persons 16 and Over	58.7%	60.7%	61.8%
Educational Attainment			
High School Graduate or Higher	61.2%	81.2%	80.1%
Bachelor’s Degree or Higher	13.0%	24.6%	22.9%

D.4 NEIGHBORHOOD AREAS

The City Department of Planning and Permitting uses data from the U.S. Census to characterize neighborhood areas on O‘ahu. The Kalihi-Pālama area is generally divided into three areas that include: 1) Liliha-Alewa-Pu‘unui-Kamehameha Heights (Neighborhood Area #14); 2) Kalihi-Pālama (Neighborhood Area #15); and 3) Kalihi Valley (Neighborhood Area #16).

- **Neighborhood Area #14: Liliha-Alewa-Pu‘unui-Kamehameha Heights**
  The Liliha-Alewa-Pu‘unui-Kamehameha Heights Neighborhood Area covers those areas between Pali Highway and Kalihi Valley, and from the crest of the Ko‘olau Mountains to School Street.

- **Neighborhood Area #15: Kalihi-Pālama**
  Neighborhood Area #15 includes the area below School Street including Sand Island and between Middle Street and Chinatown.

- **Neighborhood Area #16: Kalihi Valley**
  The Kalihi Valley Neighborhood Area is mauka of School Street and between Fort Shafter and Kamehameha Schools.

Neighborhood Area boundaries were created to generally fit Neighborhood Board boundaries and, therefore, they do not match Census tract boundaries exactly. Thus, total numbers in this section do not match Census figures. Table D-4 provides a comparison of the Neighborhood Areas based on the City's 2000 Neighborhood Area data.

Table D-4: 2000 Kalihi-Pālama Neighborhood Area Comparison

	Liliha/Kapālama (NA #14)	Kalihi/Pālama (NA #15)	Kalihi Valley (NA #16)
Population	19,905	37,987	17,937
% of Total Kalihi-Pālama Population	26.2%	50.1%	23.7%
% of Population Under 18	18.5%	25.4%	25.5%
% of Population Over 64	25.5%	15.9%	17.8%
Median Age	44.4%	36.3	36.5
% Households w/Individuals Under 18	30.4%	42.9%	46.7%
% Households w/Individuals Over 64	46.9%	40.2%	47.4%
Average Persons per Household	2.93	3.57	4.42
Housing Units	6,852	11,108	4,169
% Occupied Units	94.8%	92.3%	94.5%
% Owner-Occupied	53.5%	26.5%	56.7%
% Renter-Occupied	41.2%	65.8%	37.9%
Available Housing Vacancy Rate	3.3%	5.5%	3.0%
Homeowner Vacancy Rate	1.0%	1.1%	0.8%
Rental Vacancy Rate	6.1%	7.2%	6.0%
Homeownership Rate	56.5%	28.7%	60.0%

A comparison of the figures in Table D-4 indicates that Kalihi-Pālama is the most populous of the three neighborhood areas with a population approximately equal to that of the other two neighborhood areas combined.

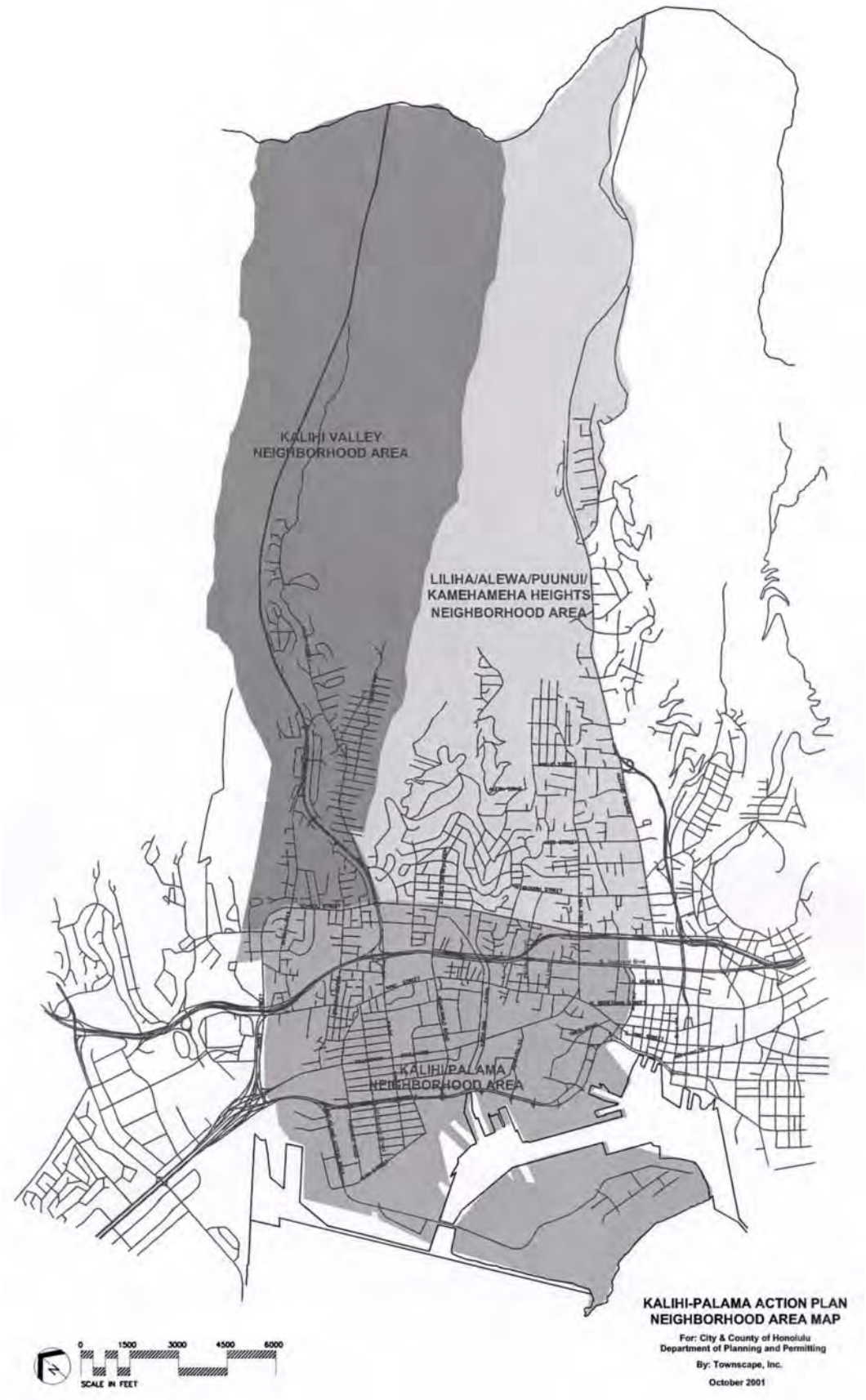

Figure D-1. Neighborhood Area Map

Single-family home in Kalihi.

The Liliha-Alewa-Pu‘unui-Kamehameha Heights Neighborhood Area has an older population, as is evidenced by the relatively large number of persons over the age of 64 and the small number of persons under the age of 18. Additionally, the median age in Liliha-Alewa-Pu‘unui-Kamehameha Heights (44.4 years old) is higher than that for Kalihi-Pālama (36.3) and Kalihi Valley (36.5), both of which have median ages similar to those for O‘ahu (35.7) and the State (36.2).

Households are generally larger in Kalihi Valley than in the other two neighborhood areas. This may be due to extended or multiple families residing in the same house.

The Kalihi-Pālama Neighborhood Area has a much higher percentage of occupied housing units devoted to renters (65.8%) than Liliha-Alewa-Pu‘unui-Kamehameha Heights (41.2%) and Kalihi Valley (37.9%). Consequently, Kalihi-Pālama has the lowest home ownership rate (28.7%) of the three areas. This could be due to a lower median contract rent in the area, which would attract lower income households that do not possess the financial means to purchase their own home.

D.4.1 Neighborhood Area #14: Liliha-Alewa-Pu‘unui-Kamehameha Heights

Compared to the other Neighborhood Areas of Kalihi-Pālama and Kalihi Valley, the Liliha-Alewa-Pu‘unui-Kamehameha Heights Neighborhood Area residents are older. The population of residents over the age of 65 increased by approximately 1,600 people between 1980 and 1990 but declined slightly between 1990 and 2000. Conversely, the population of juveniles under the age of 18 decreased by about 600 people between 1980 and 2000. The percentage of owner-occupied housing units is higher than renter-occupied units. Households are smaller here and the median housing value is the highest of the three areas. The median gross monthly rent is also the highest of the three areas and the civilian unemployment rate is the lowest. The percentage of impoverished families is the lowest and is even below the island-wide percentage. The educational attainment of the area is the highest at both the high school and

bachelor's degree levels. This area has the largest percentage of both Hawai'i-born and American-born residents.

Table D-5: Liliha-Alewa-Pu'unui-Kamehameha Heights Neighborhood Area 14
1980 - 2000

	1980	1990	2000
Population	21,068	21,221	19,905
% of Total Kalihi-Pālama Population	26.7%	26.8%	26.2%
Race			
Asian	15,910	15,983	13,425
White	2,407	2,764	1,641
Hawaiian & Other Pacific Islander	1,934	2,195	1,554
Population Under 18	4,291	3,757	3,686
Population Over 64	3,545	5,151	5,073
Median Age	37.2	41.7	44.4
Average Persons Per Household	3.16	3.02	2.93
Housing Units	6,592	6,838	6,852
Occupied Units	6,429	6,651	6,495
Owner-Occupied	3,482	3,798	3,669
Renter-Occupied	2,947	2,853	2,826
Vacant Units	163	187	357
Other than for Sale or Rent	100	123	134
Homeownership Rate	54.2%	57.1%	56.5%
Median Housing Value	$127,300	$289,500	N/A
Median Gross Rent	$236	$566	N/A
Civilian Unemployment Rate	4.0%	2.6%	N/A
Median Household Income	$22,107	$43,163	N/A
Per Capita Income	$8,300	$17,124	N/A
Persons Below Poverty	6.6%	4.1%	N/A
Educational Attainment			
% High School Graduate or Higher	64.8%	69.8%	N/A
% Bachelor's Degree or Higher	17.8%	21.7%	N/A

D.4.2 Neighborhood Area #15: Kalihi-Pālama

Compared to the Liliha-Alewa-Pu'unui-Kamehameha Heights Neighborhood Area, Kalihi-Pālama Neighborhood Area residents are relatively young, although the population of those under the age of 18 decreased and the over-65 population increased between 1980 and 2000. The Asian population increased between 1980 and 1990 but decreased by the year 2000. The area has by far the greatest percentage of renter-occupied housing, with about 70% of its occupied housing devoted to renters. Household size is between that of the other two Neighborhood Areas. The median housing values are the lowest for the three areas and the

median gross monthly rent is significantly lower. The civilian unemployment rate is by far the highest of the three neighborhood areas. Both the median household and the median family incomes are significantly lower and the percentage of families below poverty is higher. Educational attainment is the lowest at both the high school and bachelor's degree levels.

Table D-6: Kalihi-Pālama Neighborhood Area 15, 1980-2000

	1980	1990	2000
Population	40,144	40,147	37,987
% of Total Kalihi-Pālama Population	50.9%	50.7%	50.1%
Race			
Asian	26,840	27,557	25,154
White	3,467	3,345	1,600
Hawaiian & Other Pacific Islander	7,689	8,038	5,213
Population Under 18	13,054	10,510	9,646
Population Over 64	4,148	5,650	6,043
Median Age	28.5	32.9	36.3
Average Persons Per Household	3.54	3.46	3.57
Housing Units	11,151	11,107	11,108
Occupied Units	10,837	10,877	10,258
Owner-Occupied	2,680	2,975	2,945
Renter-Occupied	8,157	7,902	7,313
Vacant Units	314	230	850
Other than for Sale or Rent	153	83	251
Homeownership Rate	24.7%	27.4%	28.7%
Median Housing Value	$97,500	$243,100	N/A
Median Gross Rent	$192	$396	N/A
Civilian Unemployment Rate	5.0%	5.3%	N/A
Median Household Income	$14,280	$25,647	N/A
Per Capita Income	$4,996	$9,601	N/A
Persons Below Poverty	19.2%	17.4%	N/A
Educational Attainment			
% High School Degree or Higher	47.6%	56.7%	N/A
% Bachelor's Degree or Higher	8.1%	9.1%	N/A

D.4.3 Neighborhood Area #16: Kalihi Valley

Compared to the other Neighborhood Areas of Liliha-Alewa-Puʻunui-Kamehameha Heights and Kalihi-Pālama, Kalihi Valley Neighborhood Area residents are the youngest. However, the under-18 age group decreased by over 1,000 people from the years 1980 to 2000, while the

population of those over age 64 increased by nearly 1,400 people. Over half of the housing units are owner-occupied. Kalihi Valley households are the largest of the three neighborhood areas. Median household income, family income, housing value, and gross monthly rent fall between those for Liliha-Alewa-Pu‘unui-Kamehameha Heights and Kalihi-Pālama. The civilian unemployment rate is slightly higher than for Liliha-Alewa-Pu‘unui-Kamehameha Heights but is still significantly lower than for Kalihi-Pālama. The percentage of families below poverty is significantly higher than that for Liliha-Alewa-Pu‘unui-Kamehameha Heights but is lower than the Kalihi-Pālama area. The educational attainment at both the high school and bachelor’s degree levels are between that of the other two areas.

Table D-7: Kalihi Valley Neighborhood Area 16, 1980-2000

	1980	1990	2000
Population	17,613	17,798	17,937
% of Total Kalihi-Pālama Population	22.3%	22.5%	23.7%
Race			
Asian	12,129	12,787	11,763
White	1,791	1,660	999
Hawaiian & Other Pacific Islander	2,985	3,033	2,151
Population Under 18	5,647	4,784	4,569
Population Over 64	1,818	2,658	3,194
Median Age	28.4	33.0	36.5
Average Persons Per Household	4.44	4.34	4.42
Housing Units	3,980	4,146	4,169
Occupied Units	3,885	4,062	3,941
Owner-Occupied	2,185	2,347	2,363
Renter-Occupied	1,700	1,715	1,578
Vacant Units	95	84	228
Other than for Sale or Rent	50	39	107
Homeownership Rate	56.2%	57.8%	60.0%
Median Housing Value	$109,500	$249,000	N/A
Median Gross Rent	$234	$533	N/A
Civilian Unemployment Rate	4.0%	2.8%	N/A
Median Household Income	$23,513	$39,794	N/A
Per Capita Income	$5,888	$10,885	N/A
Persons Below Poverty	14.7%	13.9%	N/A
Educational Attainment			
% High School Graduate or Higher	54.1%	59.3%	N/A
% Bachelor's Degree or Higher	10.2%	9.5%	N/A

D.5 POPULATION FORECAST

The City Department of Planning and Permitting calculates population forecasts for each Neighborhood Area. Table D-8 shows a decline in population for two of the three Neighborhood Areas during the period 1990 to 2000. However, the City projects that the populations for two of the three areas will increase in the next twenty-five years. The total Kalihi-Pālama population is expected to increase by 8.8% by the year 2025.

Table D-8: Kalihi-Pālama Population Projections

Neighborhood Area	1990 Population	2000 Population	Projected 2025 Population	Net Change	% Change	Annual % Change
Liliha/Kapālama	21,235	19,905	22,812	1,577	7.4%	3.7%
Kalihi-Pālama	40,147	37,987	42,330	2,183	5.4%	2.7%
Kalihi Valley	17,798	17,937	17,374	-424	-2.4%	-1.2%
Kalihi-Pālama Project Area	79,180	75,829	82,516	3,336	4.2%	2.1%
% Change	N/A	-4.2%	8.8%			

D.6 SUMMARY AND PLANNING IMPLICATIONS

- **Kalihi-Pālama is a diverse community socially, economically, and culturally.** The Kalihi-Pālama area has a large mix of people of Asian ancestry as compared to other areas on O‘ahu. This large mix of Asians results in a unique mix of ethnic cultures and a wide variety of social organizations and small businesses.

- **Kalihi-Pālama is the “incubator” for new people and new businesses in Hawai‘i.** Because of the low rents and ethnic diversity, Kalihi-Pālama attracts newcomers to reside in the area until such time that they are acclimated to the American way of life and can sustain themselves.

- **Kalihi-Pālama’s rate of population growth has slowed in comparison to that of O‘ahu and the State.** The Kalihi-Pālama population has experienced modest growth through 1990 but in the last decade, from 1990 to 2000, the population has declined. After decades of being a residential area for a large percentage of O‘ahu’s population, Kalihi-Pālama may have reached its capacity in terms of developable area and only a few new developments have occurred. The decline in population could be attributed to redevelopment of parcels in the IMX and BMX-zoned areas where single-family or

multi-family uses have been converted to commercial or industrial uses, thereby reducing housing stock.

- **Kalihi-Pālama has a relatively high median age.** The median age of Kalihi-Pālama residents is older than that for O‘ahu and the State and has increased from 1980 to 2000. This is especially obvious in the Liliha-Alewa-Pu‘unui-Kamehameha Heights Neighborhood Area (#14) where the median age increased from 28.5 to 36.3 years old.

- **The Kalihi-Pālama average persons per household is high**. The Liliha-Alewa-Pu‘unui-Kamehameha Heights average persons per household (2.93) is similar to that for O‘ahu (2.95) and the State (2.92). However, the Kalihi-Pālama Neighborhood Area average is higher at 3.57 persons per household. The average household size is especially high in Kalihi Valley where the average persons per household (4.42) is much greater than for O‘ahu, the State, and the other two neighborhood areas. This large household size could be due to a lack of housing units and the need for extended family living conditions.

- **Kalihi-Pālama has a higher percentage of occupied housing units than O‘ahu and the State.** In 2000, 20,694 (93.5%) of the housing units in Kalihi-Pālama were occupied, indicating a high housing demand. This demand may decrease if the population and occupancy rates continue to fall as they did between 1990 and 2000; however, the City is projecting an 8.8% increase in population by the year 2025, which will increase the demand for housing. Housing occupancy was highest in the Liliha-Alewa-Pu‘unui-Kamehameha Heights Neighborhood Area where 94.8% of the housing units were occupied in 2000.

- **The Kalihi-Pālama Neighborhood Area has a large renter population.** This could be a factor of the relatively low median contract rent prices as compared to O‘ahu and the State. Neighborhood Area #15 (Kalihi-Pālama) had an especially high percentage of renters (65.8%), compared to O‘ahu (45.4%) and the State (43.5%). However, the Kalihi Valley Neighborhood Area had a lower renter population (40.0%) than for O‘ahu or the State.

- **The Kalihi-Pālama Neighborhood Area has a low homeownership rate.** Neighborhood Area #15 also had a relatively low homeownership rate of only 28.7% in 2000 when compared to O‘ahu (54.6%) and the State (56.5%). Kalihi Valley, however, had a higher homeownership rate (60.0%).

- **Kalihi-Pālama has a higher number of people below poverty than Oʻahu and the State.** Related to the rental figures is the greater percentage of persons below poverty in the Kalihi-Pālama area, 13.2%, compared to Oʻahu (7.2%) and the State (8.0%). The Kalihi-Pālama and Kalihi Valley Neighborhood Areas have especially high percentages of persons below poverty, 17.4% and 13.9% respectively. Additionally, the Kalihi-Pālama Neighborhood Area has a civilian unemployment rate nearly double that of the other two neighborhood areas.

- **The City projects an increase in the Kalihi-Pālama population of 8.8% between 2000 and 2025**. While the Kalihi-Pālama vacancy rate has increased from 1980 to 2000, it is still lower than the vacancy rates for Oʻahu and the State. The City is projecting a 3.7% population increase in the Liliha-Alewa-Puʻunui-Kamehameha Heights area where the available housing vacancy rate was 3.3%. While this vacancy rate is higher than that for Kalihi Valley (3.0%), it is still much lower than the rate for Kalihi-Pālama (5.5%), Oʻahu (9.3%), and the State (8.6%). If the population increases as projected, there will be a high demand for additional housing units.

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APPENDIX E

ECONOMIC PROFILE

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APPENDIX E
ECONOMIC PROFILE

The purpose of this section is to better understand the gross economic value of the Kalihi-Pālama project area. This profile will examine employment, business establishments, annual payroll generation,as well as the retail, office, and industrial markets in the project area.

E.1 EMPLOYMENT, ESTABLISHMENTS, AND ANNUAL PAYROLL IN KALIHI-PĀLAMA

For land use planning, employment is the most useful measure of economic activity for any given area. One source for economic activity information is the Census Bureau Zip Code Business Patterns (1998). The Census Bureau zip code area, 96817, is inclusive of the Kalihi-Pālama project area with the exception of Sand Island[1].

According to the Census Bureau figures, there were a total of 1,955 business establishments[2] in the 96817 zip code area. There were a total of 30,051 employees with a quarter payroll estimated at $203,936,000. The annual payroll was approximately $848,455,000.

Table E-1 compares the business establishments in the Kalihi-Pālama area to the City and County of Honolulu (City) and to the State of Hawai‘i (State). The City has over 300,000 employees. The project area accounts for 9.70% of the total number of employees in the City. Compared to the State figures, the project area accounts for 7.21% of the total number of employees in the State of Hawai‘i. The Kalihi-Pālama area businesses are 9.45% of the City’s total business establishment figures and 6.60% of the State’s. The annual payroll of the Kalihi-Pālama area represents 9.70% of the City and 7.51% of the State.

[1] The Census Bureau Zip Code 96817 includes the Likelike Highway to the west, the Pali Highway to the east, Honolulu Harbor area to the south (excluding Sand Island), and the Ko‘olau ridgeline to the north.

[2] An establishment is a single physical location at which business was conducted. When two or more activities were carried on at a single location under a single ownership, all activities generally were grouped together as a single establishment. When distinct and separate economic activities were conducted at a single location under single ownership, separate establishment reports were obtained.

Table E-1. Comparison of Employee, Payroll, and Establishment Figures

Characteristic of Business Establishment	Zip Code 96817	City and County of Honolulu	*% of City*	State of Hawai'i	*% State of Hawai'i*
Employees	30,051	309,487	*9.70*	416,517	*7.21*
Establishments[3]	1,955	20,675	*9.45*	29,603	*6.60*
1st Quarter Payroll (in $1,000)	$203,936	$2,122,955	*9.60*	$2,736,665	*7.45*
Annual Payroll (in $1,000)	$848,455	$8,743,933	*9.70*	$11,291,978	*7.51*
Average Annual Payroll	$28,234	$28,253	-	$27,111	-

Source: Census Bureau Zip Code Business Patterns 1998 and State of Hawai'i Data Book 2000.

A comparison by average payroll indicates that the Kalihi-Pālama area employees generate figures that are nearly identical to the rest of the City, $28,234 compared to $28,253 for the City. Average payrolls compared to the rest of the State indicate that the Kalihi-Pālama area employees earn approximately $1,000 more, $28,234, compared to the State at $27,111.

Small businesses along King Street.

Table E-2 provides information on employment size by industry for the Kalihi-Pālama area. According to this information, the Kalihi-Pālama business establishments are relatively small in number of employees, a characteristic shared by the State of Hawai'i. For example, of the total 1,955 business establishments recorded in the area, 1,033 have between 1 to 4 employees, a figure representing over half of the total number of business establishments in the area (52.8%). Statewide information (State Data Book, 2000) indicates that there were over 15,466, out of a total 29,603 businesses, with 1 to 4 employees in 1997. Like the Kalihi-Pālama area, this figure represents over half of the total number of business establishments recorded in that year in the State of Hawai'i. In contrast, there are only three business establishments in the project area that had 1,000 or more employees. Thus, of the 30,000 employees in Kalihi-Pālama, three business establishments employ nearly 10% of the total number of employees.

[3] Data refers to establishments active anytime during the year. Does not include government and self-employed persons.

The industry description information (described in Table E-2) indicates that the health care and social assistance category has the highest number of business establishments in the area with 251; followed by retail trade, 249; and food services, 247. Contributing factors to the large number of health and social services could be due to the high number of newcomers to the islands who find residence in the Kalihi-Pālama area and utilize services that are centrally located. The low retail figure could be attributed to smaller, regional retail trade industries in the Kalihi-Pālama area as compared to the State; e.g., Ala Moana, Pearlridge, and Kāhala Shopping Centers.

Table E-2. Industries by Number of Employees in 96817 Zip Code Area

Industry Description	1- 4	5 - 9	10 - 19	20 - 49	50 - 99	100 – 249	250 - 499	500 - 999	1,000 or more	Total
Health Care and Social Assistance	130	53	31	16	13	3	4	0	1	**251**
Retail Trade	135	56	33	14	9	1	1	0	0	**249**
Accommodations and Food Services	141	38	28	28	9	2	0	1	0	**247**
Other Services (except Public Administration)	135	36	23	26	2	1	0	0	0	**223**
Wholesale Trade	81	31	41	20	7	2	0	0	0	**182**
Professional Technical	88	27	10	6	2	0	0	0	0	**133**
Manufacturing	52	24	28	17	7	4	0	0	0	**132**
Construction	56	25	19	20	5	0	0	0	0	**125**
Real Estate, Rental, Leasing	75	20	8	3	0	0	0	0	0	**106**
Administrative, Support, Waste	41	22	8	10	3	1	1	2	0	**88**
Finance and Insurance	37	12	12	10	4	1	0	0	0	**76**
Transportation and Warehousing	11	5	5	5	3	8	0	0	0	**37**
Arts, Entertainment, and Recreation	14	1	3	2	1	1	0	0	2	**24**
Information	8	5	4	1	1	0	1	0	0	**20**
Educational Services	9	2	5	2	1	1	0	0	0	**20**
Management Companies & Enterprise	5	2	5	2	1	2	0	0	0	**17**
Auxiliaries	4	3	2	2	1	0	0	0	0	**12**
Unclassified Establishments	11	1	1	0	0	0	0	0	0	**13**
Total No. of Establishments	**1033**	**363**	**266**	**184**	**69**	**27**	**7**	**3**	**3**	**1955**

Source: Census Bureau Zip Code Business Patterns 1998.

The top four industries account for nearly 50% of the total number of business establishments in the Kalihi-Pālama area. With the exception of Health Care and Social Assistance, the Kalihi-Pālama area shares similar statistics with the State of Hawai'i whereby Retail Trade, Accommodations and Food Services, and Other Services categories also ranked in the top four industries in the State (see Table E-3). Within the percentage of State industry figures, the Kalihi-Pālama area holds 8.42% of the Health Care and Social Assistance industry in the State.

Table E-3. Top Four Industries

Industry Description	96817	State of Hawai'i	% of State Industry
Health Care and Social Assistance	251	2,979	8.42%
Retail Trade	249	4,903	5.07%
Accommodations & Food Services	247	3,082	8.01%
Other Services (except Public Administration)	223	3,136	7.11%

Source: Census Bureau Zip Code Business Patterns 1998 and State of Hawai'i. Data Book 2000.

Table E-4 shows a comparison of the number of individuals served by the top four industries for the Kalihi-Pālama area and the State.

Table E-4. Per Capita Comparison

Industry Description	Kalihi-Pālama # of People Serviced per Establishment	State of Hawai'i # of People Serviced per Establishment
Health Care & Social Assistance	331	406
Retail Trade	334	247
Accommodations & Food Services	337	393
Other Services (except Public Administration)	373	386

E.2 OFFICE MARKET

Immediately following the events of September 11, 2001, Hawai'i's economy went into a recession. Since then, the economy has shown signs of improvement as domestic air travel has recovered to pre-attack levels and unemployment claims have also returned to normal levels.

There is a total of 15,085,245 sq. ft. of office space on O'ahu. Up until year-end 2000, O'ahu's office market had recorded a positive net absorption of 354,491 sq. ft. The market then reversed with a negative absorption at year-end 2001 and vacancy rates rose 12.67% as a result of the

contraction among island business. Currently, it is expected that the O‘ahu office market vacancy rate should rise by another 1 to 2%. Industry experts are also expecting another 200,000 sq. ft. in office occupancy in 2002.

In the submarket area of Kalihi/Iwilei/Kapālama there are nine office buildings with 25,000 sq. ft. or more. These nine buildings have a total of 841,318 net rentable sq. ft. (see Table E-5).

Table E-5. Office Market: Kalihi/Iwilei/Kapālama Submarket

Building Name	Year Built	Net Rentable sq. ft.
Digital Building – Owner-occupied	1981	31,610
Dillingham Business Center	1971	29,074
Dillingham Trade Center	1969	110,711
Dole Office Building/Castle and Cooke Building	1989	140,000
Gentry Pacific Center	1933	135,529
Long Distance USA/Sprint Building	1985	54,696
Nimitz Business Center (Under Renovation)	1988	203,000
Waiakamilo Business Center	1980	137,698
Total Inventory sq. ft.		841,318

Source: Colliers, Monroe Friedlander, Inc., Kalihi Commercial Real Estate Market Study, 2002.

Table E-6 provides a comparison of the Kalihi/Iwilei/Kapālama area to all other submarkets on O‘ahu at year-end 2001. The Kalihi area has a relatively higher vacancy rate compared to the total of all the other submarkets combined. This may be due in part to the general contraction occurring among the island’s businesses. Kalihi, as well as all the other submarkets, posted a negative net absorption rate for year ending 2001. The Kalihi area has a lower net average asking rent compared to all other submarkets combined on O‘ahu. In terms of total square feet available for lease, the Kalihi/Iwilei/Kapālama area accounts for 5.57% of the office market square footage available.

Table E-6. Kalihi-Pālama Office Market Comparison Year-End 2001

Submarket	No. of Bldgs.	Total sq. ft.	Vacant Space sq. ft.	Vacancy Rate	Net Absorption sq. ft.	PSF/mo Net Avg. Asking Rent Low/High	Average Operating Expenses
Kalihi/Iwilei/Kapālama	8	841,318	134,502	15.99%	(10,275)	$1.00/$1.21	$0.78
Total All Other Submarkets on O‘ahu	158	15,085,245	1,910,615	12.67%	(213,357)	$1.27/$1.39	$0.79

Source: Colliers International Market Report Year Ending 2001.

E.3 INDUSTRIAL MARKET

Within the Kalihi-Pālama project area are the traditional industrial districts of Iwilei and Kalihi Kai. Surrounding these industrial districts are uses and activities that support the Honolulu Harbor and nearby airport activities. The Kalihi-Pālama industrial area contains businesses that support the import and export demands of the island of O‘ahu and the State of Hawai‘i.

Industrial buildings on Nimitz Highway.

In 2001, O‘ahu’s industrial market recorded a negative net absorption of 180,755 sq. ft. Vacancy rates rose slightly from prior years. Strong residential real estate market sales coupled with a tight supply of industrial properties served to prevent the industrial market on O‘ahu from losing ground from gains made in previous years. Reports are forecasting an increase in vacancies. However, rents are not expected to drop dramatically (Colliers International, 2002).

Table E-7 shows that the Kalihi Kai/Sand Island/Kapālama Military Reserve and Iwilei areas combined have approximately 10 million sq. ft. of industrial space. Significantly, these two areas combined represent 33% of the total of all industrial submarkets located on O‘ahu. Table E-8 provides a breakdown of industrial buildings with 25,000 sq. ft. or less. Accordingly, there are over 300 buildings in the Kalihi/Sand Island area with 5,000 sq. ft. or less.

Table E-7. Kalihi-Pālama Industrial Market Figures

Market Area	No. of Bldgs. with 25,000 sq. ft. or more	Building sq. ft.	Vacant sq. ft.	Absorption sq. ft.	Vacancy Rate	Avg. Net Asking Rental Rates/PSF	Avg. Net Op Exp
Kalihi Kai/Sand Island/ Kapālama Military Reserve (KMP)	552	7,423,577	248,558	(39,338)	3.65%	$0.56	$0.19
Iwilei	81	2,587,132	214,768	(108,473)	8.30%	$0.72	$0.30
Total All Markets on O‘ahu	1,337	30,464,727	1,347,554	(180,755)	4.42%	$0.69	$0.22

Source: Colliers International Market Report Year Ending 2001.

Table E-8. Kalihi/Sand Island Industrial Inventory

Building Area (in sq. ft.)	Number of Buildings	Total Square Footage (Rounded)
5,000 or less	339	951,000
5,001 – 10,000	117	801,000
10,001 – 15,000	27	333,000
15,001 – 20,000	18	313,000
20,000- 24,999	70	4,834,000
Totals	571	7,232,000

Excludes Kapālama Military Reserve.

The Kalihi Kai area has a moderately lower vacancy rate compared to Iwilei. Moreover, industrial users on O'ahu are increasingly finding buildings are obsolete as modern modes of distribution and transportation develop. Because the condition of O'ahu's industrial buildings vary greatly, tenants pay strikingly different rates for properties that may be located next to each other. In the Iwilei area for example, the market range in rents can differ by as much as $1.00/sq. ft./mo.

E.4 RETAIL MARKET

Hawai'i's retail market has shown marked improvement since the September 11 events. Improvements are visible in the national economy, a slowdown in job layoffs, a rebound of visitor arrivals, and an increase in hotel occupancy levels.

O'ahu had a positive absorption of 97,417 sq. ft. that resulted in a drop in vacancy rates from 8.42 to 6.90%. Adding to the market's growth was the opening of fairly large entertainment venue, such as the new Victoria Ward Center. These sites account for a large percentage of growth occurring in the O'ahu retail marketplace. Dramatic change has also taken place in the retail landscape as long-time island merchants, such as Liberty House, closed and national chains such as Macy's and Nordstrom opened. Marketing strategies are well suited for discount big box retailers like Costco and Sam's Club who are taking advantage of value-conscious consumers with extended living arrangements. The State Department of Business, Economic Development and Tourism (DBEDT) is expecting the economy to grow by 1.3% in 2002, a rate that is double of what they forecasted last fall (Colliers, "Retail Market Draft," 2002).


Kalihi Shopping Center.

There are three prominent shopping centers in the Kalihi-Pālama area: Dillingham Shopping Plaza, Dole Cannery Square, and Kamehameha Shopping Center (see Tables E-9, E-10, E-11, E-12, and E-13 for details). These three neighborhood centers have a total leasable retail area of 483,362 sq. ft. In addition, there are numerous smaller shopping areas such as Kōkea Center and Waiakamilo Shopping Center whose economic contributions are not represented in the retail market statistics. Additionally, there are abundant "Mom and Pop" shops located along King Street, Dillingham Boulevard and School Street. Based on field investigations and City information, these smaller shopping centers and "Mom and Pop" shops undoubtedly contribute to the retail economic environment of Kalihi-Pālama.

Table E-9. Kalihi Iwilei Retail Market Statistics

Property Name	Year Built	Type of Center	Retail Area sq. ft. (Leasable)
Dillingham Shopping Plaza	1966/1992	Neighborhood	181,773
Dole Cannery Square	1989	Neighborhood	161,589
Kamehameha Shopping Center	1959	Neighborhood	140,000
Total Inventory			**483,362 sq. ft.**

Source: Colliers, Monroe Friedlander, Inc., Kalihi Commercial Real Estate Market Study, 2002.

Table E-10. Dillingham Shopping Plaza: 505 Dillingham Blvd.

Total Gross Leasable Area	182,598 sq. ft.
Retail Space Now Available	7,855 sq. ft.
No. of Stores	14
No. of Parking Spaces	586
Year Opened	1966
Rental Range per sq. ft.	$1.12 - $3.80 per sq. ft.
2000 Occupancy Rate	81%
Monthly CAM & RPT per square foot	$0.33 (office) and $0.31 (retail)
Percentage Increase or Decrease in Annual Sales from 1999 to 2000	6.33 % increase
Anchor Stores	Foodland, Office Depot, Savers, Price Busters
New Tenants in 2000	No Data Provided
Non-Retail Services Offered	Financial, office, medical, and dental

Source: Pacific Business News, 2002 Book of Lists.

Table E-11. Kamehameha Shopping Center: 1620 N. School Street

Total Gross Leasable Area	143,400
Retail Space Now Available	0
No. of Stores	32
No. of Parking Ppaces	540
Year Opened	No Data Provided
Rental Range per sq. ft.	$2.50 - $4.20
2000 Occupancy Rate	100%
Monthly CAM & RPT per square foot	No Data Provided
Percentage Increase or Decrease in Annual Sales from 1999 to 2000	No Data Provided
Anchor Stores	Longs Drugs, Star Market, Block Buster, Kenny's Restaurant
New Tenants in 2000	Two new tenants in 2001 Fast Food/Restaurant
Non-Retail Services Offered	2 Banks, Medical

Source: Personal communication, Kamehameha Shopping Center Manager, 2002.

Table E-12. Kapālama Shopping Center: 1210 Dillingham Blvd.

Total Gross Leasable Area	40,808 sq. ft.
Retail Space Now Available	None
No. of Stores	20
No. of Parking Spaces	158
Year Opened	1959
Rental Range per sq. ft.	No data
2000 Occupancy Rate	100%
Monthly CAM & RPT per square foot	.76 cents
Percentage Increase or Decrease in Annual Sales from 1999 to 2000	No Data Provided
Anchor Stores	Pālama Super Market, Zippy's
New Tenants in 2000	Photography Studio
Non-Retail Services Offered	Dentist, Clothing, Bank/Financial, Mailing Service

Source: Personal communication, Kamehameha Shopping Center Manager, 2002.

Table E-13. Dole Cannery: 650 Iwilei Road

Total Gross Leasable Area	295,477 sq. ft.
Retail Space Now Available	No Data Provided
No. of Stores	65
No. of Parking Spaces	2000
Year Opened	No Data
Rental Range per sq. ft.	$1.50
2000 Occupancy Rate	No Data Provided
Monthly CAM & RPT per square foot	No Data Provided
Percentage Increase or Decrease in Annual Sales from 1999 to 2000	No Data Provided
Anchor Stores	Costco, Home Depot, Signature Theatres
New Tenants in 2000	No Data Provided
Non-Retail Services Offered	No Data Provided

Source: City and County of Honolulu, Economic Development Property Locator, 2002. www.enterprisehonolulu.com.

E.5 SUMMARY

E.5.1 Employment, Establishments, and Annual Payroll

According to Census Bureau figures, the Kalihi-Pālama area accounts for 9.70% of the total number of employees and 9.45% of total number of businesses in the City. The annual payroll of the Kalihi-Pālama area represents 9.70% of the City's total business establishment figures. Fifty-three percent of the businesses in the area have 1 to 4 employees. In contrast, there are only three business establishments with 1,000 or more employees, which accounts for 10% of the total number of employees in the area. The top four industries in the area are Health Care and Social Assistance, Retail Trade, Accommodations and Food Service, and Other Services (except Public Administration).

E.5.2 Office Space

Office building in Kalihi.

The Kalihi-Pālama project area has at least eight office buildings with 25,000 sq. ft. of leasable space available. In terms of total sq. ft. available for lease, the Kalihi/Iwilei/Kapālama area accounts for 5.57% of the office market sq. ft. available on O'ahu. The Kalihi area has a relatively higher vacancy rate compared to the total of all the other submarkets combined on

O‘ahu. This may be due in part to the general contraction occurring among the island’s businesses. There was a total of 841,318 sq. ft. available in office space in the Kalihi-Pālama area. When a general rule of thumb factor for office sales is applied at $200.00 per square foot[4], economic activity generated for the office market in the project area calculates to $168 million. There is a total of 15 million sq. ft. of office space available on O‘ahu. Using the same rule of thumb factor of $200 per sq. ft. for office sales, the O‘ahu office market calculates to $3 billion of economic activity. The Kalihi-Pālama area contributes 5.6% of office sales on O‘ahu.

E.5.3 Industrial Space

Within the Kalihi-Pālama project area are the traditional industrial districts of Iwilei and Kalihi Kai. The Kalihi Kai area combined with the Iwilei district has over 600 buildings with 25,000 sq. ft. or more of industrial space. There is a total of more than 10 million sq. ft. of industrial leasable space available. A general rule of thumb factor of $100.00 per square foot[5] is used for industrial sales. Therefore, ten million sq. ft. at $100.00 equals $1 billion of industrial economic activity generated by the Kalihi-Pālama area. The O‘ahu industrial figures indicate 30 million sq. ft. of space on the island. Applying the $100 per sq. ft. of sales calculates to $3 billion of industrial sales for O‘ahu. Thus, Kalihi-Pālama contributes to 1/3 of the industrial economic activity on O‘ahu.

E.5.4 Retail Space

Dramatic change has taken place in the retail landscape as long-time island merchants have closed shop and larger mainland-based retail businesses have moved in. Marketing strategies are well suited for discount big box retailers at this point in time. Super block type entertainment/retail development is evident in the Iwilei area.

“Mom & Pop” shops.

There are at least three prominent shopping centers in the Kalihi-Pālama area with leasable space greater than 25,000 sq. ft.. These three shopping centers combined have a total leasable retail area of 483,362 sq. ft. In addition, there is an abundant number of “Mom and Pop” establishments in the area.

[4] Rule of thumb factor is provided in the Kapālama Planning Program. Townscape, Inc. May 1995.
[5] Rule of thumb factor is provided in the Kapālama Planning Program. Townscape, Inc. May 1995.

The rule of thumb factor used for retail sales is $250.00 per square foot[6]. Since there is no solid data to quantify the economic activity generated by "Mom and Pop" types of establishments, an additional 50% of retail space is added to the sq. ft. for the area. Thus, total retail space is estimated at 725,000 sq. ft. At a factor of $250.00, $181 million in retail economic activity is estimated to be generated in the Kalihi-Pālama area. O'ahu retail sales figures for 10 million sq. ft. of retail space calculates to $2.6 billion. Thus, Kalihi-Pālama contributes 1.4% of the O'ahu retail sales market.

If we combine these market figures, it is estimated that the Kalihi-Pālama area generates 15.6% of the economic activity on O'ahu.

Table E-14. Economic Activity

Industry	Kalihi-Pālama	O'ahu Island
Office	$168 million	$3.0 billion
Industrial	$1.0 billion	$3.0 billion
Retail	$181 million	$2.6 billion
Totals	$1.350 billion	$8.6 billion

E.6 PLANNING IMPLICATIONS

This section outlines economic development strategies and physical improvements to the Kalihi-Pālama project area.

- Improve pedestrian and automobile circulation patterns, e.g., sidewalks or one-way streets. Provide adequate lighting and on- and off-street parking. Lots that become available for sale in a centralized area should be considered for acquisition and development into off-street parking that can be shared by the businesses in the area. These improvements will promote economic growth because people would be attracted to the area.

- Establish a Community Development Corporation (CDC) as the entity that supports the economic goals of the Kalihi-Pālama community. CDC's offer communities greater control over the scale and pace of developments occurring in their communities. CDC's may focus on land development or financing for commercial development.

[6] Rule of thumb factor is provided in the Kapālama Planning Program. Townscape, Inc. May 1995.

- The close proximity of Kalihi-Pālama to the Central Business District, airports, and harbor is an asset. Honolulu represents the mid-Pacific link between the US Mainland and all of Asia, which makes it possible to do business in the same day across time zones. Because of HCC's focus on high technology, the school and surrounding areas could be the vehicle that provides the mid-Pacific link.

- Despite Kalihi-Pālama's proximity to downtown Honolulu, rent for office and industrial space is significantly lower. These low rents tend to attract new businesses that do not have the capital to locate in higher rent areas. The low rents would also support incubator type facilities.

- The diversity of ethnic groups in the Kalihi-Pālama area has the potential to facilitate communication among countries.

- Kalihi-Pālama has always played a key role in industry development. It has all of the elements of the school system present in its community, from elementary to college, and government facilities are in close proximity.

- Buildings are old and need to be upgraded with high-tech equipment to facilitate information flows and to attract other businesses to the area.

Honolulu Community College.

- Government policies are to provide a healthy economic environment and business support to foster high-tech development. The Kalihi-Pālama area can facilitate the accomplishment of these goals by offering support for research facilities, researchers, and technology transfer to entrepreneurs by creating linkages among the Honolulu Community College and the business and industry sectors.

- Create incubator facilities for high-tech companies in the vicinity of HCC.

- Develop tax incentives necessary for the development of high-tech businesses.

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APPENDIX F

HOUSING PROFILE

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APPENDIX F
HOUSING PROFILE

Of all land uses, the residential sector is the largest user of urban space. This section will give an overview of the housing characteristics of the Kalihi-Pālama neighborhood areas: Kalihi-Pālama, Kalihi Valley, and Liliha-ʻĀlewa-Puʻunui-Kamehameha Heights. Information concerning the public housing located in the project area is also included.

F.1 HONOLULU

The Honolulu area contains the oldest urban neighborhoods on Oʻahu as well as the traditional industrial complexes of Iwilei and lower Kalihi. In the year 2000, there were a total of 318,988 housing units on Oʻahu (Census 2000) and a total of 460,542 units in the State. Oʻahu accounts for over 70% of the housing units in the State of Hawaiʻi. The Primary Urban Core Central (an area stretching from Moanalua to McCully-Mōʻiliʻili) had approximately 172,000 housing units, which is nearly 55% of the housing stock on Oʻahu (PUC draft, 2002). The State's estimated housing need (for the years 2001-2005) is approximately 28,460 new units[1]. Approximately 40% of the units are needed for households earning 80% of the median income and below. An additional 27% of the units are needed for households earning between 80 and 120% of the median income.

Older homes in Kalihi.

The housing stock on Oʻahu tends to be older and has a higher share of multi-family units. Average monthly mortgage for the State equaled $1,374 compared to $1,491 for the island of Oʻahu and monthly rent was $930 for the State and $977 for the City (State of Hawaiʻi Data Book, 2000). Nearly one-third of all of the housing units were built prior to 1959 and most of these units are single-family residences located between Kalihi and Kaimukī. Almost 50% of the housing stock in the urban core was occupied by renters, compared to 35% for the rest of Oʻahu. Renters were concentrated in the denser urban core of Honolulu. The areas roughly from Kalihi to

[1] Housing and Community Development Corporation of Hawaiʻi. Five Year Consolidated Plan July 1, 2000 through June 30, 2005. May 15, 2000.

Kaimukī, for example, contained 40% renters; moreover, renters occupied more than 75% of the housing units in parts of Kalihi-Pālama and other areas.

A higher proportion of low- to moderate-income households were located in the Kalihi-Pālama, downtown Honolulu, and Ala Moana-McCully areas. There are a total of 6,573 public housing units owned by the State or Federal government in the State of Hawai'i. O'ahu contains 79.6% (or 5,237 units) of the total public housing available in the state. The Kalihi-Pālama area accounts for a significant 49.2% of the total public housing available on O'ahu. During the 1980's and 1990's, the government sponsored aggressive low- to moderate-income housing developments. As of 2000, however, most of the government in-town sites had been developed and funding has been drastically reduced.

F.2. KALIHI-PĀLAMA PROJECT AREA HOUSING

The Kalihi-Pālama Project area contains three distinct neighborhoods: Kalihi Valley, Kalihi-Pālama, and Liliha-'Ālewa-Pu'unui-Kamehameha Heights. In the year 2000, there was a total of 22,129 housing units in the Kalihi-Pālama project area. Kalihi-Pālama accounts for 10% of O'ahu's housing units and 16% of the housing units in the Primary Urban Core (see Table F-1).

F.2.1 Kalihi Valley

According to Census 2000 figures, Kalihi Valley had a total of 4,200 housing units. Fifty-seven percent (56.7%) of the units were owner-occupied, 37.9% were renter-occupied, and there was a 5.5% vacancy rate. Kalihi Valley has a 60% homeownership rate. There are 4.42 average persons per household and 4.93 persons per family. The median age of a householder was 54.7, owner was 62.4, and renter was 45.9.

Based on 1990 Census information, the Kalihi Valley housing stock contains single-family residences with some walk-up, apartment-style accommodations. The median year of homes built for Kalihi Valley homes was 1960. Eighty-three percent (83%) of the housing structures have 1 to 2 units, 12% have 3 to 9 units, and 2% have 10 to 49 units.

Walk-up apartment.

F.2.2 Kalihi-Pālama

The Kalihi-Pālama area contains 11,000 housing units. Twenty-seven percent (26.5%) of the housing units are owner-occupied, 66% were renter-occupied, and there was a 7.7% vacancy rate. Kalihi-Pālama has a 29% homeownership rate. There are 3.57 average persons per household. The median age of a householder was 53.3, the median age of owner was 59.5, and median renter age was 50.7.

There is a diverse stock of housing in the Kalihi-Pālama area. The housing median year built is 1965. Thirty-five percent (35%) of the housing structures have 1 to 2 units, 18% have 3 to 9 units, 22% have 10 to 49 units, and 24% have 50 units or more.

F.2.3 Liliha-ʻĀlewa-Puʻunui-Kamehameha Heights

There are 6,800 housing units in the Liliha-ʻĀlewa-Puʻunui-Kamehameha Heights area. Fifty-four percent (53.5%) are owner-occupied and 41.2% are renter-occupied. The vacancy rate was 5.2% with a home ownership rate of 56.5%. There were 2.93 average persons per household and 3.58 average persons per family. The median age of a householder was 57, the median age of owner was 64.8, and the median age of renter was 48.5.

General housing characteristics indicate that the median year of homes built in the area was 1958. Seventy-two percent (72%) of the structures have 1 to 2 units, 8% have 3 to 9 units, 9% have 10 to 49 units, and 8% have 50 units or more.

Table F-1. Housing Occupancy and Tenure 2000

	O'ahu		Kalihi Valley		Kalihi-Pālama		Liliha-'Ālewa-Pu'unui-Kamehameha Heights	
	Number	**%**	**Number**	**%**	**Number**	**%**	**Number**	**%**
Total housing units	318,988	100	4,169	100	11,108	100	6,852	100
Occupied units	286,450	90.7	3,941	94.5	10,258	92.3	6,495	94.8
Occupied units by owner	156,290	49.5	2,363	56.7	2,945	26.5	3,669	53.5
Occupied units by renter	130,160	41.2	1,578	37.9	7,313	65.8	2,826	41.2
Vacant units	29,538	9.3	228	5.5	850	7.7	357	5.2
Homeownership rate	--	54.6	--	60.0	--	28.7	--	56.5
Available housing vacancy rate	--	4.9	--	3.0	--	5.5	--	3.3
Homeowner vacancy rate	--	1.6		.8	--	1.1	--	1.0
Rental vacancy rate	--	8.6		6.0	--	7.2	--	6.1
Average persons per household	2.95	--	4.42	--	3.57	--	2.93	--
Average persons per family	3.59	--	4.93	--	4.34	--	3.58	--
Median age of householder	48.70	--	54.7	--	53.3	--	57.0	--
Median age of owner	54.60	--	62.4	--	59.5	--	64.8	--
Median age of renter	40.90	--	45.9	--	50.7	--	48.5	--

Source: 2000 Census SF1 File, Planning Division, Honolulu Department of Planning and Permitting.

Table F-2. Housing Characteristics by Neighborhood 1990

Neighborhood	Median Year Built (1990)	Units in Structure (1990)				
		1 to 2	3 to 9	10 to 49	50+	Other
Kalihi Valley	1960	83%	12%	2%	0%	2%
Kalihi/Pālama	1965	35%	18%	22%	24%	2%
Liliha/'Ālewa/Pu'unui/Kamehameha Heights	1958	72%	8%	9%	8%	1%

Source: Neighborhood Profiles, City and County of Honolulu Planning Department, 1996.

F.3 PUBLIC HOUSING IN KALIHI-PĀLAMA PROJECT AREA

There are a total of 6,573 public housing units in the State of Hawai'i (HCDCH, 2000). As of June 30, 2001, there were a total of 7,663 people on the public housing waiting list. The Kalihi-Pālama project area contains a total of fourteen public housing projects or 2,581 units, in which 79% are family units and 21% are designated elderly units. The Kalihi-Pālama project area accounts for 49.2% of the total public housing available on O'ahu and 39.2% of the public housing in the State. Among the elderly-designated units, the project area contains 36.6% of the elderly housing on O'ahu and 29.3% of the public elderly housing available in the State.

Kuhio Park Terrace.

Table F-3 below provides housing characteristic information for the 14 public housing projects located in the Kalihi-Pālama project area (HCDCH, 2002). According to this information, there were a total of 2,059 units (excluding elderly units) with 1,706 occupied units (82% occupied). Rents range from a low of $251 at Kamehameha Homes to a high of $360 at Hauiki Homes. Average annual incomes were diverse with a low of $11,810 to a high of $15,166. Kuhio Park Terrace has the youngest head of household (HOH) age, 44 years, and Hauiki Homes has a rather older HOH age at 61. Among the elderly-designated housing units, there were 384 occupied units out of a total of 398 units. Rents range from a low of $191 to a high of $243. Family size is generally one person in their early to mid-70's with a range of annual income from $8,000 to $10,000.

Table F-3. Public Housing Characteristics Year 2002

Projects*	Total Number Of Units	Occupied Units	Average Rent	Family Annual Income	Family Size	Head of Household Age
Halia Hale (E, S)	41	40	$238	$9,904	1.8	72
Kalanihuia (E, F)	151	140	$191	$8,297	1.3	76
Hale Poai (E, S)	206	204	$243	$10,476	1.5	75
Hauiki Homes (S)	46	41	$360	$14,258	3.9	61
Puahala Homes I – IV (S)	128	108	$276	$13,106	3.5	56
Kuhio Homes (F)	134	125	$319	$14,961	4.2	48
Kaahumanu Homes (F)	152	142	$253	$12,279	3.0	49
Kamehameha Homes (F)	221	210	$251	$13,716	2.7	50
Mayor Wright (F)	364	330	$268	No data	3.6	53
Kalihi Valley Homes (F)	400	285	$271	$15,166	4.6	50
Kuhio Park Terrace (F)	614	465	$277	$11,810	3.6	44
TOTAL	2,457	2,090	-	-	-	-

Source: Hawai'i Community Development Corporation of Hawai'i, 2002.
E indicates Elderly
S indicates State owned
F indicates Federal owned

F.3.1 HOPE VI

The Housing and Community Development Corporation of Hawaii (HCDCH) is currently planning to prepare an application for a FY 2002 HOPE VI grant for the implementation of the Kuhio Park Terrace Master Plan. The HOPE VI program is a nation-wide competitive grant

program administered by the U.S. Department of Housing and Urban Development (HUD) for the purpose of providing assistance to public housing agencies to replace severely distressed public housing projects with attractive mixed-income and lower density public housing developments.

Artist's rendering of reconstructed Kuhio Park Terrace.
Source: Hawai'i Community Development Corporation of Hawai'i.

An estimated $71 million will be necessary to complete the redevelopment plan for the Kuhio Park Terrace, which includes demolishing the 614-unit project and replacing it with 417 units and a resource center for childcare, job training, and other programs. Slightly more than 180 units are to remain traditional, public housing rentals and rent-to-own units. Plans also call for 100 mid-rise units for the elderly and 10 home lots available for purchase. The remaining 120-plus units would be allotted for "mixed-income," with a higher fixed-rent structure.

F.3.2 Public Housing Renovation

Currently, a modernization project is underway at the Kalihi Valley Homes. Originally built in 1953, the plan calls for gutting 34 of the 45 existing buildings and installing new bathrooms, kitchens, sliding glass doors, solar water heaters, and garbage disposals. The remaining 11 buildings will be demolished in order to provide playgrounds and larger parking areas. The existing community center and administration buildings will be replaced by a new, shared

building. The roads and sidewalks will be repaved and the sewer lines replaced. The project is estimated to cost $40 million and is expected to take 10 years to complete (Star-Bulletin, 11/23/00).

F.3.3 Privatization of Public Housing

A non-profit organization, Mutual Housing Association of Hawaii (Mutual Housing), has become the owner and operator of the Palolo Homes, a 306-unit development constructed nearly 50 years ago. While this particular public housing project is outside of the Kalihi-Pālama project area, it is important to note that this privatization effort is the first in a long-term effort to privatize all existing State-owned housing projects (Star Bulletin, 12/11/00). Mutual Housing bought out the housing project, and will rehabilitate existing buildings as well as take over the day-to-day management. HCDCH expects to eliminate $500,000 in annual deficits and save $8 million in future capital improvements. Proposed monthly rents range from $375 to $850, with the resident's portion limited to 30% of gross family income. HUD Project-Based Section 8 vouchers will provide subsidies to cover rental shortfalls.

F.4 SUMMARY

- With the exception of Kalihi-Pālama, Kalihi Valley and Liliha-ʻĀlewa-Puʻunui-Kamehameha Heights neighborhoods have a high percentage of units occupied by the owner, 94.5 and 94.8% respectively, which suggests relatively stable neighborhoods. These figures are well over the Oʻahu percentage of 50%. The Kalihi-Pālama neighborhood units occupied by owners were considerably lower in comparison at 26%.

- Kalihi-Pālama had the highest vacancy rate (7.7%) compared to Kalihi Valley (5.5%) and Liliha-ʻĀlewa-Puʻunui-Kamehameha Heights (5.2%). Generally speaking, a vacancy rate below 5% indicates a deficiency in housing units. Thus, there are two neighborhoods near capacity.

- Kalihi Valley has the highest average persons per household figures compared to Oʻahu and the other neighborhoods in the project area. In addition, this neighborhood also has a higher average persons per family compared to Oʻahu and the other neighborhoods. This may suggest extended family living conditions.

- All of the neighborhoods in the project area have a higher median age of owner and renter compared to the O‘ahu figures. Especially notable is the difference in median age of owner in Liliha-‘Ālewa-Pu‘unui-Kamehameha Heights (64.8) compared to the O‘ahu figure (54.6). In addition, the Kalihi-Pālama median age of renter (50.7) is well above the O‘ahu figure (40.9).

Walk-up apartment.

- In terms of housing characteristics, Kalihi Valley is primarily composed of single-family residential units and some walk-up, apartment-style buildings. In contrast, the Kalihi-Pālama housing characteristics suggest a diverse stock of housing that includes single-family, apartment walk-ups and high-rise apartments. The Liliha-‘Ālewa-Pu‘unui-Kamehameha Heights neighborhood consists of older stock single-family residential housing.

- There may be more people living in homes than Census information indicates. There were a total of 22,129 housing units in the project area and a Census population of 75,829. Interviews with community members and staff observation indicate that there is a higher population in single-family homes in the Kalihi-Pālama area. Assuming that 5% of the homes actually have ten or more people in residence, this would create an additional 11,000 people in the area bringing the population to 87,000 people.

- According to interviews and staff observations, there are increasingly larger dwellings replacing smaller, older units that cover a greater portion of lots. These dwellings were expanded and/or ‘ohana units were added; moreover, the units might contain multiple families who are not captured in Census data. Larger units with multiple families result in increased demand for off-street parking and more lots enclosed by solid walls due to close proximity to roadways.

Large single-family home.

- A large number of public housing is located in the Kalihi-Pālama area. Most of it is in need of major renovations. The State of Hawai'i public housing policy trend is to privatize State-owned public housing and retain Federally owned property. A cyclical maintenance program should be established to keep the units in livable conditions and upgraded to current standards.

F.5 PLANNING IMPLICATIONS

- Because two neighborhoods are considered at capacity with a vacancy rate below 5%, additional housing may be needed. This condition could be the result of homes being rebuilt or expanded to maximize the building area to accommodate extended families or illegal room rentals.

- Areas within the IMX or BMX zoning designations that have a high residential use should be considered for rezoning to apartment or other residential zoning designation. A study to identify these areas would be needed and an assessment made on the feasibility of a zone change.

- Older housing, both single-family and multi-family walk-up apartments, will need to be replaced and or rehabilitated.

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APPENDIX G

INFRASTRUCTURE AND COMMUNITY FACILITIES

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APPENDIX G
INFRASTRUCTURE AND COMMUNITY FACILITIES

In order to achieve a desired quality of life and promote health and safety, modern urban areas must have access to a network of public and quasi-public facilities. This section provides baseline information on a diverse set of community and infrastructure facilities that either serve or are located in the Kalihi-Pālama project area.

G.1 TRANSPORTATION SYSTEM

Kalihi-Pālama is considered a "gateway" in many respects and transportation is an example of this designation. Although just outside of the project area, the Honolulu International Airport has a considerable influence on traffic circulation and economic factors in the Kalihi-Pālama area. The lower boundary of the project area is Honolulu Harbor, the primary cargo port for the State, which also impacts traffic flow and employment in the region. The H-1 Freeway and Nimitz Highway transect the project area in an east-west direction. The Pali and Likelike Highways connect Honolulu and the windward side of O'ahu. Therefore, the Kalihi-Pālama area could be considered the most significant transportation node in the State of Hawai'i.

G.1.1 Roadways

The roadway systems on O'ahu are maintained by the State Department of Transportation (DOT) or the City. The City Department of Facility Maintenance, Division of Road Maintenance, is responsible for maintaining public streets, roads, bridges, and walkways. The City Department of Transportation Services (DTS) is responsible for locating, selecting, installing, and maintaining traffic control facilities and devices. The major roadways in the Kalihi-Pālama project area include: the H-1 Freeway, Pali Highway, Likelike Highway, and Nimitz Highway. Other significant roadways are Dillingham Boulevard, North King Street, and School Street. There are several other heavily used streets in the

JPO's directing traffic fronting Kapālama School.

area, as it is a major cross-island thoroughfare, with heavy commuting, within the Kalihi-Pālama area.

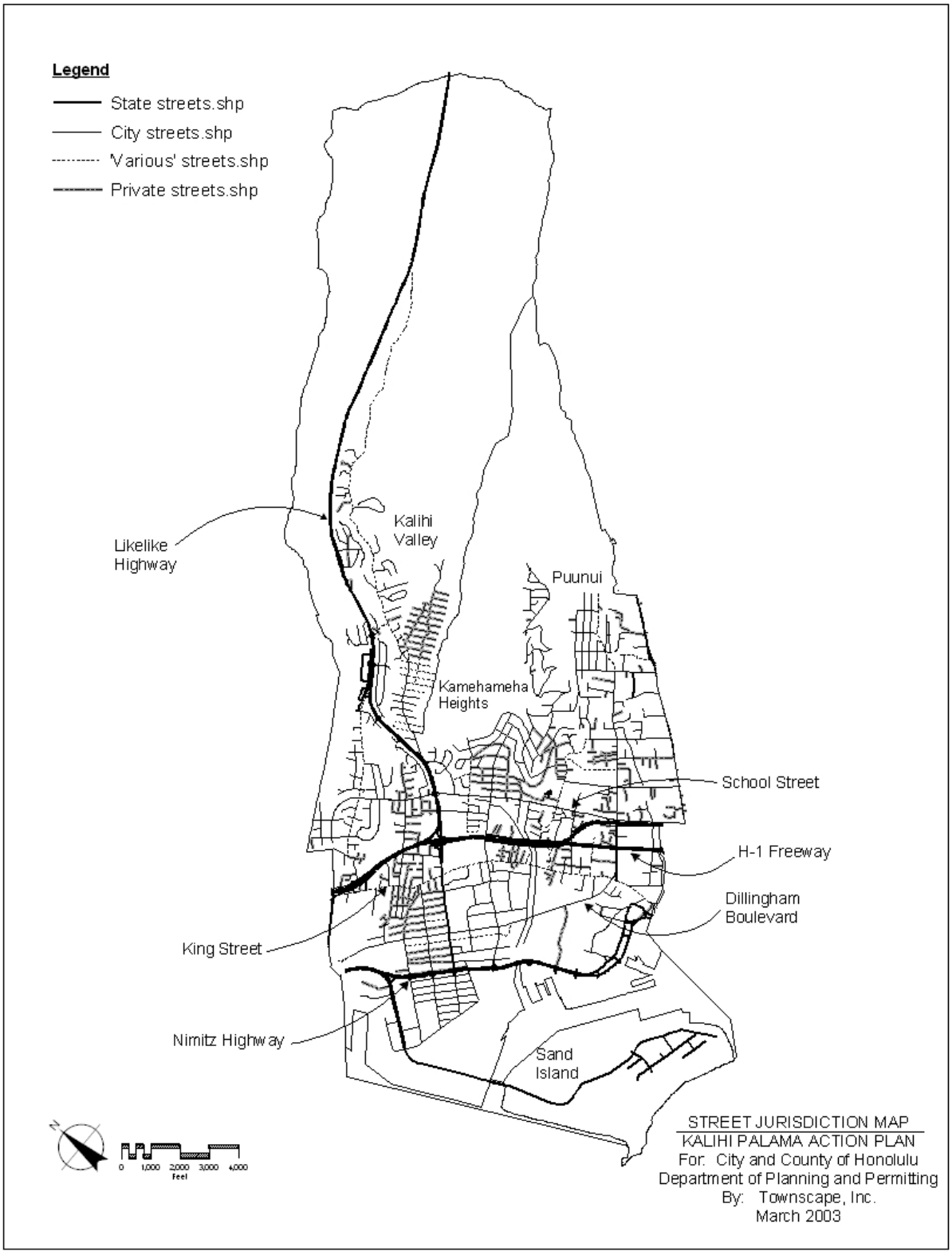
Traffic counts conducted by the City for the area are detailed in Table G-1. As expected, most of the counts indicate that peak traffic is in the direction of downtown Honolulu in the morning and away from downtown Honolulu in the afternoon and early evening. Peak and low times in the Puna Street-Skyline Drive intersection, near Kamehameha Schools, are similar. Most of the traffic flows in either direction is around the start and end times of the school day. The other deviation from this cross-town traffic pattern is the Waiakamilo Road-Dillingham Boulevard intersection, where the northbound peak time occurs in the mid-afternoon. Otherwise, these counts indicate a considerable amount of cross-town traffic over circulation internal to the project area.

There are approximately 56 miles of City-owned roads, 35 miles of State-owned roads, and 23 miles of privately owned roads in the Kalihi-Pālama area. There are no Federal roadways. There are 13 miles of streets that have "various" jurisdictions, which results in roads with varying levels of maintenance and quality. As an example, the original Holokahana Lane in Kalihi is considered private, but the widening is owned by the City and is therefore designated as "various." Roads that are considered private are not eligible for City or State upkeep and the landowner(s) may not have the resources or the motive to maintain the road. In several instances, there is a desire to convey the road to the City. However, many of these roads are not constructed to City standards, therefore preventing the City from assuming ownership. A map depicting ownership of roads in the Kalihi-Pālama area is shown in Figure G-1.

Table G-1. City and County Traffic Counts

Intersection/ Survey Date	Direction	24-hr. Count	Low Count	Low Time	Peak Count	Peak Time
School Street & Nu'uanu Avenue 5/13/98	Westbound	10,461	714	4:30-5:30 PM	787	7:00-8:00 AM
	Northbound	13,240	685	7:00-8:00 AM	1,656	4:30-5:30 PM
	Southbound	11,876	729	4:00–5:00 PM	1,333	7:00-8:00 AM
Kuakini St. & Nu'uanu Drive 10/7/99	Northbound	8,369	739	7:00-8:00 AM	757	4:15-5:15 PM
	Southbound	1,343	98	3:15-4:15 PM	285	7:15-8:15 AM
	Westbound	7,815	863	4:45-5:45 PM	3,901	7:15-8:15 AM
	Eastbound	11,025	714	4:45-5:45 PM	1,270	7:15-8:15 AM
School Street & Houghtailing Avenue 1/22/01	Northbound	9,411	556	6:30-7:30 AM	888	4:30-5:30 PM
	Southbound	4,087	245	3:00-4:00 PM	494	7:00-8:00 AM
	Westbound	8,650	439	7:30-8:30 AM	773	4:15-5:15 PM
	Eastbound	11,044	762	3:00-4:00 PM	1315	7:00-8:00 AM
School Street & Kokea Street 10/6/99	Northbound	1,152	83	4:30-5:30 PM	84	6:00-7:00 AM
	Westbound	7,836	474	7:30-8:30 AM	811	4:45-5:45 PM
	Eastbound	11,586	1,000	4:30-5:30 PM	1,288	6:45-7:45 AM
Skyline Dr. & Puna Street 10/8/99	Northbound	102	12	6:30-730 AM	14	3:30-4:30 PM
	Southbound	781	151	3:15-4:15 PM	182	6:45-7:45 AM
	Westbound	1,308	204	6:45-7:45 AM	216	3:15-4:15 PM
	Eastbound	492	52	3:00-4:00 PM	80	6:30-7:30 AM
N. King St. & Gulick Ave. 4/28/99	Northbound	2,326	201	7:00-8:00 AM	207	4:00-5:00 PM
	Southbound	4,388	266	4:00-5:00 PM	472	7:15-8:15 AM
	Westbound	12,400	727	7:30-8:30 AM	1,076	4:30-5:30 PM
	Eastbound	15,635	1,008	3:30-4:30 PM	1,802	6:45-7:45 AM
N. King St. & Houghtailing/ Waiakamilo 4/29/99	Northbound	7,498	391	7:30-8:30 AM	713	4:15-5:15 PM
	Southbound	16,440	966	6:00-7:00 AM	1,542	4:15-5:15 PM
	Westbound	13,270	675	7:30-8:30 AM	1,313	4:30-5:30 PM
	Eastbound	13,691	993	3:45-4:45 PM	1,614	6:45-7:45 AM
Waiakamilo Rd. & Dillingham Blvd. 6/9/98	Northbound	7,615	409	7:45-8:45 AM	586	3:45-4:45 PM
	Southbound	12,775	836	3:00-4:00 PM	978	7:00-8:00 AM
	Westbound	12,486	568	7:45-8:45 AM	1,216	4:30-5:30 PM
	Eastbound	13,658	980	3:45-4:45 PM	1,182	7:00-8:00 AM

Figure G-1. Street Jurisdiction Map



G.1.2 Public Transport

TheBus system is a regularly scheduled, fixed-route, public transit system administered by DTS. Operations are conducted by the O'ahu Transit Services, Inc. (OTS), a non-profit, sole-purpose entity. TheBus maintains a fleet of 525 buses and operates on 89 routes that span urban, suburban, and rural areas on O'ahu. A total of five routes operate on a modified "radial" route pattern that focuses transit services to dominant employment and retail centers located in the PUC. The areas from Middle Street to Kāhala have the most frequent bus coverage. Daily ridership totals 189,000 people and approximately 95% of the population lives within walking distance of a bus route. The City also provides a paratransit service called Handi-Vans. A fleet of 100 vehicles provides curb-to-curb service upon request for semi-ambulatory or non-ambulatory persons.

G.1.3 Bus Rapid Transit (BRT)

Photomontage of BRT.
Source: www.O'ahutrans2k.com website.

O'ahu's primary transportation corridor extends from Kapōlei in the west to the University of Hawai'i and Waikīkī in the east. This corridor traverses through the Kalihi-Pālama project area, which carries a vast share of the total private and public travel that occurs on the island. At the current level of demand, existing transportation infrastructure in the corridor is overburdened. O'ahu transit improvements will depend on increasing the people-carrying capacity of the transportation system via attractive alternatives to the private automobile. An integrated land use and transportation development will rely on more trips being made by walking, bicycling, or via neighborhood transport systems, as well as developing the movement linkages between Kapolei and Honolulu's urban core and between the communities in the urban core.

The Primary Corridor Transportation Project (August 2000) and Supplemental Draft Environmental Impact Statement (March 2002) examined a range of alternative investments and identified one that would efficiently and effectively improve the transport system primarily in the transportation corridor. The Honolulu City Council in November 2000 selected the Bus Rapid

Transit System (BRT) alternative as the locally preferred alternative to deal with O‘ahu’s transportation improvements.

BRT builds on the hub-and-spoke bus system that would connect with a Regional and In-Town BRT system. The hub-and-spoke network will integrate with a fast, high-capacity transit system that stretches along the primary transportation corridor. The In-Town BRT would be a high capacity, frequent transit service in Honolulu’s Urban Core (Middle Street, Downtown Honolulu, to UH-Mānoa and Waikīkī). The Regional BRT includes bus express lanes on the H-1 Freeway and creates special ramps to facilitate BRT vehicular movements between the H-1 Freeway and selected transit centers. Transit centers are planned at regional, community, and neighborhood levels and will also provide for park-and-ride facilities.

- **Regional BRT System**
  The Regional BRT element includes an uninterrupted transit-way comprised of a continuous H-1 BRT Corridor extending from Kapolei to Downtown that includes a new p.m. zipper lane and a new express lane. The regional corridor is approximately 17.5 miles long. It includes extending the existing H-1 zipper lane three miles from Radford Drive onto the H-1 Airport Viaduct to the Ke‘ehi Interchange (Nimitz Highway), constructing an approximately 6.5-mile long outbound afternoon peak period contra-flow zipper lane between Radford Drive and Waiawa Interchange, and adding an express lane in both directions for high-occupancy vehicles. H-1 widening, approximately six feet at the Radford ramp, will provide horizontal clearance for the structure. The median area would be reconstructed to provide a p.m. zipper lane crossover.

BRT Regional route.
Source: www.Oahutrans2K.com website.

A total of four access-controlled ramps will be constructed at Middle Street, Kapolei, H-1/Kunia, and Luapele Drive. These special ramps will allow Regional BRT buses use of the zipper lane and uninterrupted movements between the H-1 and transit centers. One ramp will provide a connection from the H-1 to the Middle Street Transit Center that will be located in the project area. A single lane would descend from the left side of the existing H-1 Koko Head-bound viaduct just past the Nimitz Highway express lane off-ramp.

- **In-Town BRT**

  The In-town BRT component consists of a high-capacity transit spine approximately 12.8 miles with three branches: UH Mānoa, Kaka'ako Mauka, and Kaka'ako Makai. These three branches will consist of 32 transit stops. During peak periods, the In-town BRT will operate at two-minute intervals between Middle Street and Downtown, at four-minute intervals between Downtown and UH, and three-minute intervals between Downtown and Waikīkī.

  The In-town BRT would use an embedded plate system, or hybrid electric propulsion system, consisting of 51 In-town BRT systems and 13 traction power supply stations (TPSS). TPSS would be placed in parking garages or in buildings along the route to be out of sight or concealed. BRT vehicle maintenance includes expanding the existing Kalihi-Pālama Maintenance Facility and construction of additional facilities in the future.

  The Middle Street Transit Center route will proceed along the center median of Dillingham Boulevard through Kalihi. The new configuration includes a transit way lane and a vehicular lane in each direction. Left-turn lanes would still be provided at Pu'uhale Road, Kalihi Street, Waiakamilo Road, Kohou Street, Kōkea Street, Alakawa Street, and Akepo Lane.

  At Ka'aahi Street, the route turns makai to reach the proposed Iwilei Transit Center that will be located behind the OR&L Station building. From the Iwilei Transit Center, the route will proceed on Iwilei Road then turn Koko Head onto the mauka side of King Street to continue along Hotel Street.

In-town BRT route.
Source: www.Oahutrans2k.com website.

- **Transit Stop Locations**

  A system of transit centers is planned at regional, community, and neighborhood levels. Park-and-ride facilities are also an element of the transit center system. The proposed Transit Stop locations in the project area are listed below:

Middle Street:	Adjacent to and makai of the existing Kalihi-Pālama Bus Maintenance Facility with an alternative site considered at Fort Shafter Flats.
Kalihi:	Located at Dillingham Boulevard and McNeil Street (Dillingham Shopping Center).
Honolulu Community College:	Located just ‘Ewa of Alakawa Street.
Iwilei:	Sites under study would be located near the OR&L Station building and would serve Dole Cannery.

- **Distribution of Lanes**

  In order to be an attractive alternative to the private automobile, the transit system must have lane priority. Therefore, some lanes along the In-town BRT route will be converted from general-purposes to transit-only lanes.

Table G-2. Proposed Distribution of Lanes in Project Area

	Number of Lanes			
	Existing		Proposed	
Location	**General Purpose**	**Transit**	**General Purpose**	**Transit**
Dillingham Boulevard				
Middle St – Laumaka St	7 + 1 turning	0	5 + 1 turning	2
Laumaka St. – Ka‘aahi St.	4 + 1 turning	0	2 + 1 turning	2
Ka‘aahi Street				
Dillingham Blvd. – Iwilei Rd.	2	0	2	2
N. King Street				
Iwilei Road - Hotel St.	4	2	4	2

- **BRT Transportation Impact in the Project Area**

  The success of the BRT system depends on discouraging private auto use. The BRT will not necessarily improve vehicular movement through congested intersections. Unfortunately, this fails to consider the movement of goods and services through the Urban Core. The Kalihi-Pālama area is one of the oldest industrial areas on O‘ahu and is key to linking goods and services between the Airport and harbor areas.

  Parking impact assessments are based on park-and-ride facilities and on-street and off-street parking. The new park-and-ride facilities and transit centers will provide passengers from outside the Kalihi-Pālama community with parking spaces to make connections to various destinations via the BRT system. The proposed Iwilei and Kalihi transit centers will provide an estimated 600 new parking stalls. The In-town BRT would affect a total of 356 unrestricted spaces and 591 restricted parking spaces (Primary Corridor, Aug. 2000, pp. 4-22). The Kalihi-Pālama area is already saddled with increasing demand for on-street parking. Thus, Kalihi-Pālama will carry the burden of assuming that ridership projections are indeed accurate and that there will be a significant decline in demand for parking in the urban core.

G.1.4 Transportation for O‘ahu Plan (TOP 2025)

The Oahu Metropolitan Planning Organization (OMPO) is responsible for carrying out the various requirements of the metropolitan transportation system. In order to respond to changing transportation needs, the Transportation for O‘ahu Plan 2025 (TOP 2025) updated the 2020 O‘ahu Regional Transportation Plan (2020 ORTP). TOP 2025 conforms to the U.S. Department

of Transportation requirement that each major urban area develops a multi-modal, long-range plan that identifies ground transportation projects selected for Federal funding with a minimum 20-year horizon.

Looking forward to 2025 involves identifying committed projects, i.e., a high probability of highway improvements being completed today, thus forming a baseline for 2025. With no transportation investments beyond 2025, congestion levels are expected to increase substantially. This increase is due to the projected increases in resident population, housing units, employment, and tourism that have the potential to affect travel patterns.

Projects and programs selected by the OMPO Policy Committee as the TOP 2025 are grouped into six categories: congestion relief, transit and alternative modes, operations and safety, second access, projects that support community planning goals, and projects that provide local circulations and/or community access. The projects selected for TOP 2025 inclusion are those that should be given highest priority for implementation because of the constraints of projected revenues. The table below lists the projects included in the Kalihi-Pālama Project area:

Table G-3. TOP 2025 Projects for Kalihi-Pālama Project Area

AREA	CATEGORY	PROJECT NUMBER	PROJECT DESCRIPTION	ESTIMATED COST (MILLIONS OF YEAR 2000 $)
**PUC	*C Relief	P-8	H-1 West Bound Vineyard to Middle	$121.3
PUC	+Local Circ	P-23	Nimitz Hwy. Improvements Ke‘ehi to Pacific Street	$192.7
PUC	+Local Circ	P-29	Punchbowl Street conversion to two-way operation	$2.0
PUC	*C Relief	P-32	Fort Armstrong Tunnel	$300.0
PUC	#Ops/Safety	P-34	Sand Island Access Road widening	$4.4
PUC	++Comm Plan	P-35	Sand Island Bridge (replace with tunnel)	$200.0
TOTAL				$820.4

**PUC: Primary Urban Core
*C Relief: Congestion Relief Projects
+Local Circ: Projects that Provide Local Circulation and/or Community Access
#Ops/Safety: Operations and Safety Projects
++Comm Plan: Projects that support Community Planning Goals

In addition to the projects provided above, the following project listing provided by the City Traffic Engineering Division, details projects that have either commenced or are about to begin:

Table G-4. Traffic Engineering Division Projects in Kalihi-Pālama

Project	Project Cost	Timeframe	
		Start	End
Kohou Street Improvements	$ 171,467	July 2001	Mar 2002
Lanakila Ave. speed tables and improvements. Part of Multi-neighborhood Traffic Improvement Project.	$ 500,000	No bid awarded	Estimate Completion 2003
Kalihi Council District 6 – Unspecified projects	No information	Bid in 2003	Construction 2003/2004
Neighborhood Board 14 - Speed tables design at Kamehameha School gate and Puna St. at Skyline Dr.	$ 150,000 estimated	2003	No information
Redesign Bend at 3059 Kalihi St. and install sidewalks along 3100 Block and Kalaepa'a Dr. (DDC)	$1,570,000	2001	2003
King Street Improvements: Design & Construct sidewalk improvements, planting of trees, landscaping, irrigation systems, and street furniture (DDC)	$2,400,000	2001	2002
Miscellaneous sidewalk improvements, including Lanakila Ave., 'Ālewa Dr., Houghtailing St., and School St.	$3,930,000	2001	2002
Neighborhood Board 16 Design (FY02) of speed tables in 3000-3200 block of Kalihi St. (Upper Valley)	$ 100,000 estimated	2003	No information
'Alewa Dr. Rubble Retaining Wall with a CRM Retaining Wall and fence (DDC)	$ 65,000	2001	2002
Mokauea St. Improvements, roadway, curbs, gutters, sidewalk and driveways between King St. and Dillingham Blvd.	$1,070,000	2001	No information
Rehabilitation of Streets, O'ahu: to include Pu'uhale Rd., surface restoration.	$4,820,000	2000	2002
Kalihi St. Bridge over Kalihi Stream: Replace substandard bridge with concrete bridge.	$1,475,000	"Future years"	No information
Iwilei Transportation Center, as a mauka-makai connection with the in-town BRT system	$ 500,000	2003	2003
Middle St. Transit Center	$9,000,000	2002	No information
Kalihi-Pālama Bus Maintenance Facility Improvements	No information	No information	No information
TOTAL	$25,751,000		

G.1.5 Bicycle Plans

The Honolulu Bicycle Master Plan (1999) and the State DOT Bike Plan Hawai‘i (1994) provide major recommendations for the development of bicycle facilities on O‘ahu. Both plans share the long-term vision of integrating bicycling into the island’s transportation system.

The 1994 Bike Plan Hawai‘i includes 293 miles of new bikeways throughout the island. A new round of revisions is currently in progress and is expected at year-end 2002. The City developed the Honolulu Bicycle Master Plan for the Primary Urban Corridor (Kāhala to Pearl City) in 1999. It calls for the development of almost 100 miles of new bicycle routes. This plan will be folded into the new State Bike Plan Hawai‘i. Table G-5 shows the existing bikeways in the project area and Table G-6 shows the proposed bikeway facilities under the 1994 plan.

Table G-5. Existing Bikeways in the Kalihi-Pālama Project Area

Location and Section	Lane (miles)
Nimitz Hwy. (Aloha Tower to Waiakamilo Road)	1.8
Sand Island Access Road (Alahao Place to Sand Island State Recreational Park)	2.3
Waiakamilo Road (Nimitz Hwy. to Houghtailing St.)	0.9
Middle St. Bike Path (Kamehameha/Nimitz Hwy. to North King St.)	0.5
Nimitz Highway (Puuloa Road to Valkenburgh St.)	2.9

Table G-6. Proposed Hawai‘i Bikeway Facilities Under 1994 Bike Plan

Location and Section	Lane (miles)
Nimitz Highway (Waiakamilo Rd. to end of existing Nimitz Hwy.)	1.0
Sand Island Access Road (Nimitz Hwy. to Auiki St.)	0.6
Sand Island Parkway	0.9
School Street (Kamehameha IV Rd. to Nu‘uanu Ave.)	2.0
‘Iolani Avenue/Spencer St. (Nu‘uanu Ave. to Wilder Ave.)	1.2
Nu‘uanu Ave. (Wyllie St. to Beretania St.)	1.4
Dillingham Blvd./N. King St./Beretania St. (Waiakamilo Rd. to N. King St.)	0.9
Nu‘uanu Ave. (Nimitz Hwy. to Beretania St.)	0.3
Beretania St. (N. King to S. King St.)	3.8

- **Honolulu Bicycle Master Plan**

  The Honolulu Bicycle Master Plan provides a strategy for the bicycle component of Honolulu's future transportation system for the Primary Urban Corridor. It identifies an integrated network of on-road bike lanes and off-road shared use paths to create linkages between people and destinations.

  The Master Plan builds on a Regional Bike Corridor concept that involves a bike pattern that stretches along an 'Ewa-Diamond Head bike corridor and a mauka-makai corridor. The 'Ewa–Diamond Head Bike Corridor includes: the Makai Corridor running along the Honolulu water front, the Central Corridor that runs through the center of Honolulu, and the Mauka Corridor that traces along the lower slopes of the ridge communities. The Mauka-Makai Corridor provides access from the inland residential areas in the valleys and atop the ridges to the coastal employment and recreational centers. The Regional Bike Corridor concept is embodied in three project themes.

- **Lei of Parks**

  The Lei of Parks Priority One projects provide paths and bike lanes linking regional and local parks between Diamond Head and Aloha Tower. Priority Two Lei of Parks projects continue to implement the vision of a continuous network of routes through the city and involve park areas located in the Kalihi-Pālama project area. The Lei of Parks road summary is listed below:

Facility	Length (miles)
Middle St. (Nimitz Hwy. – N. King St.)	0.5
Middle St. (Bridge over H-1 Fwy.)	250.0 ft.
Middle St. (Kaua St. – N. School St.)	0.7
Sand Island Bridge	0.2

- **Bike-Friendly Route No. 1**

  The Bike-Friendly Route No. 1 is a continuous bikeway across the city that provides a direct connection between Pearl City and Kāhala. It connects the Kalaniana'ole Highway bike lanes near Kāhala with the Pearl Harbor bike path in 'Aiea. The Nimitz Highway section of Route No. 1 crosses through the Kalihi-Pālama project area. It designates an alternative route to Nimitz Highway between Waiakamilo Road and Middle Street where bike lanes now end. It directs bicyclists to use Waiakamilo Road, Kalani Street, Pu'uhale Road, and Dillingham Boulevard. The route adds bike lanes along Nimitz Highway between Waiakamilo Road and Middle Street through road widening and/or reducing the median.

Lastly, it adds bike lanes under the Nimitz Viaduct through re-striping to connect existing bike lane facilities. The Nimitz Highway Road Summary is provided below:

Facility	Length (miles)
Nimitz Hwy. (Viaduct)	0.1
Nimitz Hwy.-Waiakamilo Rd.-Detour	0.8
Nimitz Hwy.-Viaduct-Waiakamilo Rd.	1.1

- **College Access Projects**

  These projects improve access to university and college campuses within Honolulu. The projects at Honolulu Community College involve constructing a shared-use path along Kapālama Stream and re-striping the Alakawa Street roadway with bike lanes. The Honolulu Community College Road Summary is listed below:

Facility	Length (miles)
Kapālama Stream (Nimitz Hwy.–N. King St.)	0.6
Alakawa St. (Nimitz Hwy.-Dillingham Blvd.)	0.5

- **Priority Three Projects**

  Priority Three Projects include the construction of bike lanes along Lagoon Drive, Kamehameha IV Road, Liliha Street, Sand Island, and Nu‘uanu Stream shared-use paths. The Summary of Priority Three Projects is listed below:

Facility	Length (miles)
Sand Island (Ke‘ehi Lagoon to Sand Island)	1.3
Liliha Street (N. King St.–Wyllie St.)	1.4
Nu‘uanu Stream (Nimitz Hwy.– Kuakini St.)	0.8
Kamehameha IV Road (N. School St.– Likelike Hwy.)	0.7
N. School St. (‘Iolani St. to Middle St.)	2.5

G.2 HONOLULU HARBOR

Honolulu Harbor holds prominent influence in the Kalihi-Pālama project area due to the extent of its commercial harbor activities. The Honolulu Harbor serves as Hawai‘i’s primary distribution center to O‘ahu and the rest of the State. Hawai‘i imports 80% of its required goods with 98% shipped via water. Honolulu Harbor is Hawai‘i’s major port facility, handling over 7 million tons of cargo annually.

Table G-7. Cargo Tonnage

Year	Overseas Vessels		Inter-Island Vessels		Total	
	Number	Cargo tonnage	Number	Cargo tonnage	Number	Cargo tonnage
1984	1,686	4,870,182	2,660	2,369,863	4,346	7,240,045
1985	1,749	5,071,250	2,412	1,884,925	4,161	6,956,175
1986	1,825	5,379,135	2,697	2,121,858	4,522	7,500,993
1987	2,080	5,736,005	2,848	2,135,235	4,928	7,871,240
1988	2,014	6,586,749	3,172	2,746,776	5,186	9,333,525
1989	2,024	6,877,963	3,101	2,892,709	5,125	9,770,672
1990	2,159	7,439,568	3,212	2,917,984	5,371	10,357,552
1991	2,066	6,939,735	3,190	3,962,085	5,256	10,901,820
1992	2,104	8,235,947	3,207	3,101,050	5,311	11,336,997
1993	1,918	7,462,619	2,440	2,731,645	4,358	10,194,264
1994	1,603	6,434,257	2,737	2,372,971	4,340	8,807,228
1995	1,790	6,064,842	2,996	2,096,597	4,786	8,161,439
1996	1,650	6,150,398	2,831	2,349,354	4,481	8,499,752
1997	1,604	6,244,158	2,679	2,312,266	4,283	8,556,424
1998	1,320	9,732,716	4,309	1,765,496	5,629	11,498,212
1999	1,262	5,721,503	2,249	1,730,662	3,511	7,452,165
2000	1,292	5,382,309	2,215	1,959,455	3,507	7,341,764
2001	1,295	6,467,388	2,280	1,863,218	3,575	8,330,606
2002	**1,270**	**6,425,287**	**2,663**	**1,796,910**	**3,933**	**8,222,197**

Cruise ships and excursion boats comprise the two general types of passenger activities occurring at O‘ahu’s port facilities. Between the years 1995 and 2000, the annual number of total passengers ranged from a low of 59,833 in 1997 to a high of 93,444 in 1999. Historically, the inter-island cruise ship market has dominated this industry.

Table G-8. Overseas and Interisland Passenger Arrivals and Departures

Year	Overseas		Inter-Island		Total	
	In	Out	In	Out	In	Out
1995	17,517	17,957	68,699	68,849	86,216	86,806
1996	14,851	16,128	44,982	45,159	59,833	61,287
1997	18,262	17,527	46,825	40,558	65,087	58,085
1998	25,570	28,932	43,522	43,854	69,092	72,786
1999	45,494	44,389	47,950	47,782	93,444	92,171
2000	31,767	31,845	52,570	52,883	84,337	84,728
2001	48,429	46,922	47,870	71,816	96,299	118,738
2002	**130,792**	**134,483**	**19,952**	**31,345**	**150,744**	**165,828**

The O‘ahu Commercial Harbors 2020 Master Plan serves as a guide to develop, maintain, and enhance O‘ahu’s harbor system to ensure its efficient, safe, accessible, and cost-effective

operation. The Master Plan for 2020 recommends a number of improvements. The costs to implement the Master Plan are estimated to total $956 million (in 1996 dollars).

Table G-9. Master Plan 2020 Recommendations

Container Cargo Terminals	Services that support shipping are largely determined by the demand for shipping, and in turn, shipping is dictated by the local economy. Space estimates for the year 2020 are considerably greater than the land currently available for port operations. The overseas container volume is projected to top 1,338,000 TEUs (i.e., Twenty-foot Equivalent Units) in the year 2020. Based on these projections, 2020 container operations are recommended at Pier 1 (Fort Armstrong), Kapālama Military Reservation (KMR), and Piers 51 to 53 on Sand Island. Overflow container shipments may be directed to Barbers Point Harbor.
Berths[1]	In order to satisfy the existing amount of maritime vessels and ensure safe and efficient operations, projections of 2020 cargo activity allocate berths for containers; neobulk barges; bulk-unloaders; liquid bulk; roll-on, roll-off (RORO); and inter-island cargo vessel berths. Additional berthing capability is proposed via the construction and allocation of finger piers, lay berths, marginal wharves, additions to existing bunker berths, and modifying the front row of Ala Wai Yacht Harbor's inner basin.
Roadways	The 2020 Master Plan recommends improvements of all supporting roadways through widening, adding turning and stacking lanes, modifying and/or realigning existing roadways, and developing a perimeter roadway around Honolulu Harbor. A tunnel under Kalihi Channel is to replace the Sand Island bridges. Kalihi Channel is to be reopened for vessel movement.
Cruise Passenger Terminals	Improve or construct four cruise ship terminals at Pier 2 (two berths), Pier 9, Piers 10 to 11, and Piers 19 to 20.
Honolulu Harbor Navigation Improvements And Traffic Flow	Modifications are recommended to ease the harbor's navigational problems by re-opening Kalihi Channel to vessels entering/exiting the harbor. Improvements are facilitated in part by the construction of a vehicular tunnel under Kalihi Channel to Sand Island and further dredging.
Dry Bulk Cargo Terminals	In order to utilize Pier 23 bulk grain shipments, marginal wharf construction and dredging are required. Shipping and receiving will continue at Pier 34 and at a proposed finger pier at Pier 60, as well as at Barbers Point Harbor.
Liquid Bulk Cargo Terminals	The State will not be rehabilitating its petroleum distribution system due to the enormous capital cost and the liability involved. Although valid concerns exist over the current petroleum storage facilities in Honolulu Harbor, an alternative is barge-bunkering service. Additional bunkering facilities are planned. A means of bulk storage is still needed in the vicinity for vessel bunkering and distribution to the downtown Honolulu area and airport.
Acquire Daishowa Area At Pier 40	The Daishowa property is a natural expansion area for the inter-island cargo operations at Piers 39 to 40.
Automobile Cargo Terminals	All methods of shipping automobiles require automobile storage at the terminal. Recommendations include allocation of essential backlands, requisite facilities, and an optional site for automobile shipments at Barbers Point Harbor.

[1] * Other than at Kewalo Basin/Annex, berthing within the State's commercial harbors is generally not permanently assigned. The recommended berth allocations serve as an informal guide for vessel placement. More importantly, these allocations indicate the facilities required to accommodate the kinds and numbers of vessels anticipated by the year 2020.

Kewalo Basin Navigation Improvements	Study problems of cross currents, eddies, and high surf at Kewalo Basin's entrance channel. If applicable, jetties and channel dredging will be included in the 2020 development scheme to eliminate or attenuate problems.
Excursion Vessel Passenger Terminal	The Excursion Vessel Passenger Terminal is proposed at Piers 26 to 27. Excursion vessel accommodations are also possible at Piers 5 to 7, with the continuance of the maritime museum on the western side of Pier 7.
General Cargo Terminals	This classification is used for inter-island cargo and for neobulk commodities moving in large, unitized loads. The 2020 projections for general cargo total 3,919,800 short tons; when computed into berth and acreage requirements, result in two berths and 40 acres of cargo yard in addition to the inter-island cargo facilities at Piers 39 to 40. To satisfy this requirement, general cargo terminals, including inter-island and neobulk shipments, are recommended. The Master Plan intends to establish both cargo and passenger facilities in this area.
Boat Building, Repair, and Maintenance	By the year 2020, a joint/cooperative boat repair and maintenance facility is proposed at the Barbers Point Harbor expansion area and a submarine maintenance facility at Pier 15. Alternative locations for these operations may be possible within Pearl Harbor.
Domestic Fishing Village	The 2020 Master Plan targets Pier 36 as a site for the Domestic Fishing Village.
Ferry Terminal	The recommendations propose combining the Inter-Island Ferry Terminal with the Excursion Vessel Terminal at Piers 26 to 27. Pier 8 remains the designated Intra-Island Terminal.
Foreign Garbage Disposal Facility	The Planning Committee agreed that the State is not responsible for the development of such a facility.
Maritime Office Building	In order to consolidate maritime community operations, a proposed site for the Maritime Office Building is planned at the cruise vessel terminal at Piers 10 to 11.
Multi-Purpose Storage Area	Three potential sites are proposed for a multi-purpose storage area.
One-Stop Shop	The concept of a One-Stop Shop consolidates a few complementary services within a single facility. A possible location for this One-Stop Shop is in a commercial development in the northeast corner of Fort Armstrong.
Additional Recommendations	Developing a freight-forwarding facility, relocating the University of Hawai‘i marine research programs, and providing office space for tugboat operations.

G.3 HONOLULU INTERNATIONAL AIRPORT

Honolulu International Airport (HIA) is a joint-use and owned civil air carrier, general aviation, and military airport; one of its runways and several taxiways are partially located on Hickam Air Force Base. The HIA provides air transportation for the state, most of the Insular Pacific Basin areas, and the North American continent. All international air carrier flights and the majority of domestic overseas flights move through the HIA as do most interisland flights. The Federal Aviation Administration classifies the HIA as a large air traffic hub, meaning that more than one percent of the nation’s total passengers on certified route carriers in scheduled service are enplaned at the airport. Existing facilities at HIA consist of the airfield; passenger terminals;

overseas, interisland, and commuter terminals; airport access and parking; the general aviation facilities; and the airline and airport support facilities.

Honolulu International Airport.

The Honolulu International Airport Master Plan 2010 of August 1994 (HIAMP 2010) was prepared to guide the development at HIA to the year 2010. It replaces the Master Plan and Noise Compatibility Program published in 1988.

G.3.1 HIAMP 2010 Issues and Needs

Three major development issues were identified in the HIA 2010 Master Plan that must be addressed within the planning period. First, more land for airport use should be made available through acquisition and efficient use of available property. Suggested property for acquisition are Kāpalama Military Reservation, Ke'ehi Lagoon Triangle, Hickam Air Force Base, and Ualena Street properties. Second, there is a need to increase airfield capacity for air carrier operations. This can be accomplished by realigning existing taxiways, adding new taxiways, extending runways, improving landing aids, and diverting general aviation to a reliever airport. Lastly, there is a need to minimize traffic congestion on airport roadways within and around the HIA. This can be accomplished by widening and rerouting existing roads, relocating vehicular parking facilities, improving efficiency of key roadway intersections, and reorganizing ground transportation functions.

Honolulu International Airport.

More specifically, the HIAMP 2010 discusses eight other issues in which four have the potential to impact the Kalihi-Pālama project area.

- **Ground Transportation Facilities.** The number of passengers and employees entering and exiting the HIA are growing. HIAMP 2010 finds that more facilities are needed for automobiles, taxis, limousines, rental cars, vans, and buses. It is imperative that these ground transportation facilities be integrated with the traffic solutions outlined for the Kalihi-Pālama project area.

- **Bulk Fuel Storage Facilities**. Satellite fuel facilities are located in proximity to the planned International Terminal Building and there is no room for expansion. A new site is required for the Satellite Fuel facilities. The Kalihi-Pālama Visioning Group has posted concerns regarding the existing fuel storage facilities, siting new facilities, and the associated environmental, health, and safety hazards involved with these facilities.

- **Utility Systems.** The capacity of some of the utility systems are being reached and the construction of other facilities requires major expansion and rerouting of existing systems. Due to the close location of the HIA to the project area, system upgrades, rehabilitation, or replacements will impact the project area. Timing and coordination of projects could reduce the amount of disruption to Kalihi-Pālama area residents and employees.

- **Redevelopment of the South Ramp.** Redevelopment of the South Ramp concentrates on the need for new facilities that will eventually require access to the airport. Some of the South Ramp development projects relate to the development of the Keʻehi Lagoon and Kapālama Military Reservation. These are discussed later in the report.

G.3.2 HIAMP 2010 Plan Recommendations

The plan recommends improvements in three phases of development, as described below. Total costs are estimated at $2 billion in 1993 dollars for the approved and proposed developments.

Phase I improvements contain all of the approved facility improvements for which a budget had been established. They were to be initiated and completed by 1997. This phase of development focused on airport and airlines support facilities and land acquisition. Other than the relocation of the satellite fuel facilities, these projects were implemented.

Phase II improvements focused on improvements in the airfields and ground transportation systems and the provision of more aircraft parking positions. These proposals were to be initiated or completed by 2002. However, roadway and some utilities improvements were the only projects implemented to date.

Phase III improvements recommend airfield improvements and the expansion of terminal facilities, if justified by demand. The International Terminal Complex will be the major terminal facility. These and all other improvements in the Master Plan were to be initiated or completed by 2010. See Table G-10 for a detailed listing of HIAMP projects completed as of 2002.

Table G-10. Honolulu International Airport Master Plan Projects Completed as of 2002

Developments	Complete		Comments
	Yes	No	
PHASE I			
Interim Hazard Cargo Pad		X	No, but access provided to Hickam AFB
Soil Management Facility	X		Soil remediation available on site
Gate Renumbering	X		Interisland only
Diamond Head Concourse Hardstands	X		
Renovation of the International Arrivals Building	X		
Air Cargo Facility	X		United Airlines built facility
Roadway Improvements and Employee Parking	X		
Extend ‘Ewa Concourse	X		
Interisland Terminal, Makai Pier, Phase II	X		
Airport Training Center	X		
FAA Automated Flight Service Station	X		
Land Acquisition	X		Acquired 329 acres in 2000
Relocate Satellite Fuel Facility		X	
Utilities	X		Some work completed
PHASE II			
Landscaped Park		X	
Modify Central Concourse Gates, Phase I		X	
Air Taxi/Commuter Terminal		X	
Civil Air Patrol Facility		X	
Perimeter Roadways	X		Under construction 2002
Additional GSE Storage		X	
Realignment of Taxiways		X	
Taxiway RS and Hazardous Cargo Pad		X	
Engine Run Up Pad		X	
Extend Runway 08R-26L		X	
Diamond Head Concourse Extension, Phase I		X	
Diamond Head Concourse Extension, Phase II		X	
Ground Transportation Center		X	

Roadway Improvements and Parking		X	
Relocated Base Maintenance Facility		X	
Utilities	X		Some work completed
PHASE III			
Airport Hotel		X	Private sector still interested in hotel development
International Terminal Building (ITB)		X	
ITB Complex Site Improvements*	X		Some work completed
Automated People Mover System and Support Facilities*		X	
Central Chiller System	X		Some work completed
Interisland Support Complex and Realign Taxiways G & L		X	
‘Ewa Concourse/Makai Pier Extension		X	
Aircraft Wash Pad		X	
Aircraft Maintenance Facility	X		Continental Air built
Ke‘ehi Lagoon Triangle		X	
Arrivals Holding Pad		X	
Advanced Landing Systems		X	
Interisland Terminal Mauka Pier Extension		X	
‘Ewa Concourse/Makai Pier Extension Gates		X	
Modify Central Concourse Gates, Phase II		X	
Diamond Head Concourse Extension, Phase II (Gates)		X	
Park/Nursery/Land Bank		X	
Ground Transportation Center		X	
Utilities	X		Some work completed

Source: DOT-A Planning Division, Feb. 2002.
NOTE: *Automated People Mover and International Terminal developments may be built but at a much smaller scale than originally planned.

G.3.3 HIAMP 2010 Developments in the Kalihi-Pālama Project Area

The Kalihi-Pālama project area will be concerned with the developments described specifically in the Ke‘ehi Lagoon and Kapālama Master Plan Initiatives as well as in the access and parking plan.

Aerial of Ke‘ehi Lagoon, Kapālama, Sand Island

- **Kapālama and Ke‘ehi Lagoon Development**
  The Kapālama and Ke‘ehi Lagoon development plans comprise new additions of usable land for

Airport operations. The Ke‘ehi Lagoon Development includes the Lagoon Drive Marina and the development of the triangular shallows known as the Ke‘ehi Lagoon Triangle. The Kapālama Harbor Development is a result of the acquisition of the Kapālama Military Reservation from the Federal government.

Specific development activities are listed below:

- Kapālama Development
  The State of Hawai‘i acquired from the U.S. Army a part of the Kapālama Military Reserve. The State will use the land for various projects in the waterfront area. Approximately 48 acres have been set aside for Airport use. Ten acres will be used for additional bulk aviation fuel storage and approximately five acres are set aside for the relocation of the Ualena Street tenants when their leases expire in 2012. Other planned uses for the site include non-Airports Operations Area (AOA) functions, warehouses, and office facilities.

- Lagoon Drive Marina
  The Marina is planned to accommodate 680 boats with an average slip length of 42 feet. The conceptual plan includes space for automobile parking, comfort stations, restaurant/snack bar, marine supply store, launching facilities, fuel dock/sewage pump-out, and miscellaneous concessions. A ferry terminal was also in the plan to support the O‘ahu water transit system.

- Triangle Development
  The Ke‘ehi Lagoon Triangle would accommodate a yacht race/ocean sports complex, maritime-related businesses, aeronautical-related activities, and ocean research and educational activities. Filling the mud flats would create 250 acres of new land of which approximately 50 acres are identified for airport use. This development is contingent upon the State finding a private developer for financing and upon the approval of permits for land filling. The Airport-related functions are as follows:

  Ground Access: Access to the Triangle would be via a roadway bridge from Lagoon Drive for automobiles and pedestrians. Bridge design will accommodate AOA access for airport activities.

Airport Hotel: The Triangle location for a second hotel complements the ocean recreational activities. It will be situated on two acres of land and have approximately 300 rooms. The rooms would need to be sound-proofed to a maximum interior noise level of 45 dBA Ldn due to aircraft noise.

- **Access and Parking Plan**
  Major changes affecting the vehicle demand on the roadway systems in and around the HIA are:

  1. Increased passenger activity from the interisland, international, and overseas destinations.
  2. Increased use of rental cars, rather than buses, by international visitors.
  3. Increase in the number of employees at the Airport due to various facility expansions.
  4. More intensive land use within and around the Airport.
  5. Increase in the population of O‘ahu.

  Major destinations such as Downtown Honolulu and Waikīkī are reached via Nimitz Highway or eastbound H-1 Freeway. The eastbound H-1 Freeway also connects the Airport to residential areas such as Kalihi and other major districts. Access to the windward areas of the island connects via the Pali and Likelike Highways and the H-3 Freeway.

  Vehicular traffic uses Lagoon Drive via Nimitz Highway to access the South Ramp, Lagoon Drive Subdivision, and Ke‘ehi Lagoon Developments. Sand Island Access Road is used to enter the Kapālama Harbor development and the Sand Island Bulk Fuel Farm.

G.4 UTILITIES

G.4.1 Potable Water System

The Honolulu Board of Water Supply (BWS) provided information regarding potable water supply to the Kalihi-Pālama area. Water consumption in the Kalihi-Palama area was approximately 12 mgd for calendar year 2002 and was supplied by sources in the Pearl Harbor basin and West Honolulu area.

Kalihi pumping station

- **Water System Projects**

Plans for future improvements in the Six-Year Capital Improvements Program Report (July 1, 2002 – June 30, 2008) are to improve water source quality and quantity as well as water service to the Kalihi-Pālama area. Project information is outlined in Table G-11:

Table G11. HBWS 6-Year CIP for Kalihi-Pālama

Project	Project Cost	Timeframe	
		Start	End
West Honolulu Watershed Study	$ 50,000	2002	2002
Upper Nu'uanu non-potable reservoir	$ 320,000	2008	2009
Kam IV Road Water Sys Improvements	$ 3,480,000	2002	2004
Kalihi-Beretania 24" Main	$2,850,000	2008	2010
Honolulu Dist. 24" & 42" Mains	8,360,000	2006	2008

Potable water pumping from the Jonathan Springs well in Kalihi was discontinued due to the presence of chlordane and dieldrin in routine water quality sampling. The West Honolulu Watershed Study was initiated to address long-range concerns for water availability and quality. The product of this study will be to identify long-term concerns in these and other watersheds and to identify projects or further studies, as well as funding agencies, to implement actions to address watershed issues.

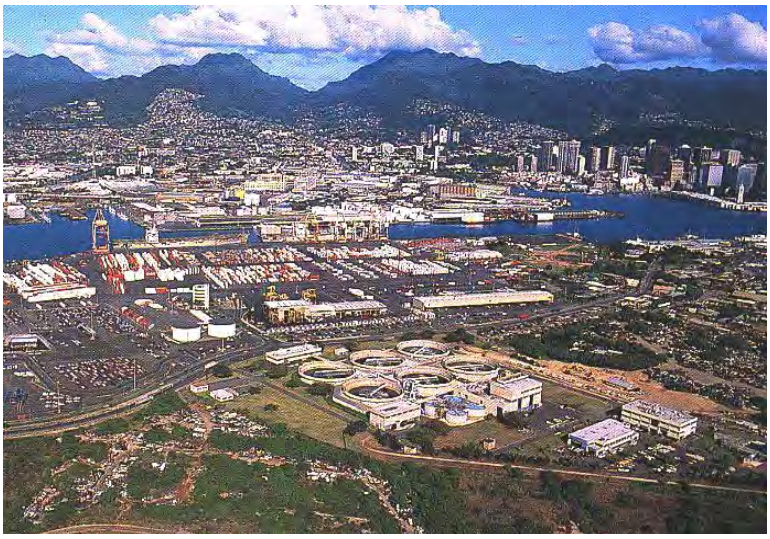
According to the information provided by BWS, the current pumping infrastructure is adequate to meet the current demands for the near- to mid-term. While there are disagreements over the sustainable yield in the area, water conservation measures are being implemented to reduce demand and defer the need to develop additional potable water sources. Increases in demands will be met with additional water imported from the Pearl Harbor basin.

G.4.2 Wastewater Systems

- **Sewage System**

Wastewater for the Kalihi-Pālama area is pumped through the Hart Street Pumping Station to the Sand Island Wastewater Treatment Plant. The Hart Street Pumping Station was put into service in 1949 and designed for average flows of 33 mgd and a peak flow of 77 mgd. Currently, the Hart Street Pumping Station average dry weather flow is 18.4 mgd and the 5-year peak is 60.43

mgd. Projected flows to 2015 are 21.65 mgd for the average dry weather flow and 69.99 mgd for the 5-year peak.



Sand Island Wastewater Treatment Plant.

The Sand Island Wastewater Treatment Plant (SIWWTP) had a mean monthly flow during 2000 of approximately 72.7 mgd. The SIWWTP was built in 1979 and designed for an initial capacity of 82 mgd average dry weather flow with provisions for expansion to 106 mgd dry weather flow, which is the projected need through the year 2020. Plans for expansion to 90 mgd are scheduled for completion by 2005. The capacity for wet weather, or the hydraulic capacity of the facility, was initially 190 mgd and has been expanded to handle a theoretical storm flow of approximately 270 mgd. The effluent from the plant is discharged into Māmala Bay through an 84-inch diameter deep ocean outfall. The outfall runs 1,570 feet from the SIWWTP to the shoreline and 9,000 feet offshore to a 3,400-foot-long diffuser located at an average depth of 235 feet. The wastewater treatment plant and outfall replaced the original disposal system, which discharged raw sewage into 40 feet of water about 3,600 feet offshore.

The age of the wastewater collection system in the project area varies between newly installed and over 100 years old. Some of the upper residential collection pipelines are 6 inches in diameter, which is below the 8-inch City standard. All future projects in the study area will upgrade those 6-inch lines to the standard 8-inch pipeline.

- **Wastewater System Projects**

The City and County of Honolulu is currently implementing a long-range sewer rehabilitation program that covers all the sewer lines on Oahu owned by the City. The Department of Environmental Services prioritizes sewer replacement projects according to several criteria, including structural condition, previous history of maintenance problems, capacity to handle existing and projected flows, and other factors. Major long-range wastewater projects planned for the area that will improve the treatment plant and the collection systems are listed in Table G-12.

Table G-12. Wastewater Projects, DES, City and County of Honolulu

Project	Project Cost	Timeframe	
		Start	End
SIWWTP Disinfection Facility	$ 75,009,000	2000	2003
Hart Street WWPS Upgrade	$ 20,502,000	2002	2002
Sand Island Parkway WWPS Modification	$ 2,310,000	2002	2002
Sand Island Maintenance Storage Facility	$ 370,000	2002	2002
SIWWTP Interim Chemical Treatment Facility	$ 1,600,000	2002	2002
SIWWTP, Unit 1, Ph. 2A, HDWRKS	$153,691,000	2002	2003
Sand Island Basin Misc. Sewer Rehab. Ph. 1	$ 2,650,000	2002	2005
SIWWTP Expansion, Primary Treatment, 90 mgd	$106,925,000	2002	2005
Halona Street Relief Sewer	$ 1,580,000	2002	2005
Nimitz Highway Sewer Reconstruction, OCCC	$ 1,479,000	2002	2005
Amelia Street Sewer Relief Project	$ 831,000	2002	2005
Sand Island Area Main & Lateral Line Replacement	$ 150,000	2002	2006
Sand Island Structural Rehabilitation, Ph. 2	$ 1,100,000	2004	2007
Kalihi Valley Sewer Reconstruction	$ 21,860,000	2005	2006
SIWWTP Septage Facility (*May be dropped*)	No information	2006	-
Kalani Street Relief Sewer	$ 820,000	2006	2009
Republican St.-Nimitz Hwy. Structural Rehab. Ph. 2	$ 890,000	2007	2010
Dillingham Blvd.-Iwilei Rd. Structural Rehab.	$ 2,410,000	2007	2010
Sand Is. Structural Rehabilitation, Ph. 3	$ 860,000	2007	2010
North King Street Relief Sewer	$ 790,000	2007	2010
Lanakila Avenue Relief Sewer	$ 440,000	2007	2010
Sand Island Sewage Outflow Study	$ 350,000	2009	2009
River Street Relief Sewer	$ 2,840,000	2012	2015
Republican Street Relief Sewer	$ 10,160,000	2013	2015
Umi Street Relief Sewer	$ 470,000	2013	2015
Dillingham Blvd.-Iwilei Rd. Relief Sewer	$ 3,850,000	2014	2016
School Street Relief Sewer	$ 830,000	2014	2016
Houghtailing Street Relief Sewer	$ 120,000	2014	2017
Alewa Heights Relief Sewer	$ 710,000	2014	2017
TOTAL	**$415,597,000**		

As indicated in Table G-12, the planned projects for wastewater services have a long-range focus and are directed towards improvement of wastewater services to the project area. The capacities of both the Hart Street Pumping Station and the SIWWTP are in excess of existing and projected flows. Therefore, unless there is an unexpected increase in the population of Honolulu, the above-mentioned projects and the ongoing upgrade of sewer lines to the existing City standard of 8-inch pipes will address the long-term needs of the Kalihi-Pālama area.

- **Storm Water System**

There are three major watersheds in the project area: Kalihi, Kapālama, and Nu‘uanu. Storm water runoff from these three watersheds flows to Kalihi Stream, Kapālama Canal, and Nu‘uanu

Stream. The receiving waters of these three drainage areas are Keʻehi Lagoon and Honolulu Harbor.

Kapālama Canal.

There are 66 miles of storm drain lines in the project area, fed by over 2,600 inflow points. There are numerous outflows into both Kalihi Stream and Kapālama Canal and each requires an NPDES permit. The flood hazard areas within the Kalihi-Pālama area are addressed in the environmental section of this report. There is one storm water/flood control project designated for the Keʻehi Industrial Park Improvements. It is estimated to cost $4 million.

G.4.3 Natural Gas

The Honolulu Gas Company provided information regarding the provision of gas service to the project area. Gas service originates at Campbell Industrial Park, where propane and synthetic natural gas (SNG) are produced. It is piped 20 miles to Pier 38, which is the primary distribution point for Kalihi-Pālama. Currently, the production of these fuels is below the capacity of the plant. There are roughly 200 miles of transmission pipeline in the project area. As with other infrastructure lines in Kalihi-Pālama, the lines are as old as 70 years. There are six "let-down" stations in the Kalihi-Pālama area, which are substations that reduce the pressure of gas within the transmission lines from 500 lbs. in the main line down to 12 lbs. of pressure at the end point of the system.

Leak surveys are conducted in the project area every three years, and line replacement projects are scheduled according to the results of the surveys. Due to the age of the gas lines, leaks are frequently detected in the Kalihi-Pālama area. Entire sections are replaced rather than patches to the leaking area. No line replacement projects were reported for the project area.

In 1998, a pilot program for complete renewal of the gas service transmission system was conducted island-wide. This program was discontinued in lieu of the cyclical leak survey program mentioned above. The pilot renewal program occurred in three areas in the Kalihi-Pālama area: Old Pali Road and Laʻimi Road; Puʻunui Area, Nuʻuanu, Pali Drive and Judd Street/Waolani Avenue; and Nihi Street, between Kamanaiki and Wailele Streets.

The Gas Company did not disclose information regarding capacity, number of customers, and consumption. The capacity of the current system is flexible to the needs of the consumer base in each area. An analysis is conducted as new customers are projected and the supply system is upgraded as needed. There are no projects in the Kalihi-Pālama area at present to expand or to rehabilitate gas service capacity.

G.4.4 Petroleum

A complex network of active and inactive above-ground storage tanks (AST), underground storage tanks (UST), and pipelines exist in the Kalihi-Pālama area. The most up-to-date information concerning the active and inactive pipelines in the area is constrained by a variety of factors, the most important being the limited or inaccurate documentation of historical information relating to pipeline construction, ownership, control, current status, historic use, and location. However, a recent report from the DOT-Harbors Division provides the following information about the Honolulu Harbor and Iwilei areas specifically:

- **Refineries**
  Two refineries, located in Campbell Industrial Park, supply products to local markets via nine ports state-wide. The two refineries have distillation capacity of 54,000 and 93,500 barrels per calendar day (BCD) for a total capacity of 147,500 BCD.

- **Underground Storage Tanks (UST)**
  UST's refer to any one or combination of tanks (including connecting pipes) used to contain regulated substances in which the volume is 10% or more beneath the surface of the ground. While some tanks have been demolished, there are approximately 99 documented UST's in the area. Twenty-four of those are considered active among which nine have the capacity of 5,000 gallons or more. In addition to petroleum products, the inactive tanks include storage for lacquer, enamel, solvents, and pesticides.

- **Above-Ground Storage Tanks (AST)**
  Current and past regulations have not required AST's to be registered with any regulatory agency. Limited information exists as to the past or current status of AST's in the area. Bulk fuel storage accounts for most of the AST's in the area and these usually consist of large AST's that are linked to other facilities by underground pipes. Most AST's store petroleum

products received from refineries at the Campbell industrial area. A summary of ASTs is listed in Table G-13.

Petroleum tanks along the waterfront.

Table G-13. Above-Ground Storage Tanks (AST) Summary Information

AST Status	• Approximately 21 are inactive or of unknown status • At least 13 AST's have been removed	
Volume	• Volume ranges from 1,000 gallons to 3.5 million gallons and at least 89 have 20,000 gallons or more.	
Ownership	• Currently, 47 AST's are located on State-owned land and most are operated by BHP, Chevron, and Young Brothers. • 59 AST's are on land owned by Chevron USA, Shell Oil, Unocal, HECO, O'ahu Lumber (Hakim Properties)	
Major Types of Storage Materials	• *Diesel*	Approximately 10 million gallons of diesel are stored in 30 AST's
	• *Gas*	More than 20 million gallons stored in 24 AST's throughout the harbor area and adjacent areas
	• *Jet Fuel*	More than six million gallons of jet fuel are stored in three AST's
	• *Other Materials*	Other tanks hold lean oil, low sulfur fuel oil, cement, propane, gas additives, pesticides, fuel oils, transmix, storm water run off, and recovery well water

- **Pipelines**

  An extensive underground and above-ground network of active and inactive pipelines exist in the Honolulu Harbor and Iwilei area. The largest portion of pipeline infrastructure is dedicated to transport fuel oil. In addition to petroleum pipelines, other pipe networks transport materials such as molasses, caustic soda, and pesticides. This network has been identified as a main contributor of underground petroleum contamination at the Honolulu waterfront.

  The Iwilei District Participating Parties (IDPP) is a voluntary group including BHP, Castle & Cooke, Chevron, City Mill, State of Hawai'i DOT-Harbors, Hawaiian Electric Co., Phillips Petroleum Company, Equilon Enterprises, Texaco Inc., Tosco Corporation, and Unocal. With oversight by the Hawai'i Department of Health, the IDPP has conducted a subsurface investigation and assessment of petroleum contamination. The results of a preliminary investigation are listed in Table G-14.

Table G-14. Categories of DOT-H Properties in the Honolulu Harbor and Iwilei Area

Piers	Environmental Status
16 through 18, 31, 32 (partial), 33	Category A • No evidence of contaminant releases • Past history of hazardous material use • No subsurface investigative data to allow determination of environmental status
19 through 22, 32 (partial), 34	Category B • Evidence of past releases of contaminants to the subsurface • No subsurface investigative data to allow determination of environmental status
23 through 29, 35 through 38	Category C • Evidence of past releases of contaminants to the subsurface • Subsurface investigations have confirmed contamination exceeding DOH Tier 1 Actions Levels

- **Spills and Releases**

  Each major fuel storage facility had at least two significant spill events. The majority of the spills were due to equipment failure or operator error. The majority of products released were gas, diesel, and fuel oil. Reported spills were either absorbed with pads or soaks via booms for water. Many releases into the harbor waters are from unknown sources. Probable causes include: seepages through pier walls after storm events when the ground becomes saturated with water, petroleum entering storm drain system, or clandestine dumping.

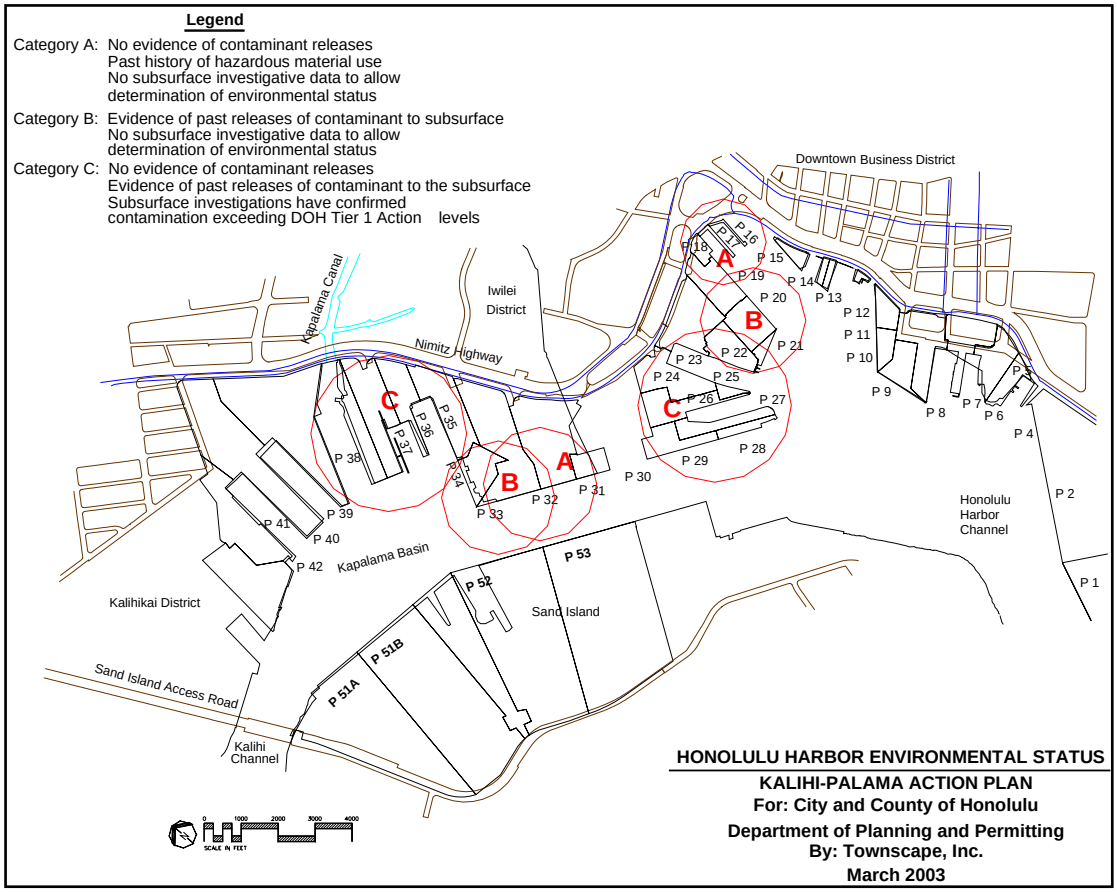
Subsurface releases are wide-spread and have probably accumulated over years. Subsurface sources may include manholes, valve boxes, and subsurface locations.

- **Analysis of Risks and Threats**

  The information provided above infers that property and infrastructure pose a threat to environment or human health. Risk stems from historical uses of hazardous materials and lack of data to conclude no contamination. Hazardous materials releases have occurred historically and most are associated with underground pipelines.

  Potential or confirmed subsurface contamination releases into harbor waters pose a risk to the environment and human health. Free product floating on surface or groundwater has been found on DOT-H properties as well as adjacent properties. There have been several reported incidents of movement of contaminants from DOT-H properties into harbor waters in the vicinity of pier 26. Utility lines, building foundations, and porous bedding may be the preferential pathways for contaminant transport and may influence the direction of contaminants movement.

Figure G-2. Honolulu Harbor Environmental Status



Many AST, UST, and pipelines have been used since 1900 for managing fuels, solvents, and hazardous materials. Many have been removed but little or no information exists to confirm their removal and whether or not contaminants remain in systems.

Unfortunately, the relationship between groundwater movement and the degree of risk involved with contaminants is not well understood. The inland movement of water may create the potential for the transport of contamination to neighboring vicinities; however, how groundwater is affected by tides is not exactly known.

Constructed features may mitigate contaminant transport. Sheet pilings are man-made barriers to lateral groundwater movement. An exception is where storm drainage enters harbors through sheet pilings. Dike walls extending below ground surface of piers 29/30 may serve to constrict movement. Paved surfaces may reduce infiltration of surface run off into underlying soils and may reduce the potential exposure to contaminated soils.

G.4.5 Electricity

Electric substation on Dillingham Boulevard.

The Hawaiian Electric Company (HECO) provided information regarding electrical service to the Kalihi-Pālama area. There are ten electrical substations in the Kalihi-Pālama area, with a total distribution capacity of 210 megawatts (MW). The current load servicing the area is approximately 120MW. Electrical infrastructure lines in the area include roughly 9 miles of 138 kilovolts (kV), 30 miles of 46 kV, and about 150 miles of 12 kV lines. O‘ahu is served by a total of 1,669 MW of generation located at the Honolulu Power Plant (7%), the Waiau Power Plant (29%), the Kahe Power Plant (39%), and the Campbell Independent Power Producers (25%).

Because these power plants are all networked together by the transmission 138kV system, it is assumed that the sources of generation for the study area can be proportioned accordingly. The ages of the distribution lines vary throughout the project area, ranging from newly installed to

over 50 years old. Redundancy is built into the distribution system such that if one transformer line should fail, service is made available from a backup line or transformer.

It is important to note the relevance of placing neighborhood power lines underground. HECO has established a policy to place underground the currently overhead facilities. The major issue has always been determining whether it is fair for electric ratepayers island-wide to bear the extra cost of burying lines in individual neighborhoods. HECO has initiated a cost-sharing plan to address this issue. Under this plan, HECO will perform and pay for 100% of the planning, design, and construction of the electrical work for its facilities if the community and or government are willing to perform and pay for 100% of the planning, design, and construction of the ductline infrastructure to bury existing neighborhood distribution lines (25 kV and below). This cost sharing contribution may be used when no Federal, state or local laws governing cost sharing apply.

Major projects planned for the area that will improve service include the following:

Table G-15. HECO Projects

HECO Projects	Project Cost	Timeframe	
		Start	End
Mokuone Substation	$ 2,000,000	2002	2002
Iwilei 25kV Nimitz Circuit Extension	$ 850,000	2004	2006

G.5 SCHOOL FACILITIES

Historic Farrington High School.

There are 17 public schools in Kalihi-Pālama: 14 elementary schools, two middle schools, and one high school. Total public school enrollment of grades K-12 is approximately 10,687 students for the 2001-2002 school year. The Department of Education does not plan on building any new schools in the Primary Urban Corridor. Instead, it plans on redistricting to accommodate future population growth.

In addition to these schools, one charter school, Hālau Lōkahi New Century, became the 14th charter school in the State in 2001. Hālau Lōkahi New Century offers grades K-12 and has an enrollment of 130 students. A community school for adults also operates out of Farrington High School (FHS). Community Schools offer courses in basic and advanced elementary education; secondary education; adult literacy; homemaking and parenting; community education; naturalization training; and cultural, recreational, and social interests.

There are 12 private schools in the Kalihi-Pālama area, most of which are religiously affiliated. Grade levels include kindergarten through high school and total enrollment is approximately 6,300 students. Kamehameha Schools is the largest of the private schools with a K-12 enrollment of 3,300 and a faculty of 353. Additionally, there are 24 private pre-schools that accept children from 2 to 5 years of age.

There is one college in Kalihi-Pālama. Honolulu Community College (HCC) is a part of the University of Hawai'i System of Community Colleges and specializes in technical training. Programs include Advanced Computing Technologies (ACT) Centers (professional and personal development), Arts and Sciences, Continuing Education and Training, Distance Education, an Off-Campus Credit Program, the Pacific Center for Advanced Technology Training (PCATT), Service Learning, and Technical Education.

G.5.1 Farrington High School Complex

A complex is comprised of a high school and the intermediate/middle and elementary schools that feed into it. The Farrington High School (FHS) Complex consists of two middle schools and nine elementary schools. Additionally, there are five elementary schools within the Kalihi-Pālama project boundaries that are not affiliated within the FHS Complex.

- **Governor Wallace Rider Farrington High School**
  FHS is the only high school servicing the Kalihi-Pālama area and it has the largest public school student population in the State. Many students are from immigrant families and need intensive instruction in the English language. School highlights include an award-winning newspaper, a theater company, and many national award-winning artists. FHS also offers several vocational academies including health, travel, early childhood education, and art, as well as advanced placement courses in English and mathematics.

Table G-16. Farrington School Complex		
School Level	**Name**	**2001-2002 Enrollment**
Middle	Dole	828
	Kalakaua	961
Elementary	Fern	510
	Kaewai	338
	Kalihi	226
	Kalihi-Kai	876
	Kalihi-Uka	310
	Kalihi-Waena	550
	Kapalama	744
	Linapuni	265
	Puuhale	369

Table G-17. Other Kalihi-Palama Schools Not Affiliated with the Farrington School Complex				
School Level	**School**	**2001-2002 Enrollment**	**Affiliated Middle School**	**Affiliated High School**
Elementary	Kauluwela	517	Central	McKinley
	Kaiulani	445	Central	McKinley
	Likelike	502	Central	McKinley
	Lanakila	326	Kawananakoa	Roosevelt
	Maemae	739	Kawananakoa	Roosevelt

- **Middle Schools**

  Two middle schools feed into FHS: Dole Middle School and Kalakaua Middle School, both of which include grades 6 to 8. Additionally, students from the Kalihi-Pālama area attend Kawananakoa Middle School at the base of Nu‘uanu Valley and Central Middle School in Downtown Honolulu.

- **Elementary Schools**

  There are 14 elementary schools in the Kalihi-Pālama area, nine of which belong to the FHS Complex. Nine schools offer kindergarten through fifth grade classes and four schools offer kindergarten through sixth grade. Linapuni School offers kindergarten through third grade classes and is comprised entirely of children from the Kuhio Park Terrace and Kuhio Homes public housing developments.

Ka‘iulani Elementary School.

G.5.2 Condition of School Facilities

School facilities are rated on two scales. The first scale identifies the quality of the facilities in terms of grounds, building exterior, building interior, equipment/furnishings, health/safety, sanitation, and overall quality. Possible ratings include "unacceptable," "satisfactory," and "very good." The second scale rates the adequacy of the space for administration, library,

cafeteria/auditorium, and classroom facilities. School facilities were considered inadequate if they ranked below 70% of the State standard and were considered marginal if ranked between 70% and 90% of the State standard.

The facilities for all of the public schools in the Kalihi-Pālama area were ranked at least "satisfactory." Some schools had facilities that were inadequate in terms of space. This was especially true for library facilities at the elementary school level. Those facilities that were considered "inadequate" are highlighted in bold font.

Based on the facilities evaluation, FHS facilities were rated either marginal or more than adequate according to State standards. However, the cafeteria/auditorium was rated as "inadequate" to accommodate the space needs of its population. All existing facilities were considered "satisfactory" when rated on grounds, building exterior, building interior, equipment/furnishings, health/safety, and sanitation.

Six elementary schools had library facilities that were considered "inadequate," with ratings ranging from 39 to 67%. Additionally, the administration facilities for Ka‘ewai and Linapuni Schools were rated as inadequate. The ratings were 66% for Ka‘ewai School and 34% for Linapuni School.

Table G-18. Adequacy of School Space

School	Administration	Library	Cafeteria/ Auditorium	Classrooms
Farrington High School	94%	162%	**65%**	109%
Dole Middle School	78%	81%	130%	134%
Kalakaua Middle School	99%	114%	106%	129%
Fern Elementary	94%	94%	110%	119%
Kaewai Elementary	**66%**	114%	190%	154%
Kaiulani Elementary	100%	80%	177%	124%
Kalihi Elementary	92%	**54%**	351%	234%
Kalihi Kai Elementary	106%	75%	85%	102%
Kalihi Uka Elementary	104%	**39%**	225%	149%
Kalihi Waena Elementary	107%	**49%**	150%	107%
Kapalama Elementary	83%	72%	108%	96%
Kauluwela Elementary	98%	88%	128%	101%
Lanakila Elementary	102%	110%	213%	160%
Likelike Elementary	117%	**67%**	165%	115%
Linapuni Elementary	**34%**	**21%**	188%	98%
Maemae Elementary	90%	**65%**	129%	98%
Puuhale Elementary	114%	108%	199%	181%

G.5.3 FHS and Student Performance

FHS is the only high school in the Kalihi-Pālama area and it was used as an overall indicator of school and student performance. Nine of the 14 elementary schools in the area feed into the two middle schools in Kalihi-Pālama, both of which feed into FHS.

- **Student Population**

  FHS has a unique set of challenges in that its student body includes a higher percentage of students who receive lunch subsidies and have limited English proficiency than at the State level. Attendance is evaluated on a State standard for daily attendance of the student body and average daily absences per student during the course of the school year. Attendance at FHS is lower than the State standard and the average daily absence per student is higher than the State standard.

Table G-19. FHS Student Body 2000-2001 School Year

	Farrington High School	State of Hawaii
Enrollment	2,455	183,629
Lunch Subsidy	62.1%	43.3%
Limited English Proficiency	17.9%	6.3%
Special Education	10.8%	10.3%
Ethnicity		
African-American	0.7%	2.0%
Chinese	0.3%	3.0%
Filipino	58.4%	21.0%
Hawaiian	2.1%	4.0%
Hispanic	0.9%	2.0%
Japanese	2.0%	12.0%
Korean	0.2%	1.0%
Part Hawaiian	10.2%	23.0%
Portuguese	0.9%	2.0%
Samoan	13.3%	4.0%
White	1.8%	14.0%
Not Specified/ Other	8.0%	12.0%
Average Daily Attendance	87.8%	95.0%
Average Daily Absences	20.4 days	9 days

- **FHS Surrounding Community Characteristics**

  The community profile illustrates some of the characteristics of the FHS community. The community profile is based on the 1990 Census because data from the 2000 Census is incomplete. FHS students come from a community where a large percentage of households have school-age children. Income is lower than at the State level and a significant percentage of households receive public assistance income. One significant statistic is the percentage of children ages 4 to 19 who are considered "at risk." "At risk" children are determined from a combination of factors that include not being a high school graduate; living with a mother who is not a high school graduate, is single, divorced, or separated; and below the poverty level. Using these criteria, 19.4% of FHS students are considered at risk, compared to 2.1% statewide.

Table G-20. FHS Surrounding Community Characteristics

	FHS Community	State of Hawaii
Average family size	3.1	3.6
% households with school age children (4-19 years old)	39.7%	31.8%
Median household income	$34,325	$38,829
Per capita income	$10,574	$15,770
% households with public assistance income	15.4%	6.8%
% children (3-19 years old) below poverty level	17.3%	11.6%
% children (4-19 years old) who are at risk	19.4%	2.1%
Community Educational Attainment		
College Graduate	9.4%	21.1%
Some College	22.1%	29.9%
High School	32.5%	30.4%
Less than High School	36.0%	18.6%
Only English Spoken at Home	47.1%	75.2%

G.6 PARKS

Parks are an important part of maintaining the physical health and well-being of any community. They provide venues for exercise, recreation, and interaction, thereby creating pleasant and healthy neighborhoods. Therefore, the City established a set of park criteria based on both population and service area. Population-based criteria was used to determine the approximate number, type of parks, and related facilities required by the Kalihi-Pālama area.

Kunawai Park.

The City classifies its parks either as Community-based parks or Island-wide parks. Community-based parks generally serve those who live within the general vicinity. They support active recreational uses and include such facilities as ball fields, play courts, swimming pools, recreational centers, and gymnasiums. Community-based parks include mini parks, neighborhood parks, community parks, and district parks. Island-wide parks provide passive recreational activities such as camping. Island-wide parks include urban parks, botanical gardens, beach parks, beach rights-of-way, regional parks, street malls, nature parks and reserves, golf courses, and other un-developable lands.

G.6.1. Kalihi-Pālama City Parks

There are 27 City parks within the Kalihi-Pālama area that includes one botanical garden, six community parks, three district parks, four neighborhood parks, seven mini parks, four malls, and two urban parks. According to the City Department of Planning and Permitting Neighborhood Area Statistics, the Kalihi-Pālama area has a population of 75,829 people. City Parks Standards indicate that there should be approximately one neighborhood park per 5,000 people, one community park per 10,000 people, and one district park per 25,000 people. The presence of mini parks, malls, botanical gardens, and urban parks, which are not included in the standards, may alleviate park deficiencies.

City park standards also indicate the ideal size of parks of different types: 4 to 6 acres for neighborhood parks, 10 acres for community parks, and 25 acres for district parks. The recommended park acreage for each type of park was multiplied by the number of parks recommended to serve the Kalihi-Pālama population. This was used to determine the approximate acreage required to meet the needs of this area.

$$\text{Required Park Acreage For Kalihi-Pālama} = \left[\text{Standard Park Acreage}\right] \text{ X } \left[\text{\# of Parks Required by City Standards}\right]$$

Table G-21 shows the number of existing parks and their acreage, the required numbers and acreage, and the numbers and acreage required to meet City standards. The total existing acreage for the three City park types is 54.61 acres. The total amount of parkland in the Kalihi-Pālama area for all park types, including the acreage from parks such as malls, mini parks, botanical gardens, and urban parks, is 86.48.

Table G-21. Comparison of Kalihi-Palama Park Number & Acreage with City Standards

	Park Type			Total
	Neighborhood	Community	District	
Existing Number	4	6	3	**13**
Required Number	15	7	3	**25**
Additional Required	11	1	0	**12**
Existing Acreage	8.26 acres	21.19 acres	25.16 acres	***54.61 acres**
Required Acreage	60-90 acres	70 acres	75 acres	**205 - 235 acres**
Additional Acreage Required	52-82 acres	49 acres	50 acres	**151 - 181 acres**

**Total Existing Acreage does not include mini parks, malls, botanical gardens, and urban parks.*

Each park type also has certain basic facilities that are associated with them. Table G-22 shows the facilities that should be associated with each park type. The total number of required facilities was calculated by multiplying the number of facilities that should be associated with each park type by the number of parks that are required to accommodate the Kalihi-Pālama population.

Table G-22. Comparison of Kalihi-Palama Park Facilities with City Standards

Park Type	Recommended # of Parks	Basic Facilities Per Park	Required	Existing	Additional Required
Neighborhood	**15**	2 Basketball Courts	30	6	24
		2 Volleyball Courts	30	4	26
		1-2 Softball Fields	15-30	1	14-29
		Comfort Station	15	4	11
Community	**7**	4 Basketball Courts	28	10	18
		3-4 Volleyball Courts	21-28	9	12-19
		1-2 Softball Fields	7-14	7	0
		Comfort Station	7	6	1
		Recreation Building	7	7	0
District	**3**	3-4 Basketball Courts	9-12	10	0
		3-4 Volleyball Courts	9-12	6	3-6
		1-2 Softball Fields	3-6	4	0
		1 Baseball Field	3-6	2	1-4
		4-6 Tennis Courts	12-18	8	4-10
		Comfort Station	3	3	0
		Recreation Building	3	4	1
		Swimming Pool	3	1	2
		Lighted Facilities	3	22	0

G.6.2 Parks By Neighborhood Area

The City uses data from the U.S. Census to characterize neighborhood areas on O'ahu. The Kalihi-Pālama area is divided generally into three Neighborhood Areas: 1) Alewa-Liliha-Pu'unui-Kamehameha Heights (Neighborhood Area 14), 2) Kalihi-Pālama (Neighborhood Area 15), and 3) Kalihi Valley (Neighborhood Area 16). These Neighborhood Area boundaries were created to generally fit both Neighborhood Board and Census tract boundaries but do not match either exactly.

Lo'i Kalo Park.

Tables G-23 through G-25 show the existing number of parks and acreage by park type, the required numbers and acreages, and the additional numbers and acreages required given the population. The additional requirements may be alleviated by other types of existing parks in the area, such as malls or urban parks, which are not included in City standards.

- **Neighborhood Area 14: Alewa-Liliha-Pu'unui-Kamehameha Heights**
  According to the 2000 Census, there are 19,905 people living in the Alewa-Liliha-Pu'unui-Kamehameha Heights Neighborhood Area. The total park acreage of the area, including mini parks, malls, botanical gardens, and urban parks is 21.47 acres. The total acreage for the three types of City parks included in the standards is 10.16 acres.

Table G-23. Alewa/Liliha/Pu'unui/Kamehameha Heights Parks Comparison with City Standards

	Park Type			Total
	Neighborhood	Community	District	
Existing Number	2	2	1	**5**
Required Number	4	2	1	**7**
Additional Required	2	0	0	**2**
Existing Acreage	3 acres	1.62 acres	5.54 acres	***10.16 acres**
Required Acreage	16-24 acres	20 acres	25 acres	**61-69 acres**
Additional Acreage Required	13-21 acres	18.38 acres	19.46 acres	**50.84-58.84 acres**

**Total Existing Acreage does not include mini parks, malls, botanical gardens and urban parks.*

- **Neighborhood Area 15: Kalihi/Pālama**

  There are 37,987 people living in the Kalihi-Pālama Neighborhood Area. The total park acreage of the area, including mini parks, malls, botanical gardens, and urban parks is 41.25 acres. The total acreage for the three types of City parks included in the standards is 27.55 acres.

Table G-24. Kalihi/Palama Parks Comparison with City Standards

	Park Type			Total
	Neighborhood	Community	District	
Existing Number	1	4	1	**6**
Required Number	7	4	1	**12**
Additional Required	6	0	0	**6**
Existing Acreage	1.24 acres	18.54 acres	7.77 acres	***27.55 acres**
Required Acreage	28-42 acres	40 acres	25 acres	**93-107 acres**
Additional Acreage Required	26.76-40.76 acres	21.46 acres	17.23 acres	**65.45-79.45 acres**

**Total Existing Acreage does not include mini parks, malls, botanical gardens, and urban parks.*

- **Neighborhood Area 16: Kalihi Valley**

  There are 17,937 people living in the Kalihi Valley Neighborhood Area. The total park acreage of the area, including mini marks, malls, botanical gardens and urban arks, is 23.76 acres. The total acreage for the three types of City parks included in the standards is 16.90 acres.

Table G-25. Kalihi Valley Parks Comparison with City Standards

	PARK TYPE			TOTAL
	Neighborhood	Community	District	
Existing Number	1	1	1	**3**
Required Number	3	2	1	**6**
Additional Required	2	1	0	**3**
Existing Acreage	4.02 acres	1.03 acres	11.85 acres	***16.90 acres**
Required Acreage	12-18 acres	20 acres	25 acres	**57-63 acres**
Additional Acreage Required	7.98-13.98 acres	18.97 acres	13.15 acres	**40.10-46.10 acres**

**Total Existing Acreage does not include mini parks, malls, botanical gardens, and urban parks.*

- **State Parks**

  The only State Park in the area is the Sand Island State Recreation Area. The park is 14 acres and includes camping, picnicking, and other facilities. Even if this State Park was included in the total park acreage for Kalihi-Pālama, there would still be an 88- to 157-acre deficit of parks.

Sand Island State Park.

  Additionally, the State also maintains two parks that lie on the outskirts of the Kalihi-Pālama project area. The Nu‘uanu Pali State Wayside is three acres in size and offers an impressive view of Windward O‘ahu. The Royal Mausoleum State Monument is ten acres in size and is the burial place for many of Hawai‘i’s royal family.

G.6.3 Summary

Public parks are maintained either by the City Department of Parks and Recreation or the State Department of Land and Natural Resources Division of State Parks. Overall, the number and acreage of public parks and associated facilities are below the current recommended standards. Even if additional public parks were added to meet the number of parks required by the City, the Kalihi-Pālama area will still not meet park acreage standards because most existing parks are smaller than City standards. Public parks that are deficient in their size requirements are likely sub-standard because most parks in the area were created before the standards were developed. This area was also among the earliest urbanized areas in the State and, therefore, it only provided for a limited number of parcels for parks. The potential for future park expansion is limited, given the level of development in the area.

G.7 INFRASTRUCTURE SUMMARY AND PLANNING IMPLICATIONS

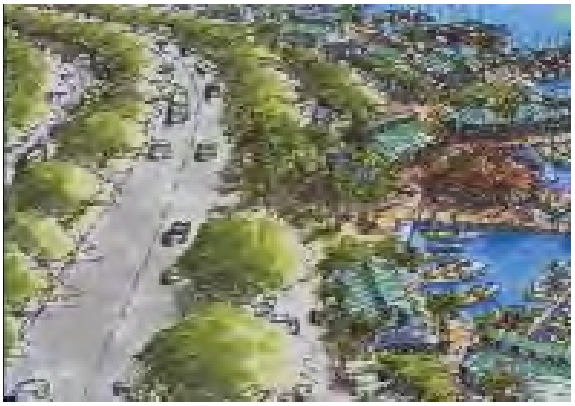
The analysis of the various infrastructure systems in this section has illuminated a number of important planning implications for the Kalihi-Pālama area:

ROADWAYS/BIKE PATHS/HARBORS/AIRPORTS

- **Private roads are generally in poor condition in the Kalihi-Pālama area**. This is due in part to the absence of local-level homeowner associations that address road maintenance issues. Many of these roadways do not feature sidewalks, curbs, or gutters, which create pedestrian access and safety problems. Roads tend to be narrow, a problem that is exacerbated by on-street parking in many areas. These conditions limit the ability of emergency vehicles to access homes and businesses serviced by these roads. Encouraging homeowners to form an association that combines resources and also seeks outside resources to improve inadequate roadways in the area is one option to address this issue.

- **Roadway congestion in Kalihi-Pālama is greatest during the morning and late afternoon time periods**, reflecting the impact of cross-town, workday traffic. As is typical in urban areas, "rush hour" is a problem in the project area that affects not only Kalihi-Pālama residents but also commuters that pass through the area en route to downtown from West and Central O'ahu. Future transportation projects should scrutinize impacts on the already congested conditions during peak traffic-flow time periods.

- **The proposed Nimitz Highway downsizing and bypass raises some critical issues** with regard to the resultant flow of traffic. Reducing the number of lanes on Nimitz Highway, combined with lane reduction on Dillingham Boulevard due to the proposed BRT, will redirect a considerable amount of traffic through Sand Island or other surface roads. Traffic accidents and other mishaps in the tunnel would temporarily reroute traffic onto these two downsized roadways, causing significant delays. Furthermore, a substantial amount of existing traffic flow on Nimitz Highway is destined for the harbor and wholesale distribution centers, which would not be reduced by the new bypass on Sand Island. The current and projected total traffic flow capacity needs should be considered before any downsizing of major corridors, such as Nimitz Highway, is executed.



Artist's rendering of downsized Nimitz Highway.

- **Kalihi-Pālama residents and community associations support bikeways and pathways through their community**. Pedestrian paths along bikeways should also be considered.

- **Kalihi-Pālama residents and community leaders recognize the need for more parks and recreational activities in their district**. Well-planned bike lanes and pathways through the project area may provide an alternative recreational option for the Kalihi-Pālama area residents, as well as provide another alternative mode of transportation.

- **Conceptual diagrams seem to provide adequate space for the safe integration of bike paths and lanes on Nimitz Highway**. Future plans for Nimitz Highway include downsizing the roadway, adding a contra-flow lane, and converting the makai portion of the highway into a pedestrian promenade with mixed-use features.

- Kalihi-Pālama residents have been working on Kapālama Canal Beautification projects via the "Town Within A Town Master Plan" (1993). A **bike path along the Canal complements these community-based efforts**.


Sand Island State Park.

- **Harbors 2020 Plan does not provide any planning opportunities for other types of land uses.** Rather, it is directed toward enhancement and expansion of the maritime activities that currently exist in the harbors area. Coastal access to the general public is limited to Sand Island State Park and Keʻehi Lagoon Park. This situation of limited coastal recreational opportunities suggests that the existing parks should be preserved for such use.

- **Petroleum contamination in the Iwilei and harbors area.** Although the option of "capping" polluted soils in the Honolulu Harbor area may be cost-effective, the trapped contamination will continue to impede future development plans. Seepage of pollutants in groundwater undermines the integrity of aquatic habitats, the general environmental condition of Honolulu Harbor, and the estuary zones of streams in Kalihi-Pālama. Petroleum contamination may also pose a public health risk. A

petroleum contamination abatement program should be promoted over "capping" to improve subsurface contamination in the Honolulu Harbor and Iwilei areas.

- The **harbors area is impacted by noise** from aircraft and industrial traffic. Buildings should be designed to acceptable indoor noise levels for employees and customers.

- **Planned improvements in the Honolulu International Airport Master Plan will be reconsidered in response to the aviation tragedy of September 11, 2001.** Although airport security will be a priority in the revised HIA Master Plan, existing problems such as morning traffic congestion around the airport should be addressed.

- **The proposed reclamation of lands in the Keʻehi Lagoon and Kapālama Basin may have a negative impact on near-shore circulation, aquatic species habitat, and ocean recreational activities that take place in the area.** Careful consideration should be made of the impacts on existing activities in reclaiming land in Keʻehi Lagoon.

- The Keʻehi Lagoon Triangle development, a part of the Honolulu International Airport Master Plan 2010, involves **filling the mud flats in order to create 250 acres of new land of which approximately 50 acres are identified for airport use**. It is important to note that the dredging of the reef runway in the 1970's destroyed over 1,000 acres of coastal bird habitat in Keʻehi Lagoon. To mitigate this destruction, Keʻehi Lagoon was set aside for recreational and habitat purposes. In 1978, the USFWS, DLNR, and the Governor's Office entered into a Memorandum of Understanding that Keʻehi Lagoon was to be developed for recreational and wildlife purposes only, with no structures to be placed in the lagoon.

UTILITIES

- **The demand for potable water is greater than the average daily draw from the wells in the Kalihi-Pālama area.** The shortfall in water supply is imported from the adjacent Pearl Harbor aquifer. Major new developments in the project area should not include such activities that require a high consumption of potable water. Projects with the objective to increase the sustainable yield

King Street pump station.

of the aquifer, such as revegetation of the conservation district and other infiltration enhancement measures, should be encouraged. Programs to increase conservation of water resources should also be promoted.

- **Contamination of drinking water wells in the Kalihi area has been detected at Jonathan Springs and the Kalihi Station wells.** Source water protection strategies should be developed and employed for the unique hydrological characteristics of the Kalihi-Pālama area. One such technique is to limit development near the conservation district boundary.

- **Some of the wastewater collection lines are old and not to City standards.** Many of the termini of the sewage collection system are of 6-inch pipe, which is below the City standard of 8 inches. Redevelopment of these areas should include replacement of these substandard lines. Much of the wastewater collection system is between 50 and 100 years old. This contributes to an increased likelihood of raw sewage spills in the Kalihi-Pālama area. As part of a sub-area redevelopment plan, wastewater collection lines should be replaced to reduce the potential for breaks and spills.

- **The lower reaches of Kalihi Stream are in the 100-year flood hazard zone** because of insufficient capacity and restrictive bridge openings along Kalihi Stream. Nu‘uanu Stream is also in the flood hazard zone above School Street due to the restrictive bridge opening at that overpass. Reconstruction of these bridges should account for high peak flow during storms and provide adequate capacity.

Kalihi Stream at Nimitz Bridge.

- **The lower portions of Kalihi are inundated after episodes of high rainfall.** A comprehensive drainage plan is needed to alleviate flooding problems affecting Kalihi-Pālama businesses and residents.

- **Gas lines are replaced only after leaks are observed** during surveys conducted every three years.

- **Abandoned petroleum lines and underground storage tanks pose an environmental and public safety hazard.** The Honolulu Harbor Participating Partners, a consortium of harbor businesses and relevant agencies, is conducting an assessment of abandoned petroleum infrastructure, including above and below ground storage tanks, and pipelines. Before redevelopment is to occur in the harbor area, a program to remove abandoned lines and tanks should be initiated.

- **Overhead utility lines in the Kalihi-Pālama area are eyesores in the community.** These lines should be placed underground in conjunction with the construction of other infrastructure lines, such as gas, water, drainage, and wastewater, as well as roadways. This combined approach will reduce the high cost of trenching and improve the scenic quality of the Kalihi-Pālama area.

- HECO planning guidelines for planting trees near overhead electric facilities and near underground lines should be followed by all proposed developments in order to **avoid potential hazardous conditions located in the public right of way and on private property.**

SCHOOL FACILITIES

Farrington High School.

- School library facilities in the Kalihi-Pālama area are generally satisfactory but there are **several elementary schools with significantly inadequate libraries**. Library facilities should be expanded to meet Department of Education standards where applicable.

- **FHS has the largest student population of any public school in the State.** FHS students require substantially more resources in terms of lunch subsidies and English proficiency programs than at the State and District levels.

- **Approximately 36% of the FHS community has less than a high school education** (as compared to 18.6% at the State level). The State Department of Education operates a Community School for Adults at FHS. This program should be evaluated to ensure that it is tailored to the specific needs of the community.

PARKS

- **There is a deficiency in the number of parks in the Kalihi-Pālama area**. According to current City standards, the Kalihi-Pālama area is lacking about 12 to 13 neighborhood and 2 to 3 community parks. Approximately 240 additional acres would be needed to meet current standards.

- **The Kalihi-Pālama Area lacks adequate park facilities**. The area is below standard for most park facilities. The greatest deficit is in basketball courts, volleyball courts, tennis courts, and softball fields.

Kalihi Uka Park.

- **Parks in the Kalihi-Palāma Area are too small to accommodate the facilities typically associated with neighborhood, community, or district parks.** Most neighborhood, community, and district parks in the area do not meet the size requirements prescribed in current City standards. Therefore, existing parks may not have the space necessary to add the facilities that would bring those parks up to standard, unless land adjacent to the park can be acquired.

- **The developed nature of Kalihi-Pālama may require alternative methods of making up for the deficiency in parks,** such as park development on the periphery of the area to accommodate the needs of residents. Other alternatives include an aggressive parks program that looks to acquire and develop properties and reclaim previously developed parcels, such as the OCCC or vacant and underutilized properties for park use.

APPENDIX H

MEETING MEMO REGISTER

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APPENDIX H
MEETING MEMO REGISTER

KALIHI-PALAMA ACTION PLAN MEMO REGISTER

#	SUBJECT	MEMO DATE
1	Kalihi-Pālama Vision Team Meeting	9.18.01
2	Community Initiating Group Meeting	11.15.01
3	Interview with Maile Kanemaru and Dr. Miyang	12.3.01
4	Susannah Wesley Foundation Meeting	12.12.01
5	Maryrose McClelland of NHB #16 Meeting	12.12.01
6	Kalihi-Pālama Vision Team Meeting	12.18.01
7	Byron Yogi Interview	12.18.01
8	Ron Lee and Lionel Low Interviews	12.21.01
9	Rev. Patterson Interview	12.20.01
10	Fujimoto Interview	12.20.01
11	Kalihi-Pālama Vision Group Meeting	1.21.02
12a	Kalihi-Pālama Team Meeting	1.30.02
12b	Kalihi-Pālama Focus Group Meeting	2.15.02
13	Kalihi-Pālama Vision Team Meeting	2.19.02
14	Kalihi-Pālama Project Team Meeting Feb. 20, 2002	2.25.02
15	Kalihi-Pālama Team Charrette March 5, 2002	3.12.02
16	Project Team Charrette Notes	3.6.02
17	Kalihi-Pālama Project Team Meeting March 13, 2002	3.16.02
18	Meeting with HCC and Pacific Gateway Center	3.21.02
19	Vision Team Meeting March 16, 2002	3.16.02
20	Community Implementing Group Meeting March 21, 2002	3.22.02
21	Kalihi-Pālama Vision Team Meeting April 20, 2002	4.20.02
22	Kalihi-Pālama Vision Team Meeting May 8, 2002	5.8.02
23	Department of Planning and Permitting Meeting	5.23.02
24a	Community Implementing Group May 22, 2002	5.23.02
24b	Kalihi-Pālama Vision Team Meeting May 18, 2002	5.21.02
25	New Project Ideas Brainstorm	5.30.02
26	Kalihi-Pālama Community Council Meeting	6.4.02
27	Kalihi-Pālama Workshop Notes	6.4.02
28	Kalihi-Pālama Community Workshop Meeting	6.5.02
29a	Kalihi-Pālama Business Assn. Meeting	6.12.02
29b	Kalihi-Pālama Workshop Evaluation	6.12.02
30	Neighborhood Board # 16 Meeting	6.13.02

31	Kalihi-Pālama Vision Team Meeting June 15, 2002	6.15.02
32	Lanakila Senior Center Meeting	7.22.02
33	Neighborhood Board # 14 Meeting	7.22.02
34	Kalihi-Pālama Vision Team Meeting July 20, 2002	7.22.02
35	Kalihi-Pālama Community Action Plan Meeting	7.29.02
36	Meeting with Governor Cayetano	8.1.02
37	Mayor's Hist. Pres. Cmte. Meeting July 31, 2002	8.1.02
38	Young and McClelland Meeting August 2002	8.12.02
39	Department of Planning and Permitting Meeting	8.12.02
40	Kalihi-Pālama Business Assoc. Meeting	8.13.02
41	Kalihi-Pālama Community Council Meting	8.14.02
42	Vision Team Meeting August 17, 2002	8.20.02
43	Meeting with R. Kim, Sand Island Bus. Assn.	8.20.02
44	Community Initiative Group Meeting	9.5.02
45	Department of Planning and Permitting Meeting	9.16.02
46	Island-wide Parks Master Plan Information	10.03.02
47	Island-wide Vision Workshop	10.14.02
48	Vision Team Meeting October 19, 2002	10.21.02
49	Department of Planning and Permitting Meeting	10.29.02
50	Downtown Chinatown Historic Trail Meeting	10.3.02
51	BWS Pump Information at Loʻi Kalo Park	11.1.02
52	Downtown Chinatown Historic Trail Plan Meeting	11.14.02
53	Kalihi-Pālama Meeting with Mayor Harris	12.16.02
54	Kalihi-Pālama Meeting with Mayor Harris	1.20.02
55	Kalihi-Pālama Community Council Meeting Notes	2.4.03
56	Kalihi-Pālama Business Association	2.13.03
57	Kalihi Valley Neighborhood Board #16 Meeting	2.13.03
58	Kalihi-Pālama Vision Group Meeting	2.18.03
59	Kalihi-Pālama Neighborhood Board # 15	2.19.03
60	Community Initiative Group Meeting	2.20.03
61	Kalihi-Pālama Action Plan Community Meeting	4.1.03

APPENDIX I

REFERENCES

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APPENDIX I
REFERENCES

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