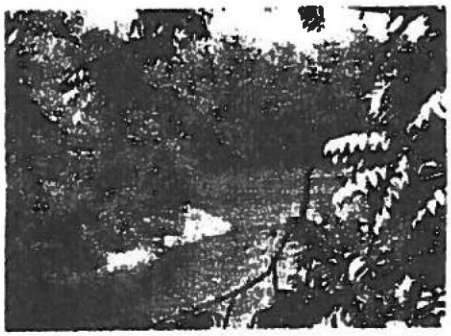
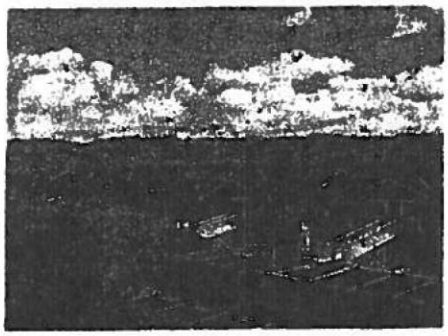
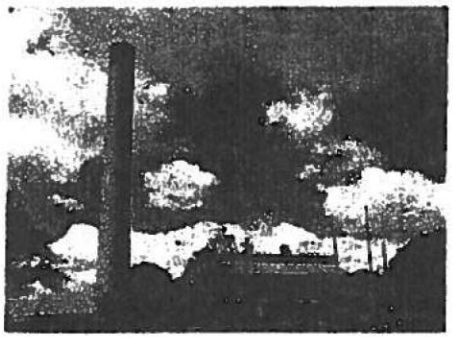
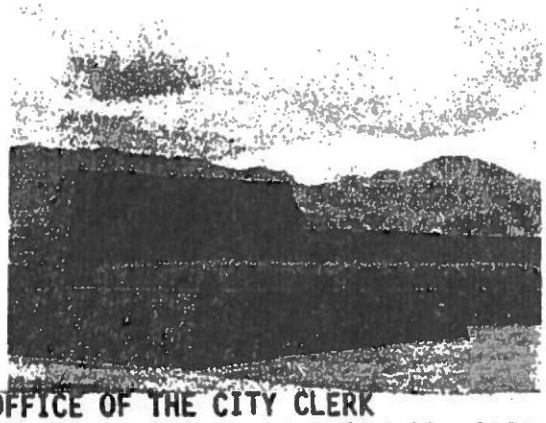






Central Oahu Sustainable Communities Plan



OFFICE OF THE CITY CLERK
EFFECTIVE DATE: FEBRUARY 18, 2003

Department of Planning and Permitting
Honorable Jeremy Harris, Mayor
December 2002, Bill 26 (02) CD1, FD1

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PREFACE AND EXECUTIVE SUMMARY

PREFACE

The Central Oahu *Sustainable* Communities Plan has been prepared in accordance with the Charter-prescribed requirements for development plans and is to be accorded force and effect as such for all Charter- and ordinance-prescribed purposes. It is one of a set of eight community-oriented plans intended to help guide public policy, investment, and decision-making over the next 25 years. Each plan addresses one of eight planning regions of Oahu, responding to specific conditions and community values of each region. The map on the following page illustrates these planning regions.

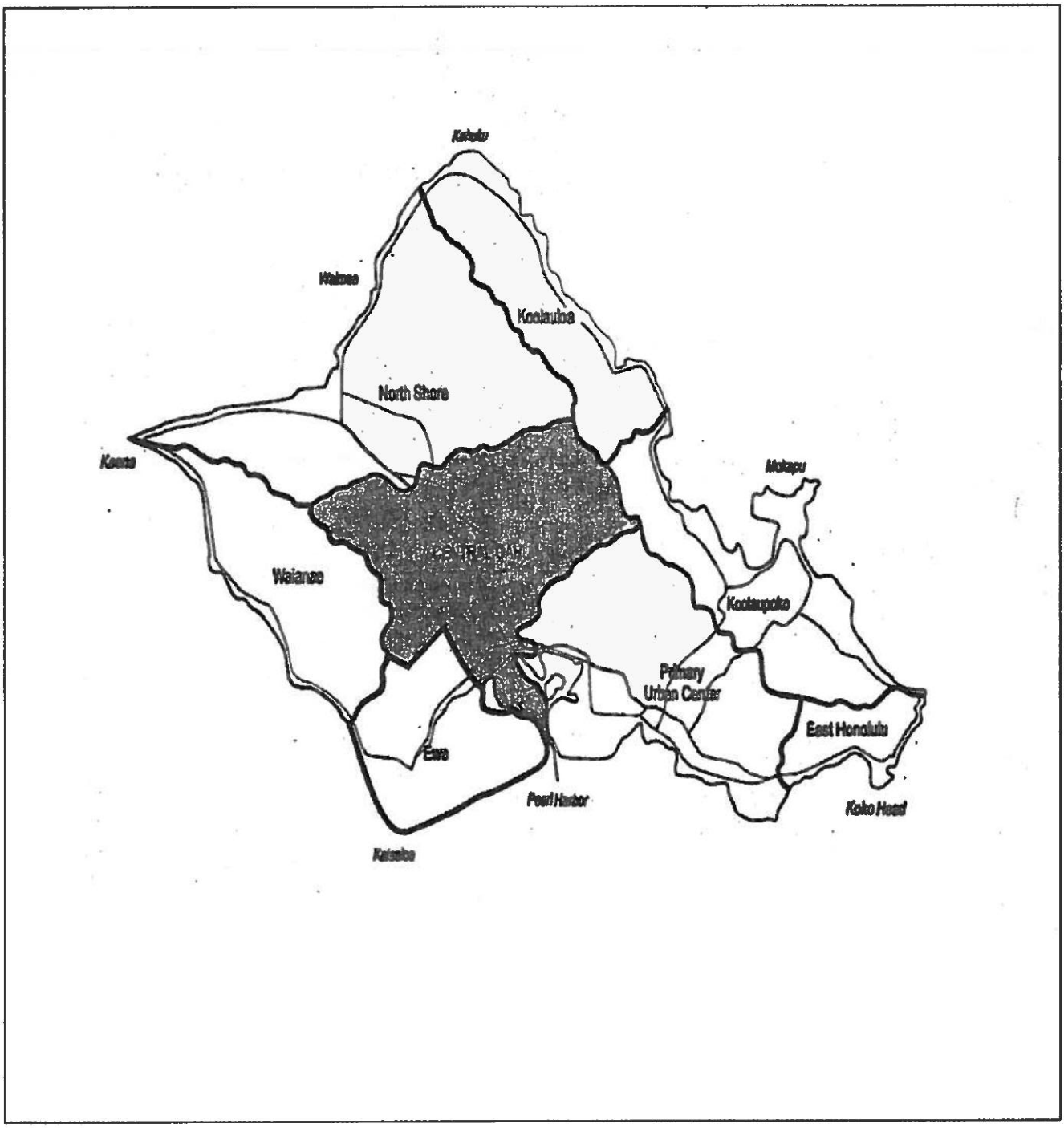
Of the eight documents, the plans for Ewa and the Primary Urban Center, to which growth and supporting facilities will be directed over the next 25 years, have been entitled "Development Plans." They will be the policy guide to development decisions and actions needed to support that growth.

Plans for the remaining six areas, which are envisioned as relatively stable regions for which public actions will focus on supporting existing populations, have been entitled "Sustainable Communities Plans" in order to appropriately indicate their intent.

Central Oahu is a *Sustainable* Communities Plan area. The Plan's vision statement and implementing policies support sustaining Central Oahu's unique character, lifestyle, and economic opportunities by focusing future residential development on master planned suburban communities within an Urban Community Boundary and on redevelopment around two transit centers in Waipahu.

The General Plan calls for development to be "encouraged" in Central Oahu and Ewa urban-fringe (suburban residential) areas and in the Kapolei urban center in order to "relieve development pressures" on the East Honolulu, Windward, North Shore, and Waianae areas and to "meet housing needs not readily provided in the primary urban center."

Exhibit ES-1
Development Plan and Sustainable Communities Plan Areas for Oahu



THE *SUSTAINABLE* COMMUNITIES PLAN PROCESS

This document is the culmination of a planning effort led by the City and County of Honolulu's Planning Department and its successor agency, the Department of Planning and Permitting. This effort comprised a process that encouraged and enabled significant involvement from the region's neighborhood boards, community associations, groups of business leaders, religious and cultural organizations, private landowners, institutions and numerous individuals.

In its final form, the Plan incorporates input received from public outreach, review and comment received through a variety of formats since 1993.

THE HONOLULU LAND USE PLANNING AND MANAGEMENT SYSTEM

The City and County of Honolulu guides and directs land use and growth through a three-tier system of objectives, policies, planning principles, guidelines and regulations. The **General Plan** forms the first tier of this system. First adopted by resolution in 1977, the General Plan is a relatively brief document, consisting primarily of one-sentence statements of objectives and policies. It has been amended several times, but the basic objectives and policies set forth in the 1977 plan remain intact.

The second tier of the system is formed by the **Development Plans**, which are adopted and revised by ordinance. These plans address eight geographic regions of the island, including the Primary Urban Center, East Honolulu, Central Oahu, Ewa, Waianae, North Shore, Koolauloa and Koolaupoko. Under the current revision program, the Primary Urban Center and Ewa retain the title "Development Plan." The other regions are now referred to as "*Sustainable* Community Plans" to reflect their policy intent.

The third tier of the system is composed of the **implementing ordinances and regulations**, including the Land Use Ordinance (Honolulu's zoning code) and the City's **Capital Improvement Program**. Mandated by the City Charter, these ordinances constitute the principal means for implementing the City's plans. These ordinances and regulations are required to be consistent with the General Plan, the Development Plans, and each other.

In addition to these three Charter-mandated tiers, the Development Plans are supplemented by two planning mechanisms that are not required by the Charter, including the **functional planning** process and **special area planning**.

Functional planning activities, some of which are mandated by state or federal regulations, provide long-range guidance for the development of public facilities such as the water system, wastewater disposal, and transportation. Special Area Plans are intended to give specific guidance for neighborhoods, communities or specialized resources.

AUTHORITY OF THE DEVELOPMENT AND *SUSTAINABLE* COMMUNITIES PLANS

The authority of the Development and *Sustainable* Community Plans (hereinafter referred to as "Development Plans" for simplicity) is derived from the City Charter, which mandates preparation of a General Plan and Development Plans to guide "the development and improvement of the city." Together with the General Plan, the Development Plans provide a policy context for the land use and budgetary actions of the City. This is the authority that the originally adopted Development Plans carried, and it remains unchanged in the revised Plan presented in this document.

The Charter provides that "public improvement projects and subdivision and zoning ordinances shall be consistent with the development plan for that area." Although the Development Plans are not themselves regulatory, they "regulate the regulators." They are policy tools and are to be used, in conjunction with the programs and budgets of the City, to accomplish the objectives of the City and as guides for the decisions made in the private sector.

WHY THE DEVELOPMENT PLANS HAVE BEEN REVISED

In 1992 the City Charter Commission recommended, and the voters of Honolulu adopted, amendments to the City Charter. Chief among its findings, the Charter Commission concluded that the Development Plans were overly detailed and had created processes that duplicated the zoning process. To eliminate this unnecessary duplication, the 1992 Charter amendments changed the definition of Development Plans from "relatively detailed plans" to "conceptual schemes."

The 1992 Charter amendments established that the purpose of the Development Plans is to provide:

- "priorities . . . (for the) coordination of major development activities"; and
- sufficient description of the "desired urban character and the significant natural, scenic and cultural resources . . . to serve as a policy guide for more detailed zoning maps and regulations and public and private sector investment decisions."

In response to the 1992 Charter amendments, the Planning Department launched a thorough review of the Development Plans. The goal of that review was the revision of all eight of the Development Plans to bring them into conformance with the Charter-mandated conceptual orientation. The revised plan presented in this document conforms to that mandate.

EXECUTIVE SUMMARY

This plan is organized in five chapters and an appendix, as follows:

- Chapter 1: "Central Oahu's Role in Oahu's Growth" defines the region's role and identity within the overall framework of islandwide planning and land management.
- Chapter 2: "The Vision for Central Oahu's Future" summarizes the community's vision for the future of the region, and lists important elements of that vision.
- Chapter 3: "Land Use Policies, Principles, and Guidelines" is the plan's policy core. It provides policy guidance for the region's various land use elements.
- Chapter 4: "Public Facilities and Infrastructure Policies and Principles" outlines policies, principles, and actions needed to support the land use policies of Chapter 3.
- Chapter 5: "Implementation" addresses needs for carrying out provisions outlined by the plan.

The following summary provides an overview to the vision and policies of the Plan.

CENTRAL OAHU'S ROLE IN OAHU'S DEVELOPMENT PATTERN

- Promote diversified agriculture and pineapple on 10,350 acres of prime and unique agricultural lands
- Provide a variety of housing types in master planned suburban residential communities and mixed-use medium density centers in Waipahu
- Provide new employment in existing commercial and industrial areas, in new commercial areas designed to support their surrounding residential communities, and in a new medical park

THE VISION TO 2025

- Population growth from 149,000 in 2000 to over 173,000 in 2025
- Addition of 11,000 new housing units to the existing 45,000 homes in Central Oahu in 2000
- Increase of jobs from almost 39,000 jobs in 2000 to over 65,000 in 2025

- Master planned residential developments at Mililani Mauka, Royal Kunia, Koa Ridge Makai, and Waiawa
- Long-term protection for agricultural and preservation lands

ELEMENTS OF THE VISION

- **Urban Community Boundary** sets limits to urban development for the foreseeable future; protects 10,350 acres of diversified agriculture and pineapple lands along Kunia Road, above Wahiawa, around Mililani and on the Waipio Peninsula.

- **Open Space Network** includes both the area outside the Urban Community Boundary and a regional system of open space and greenways within the Boundary which includes parks, golf courses, agricultural areas, deep ravines, natural habitat areas, and greenways along major roads (see Open Space Map in Appendix A).

- **Revitalization of Waipahu and Wahiawa** will be based on Special Area Plans and Community Vision Statements for each town prepared in partnership with their communities.

- **Communities Designed to Reduce Automobile Usage** will be encouraged by providing easy access to transit, supporting moderate density housing and commercial development along the Waipahu transit corridor, implementing traffic calming design, and guiding development to encourage people to walk and bike.

- **Adequate Infrastructure** will be provided to address current deficiencies, and new development will not be approved until availability of key infrastructure can be assured.

IMPLEMENTING POLICIES

Chapter Three provides **land use development policies** for:

- Open Space Preservation and Development
- Regional Parks and Recreation Complexes
- Community Parks
- Historic and Cultural Resources
- Waipahu Town
- Wahiawa Town
- Central Oahu Plantation Villages
- Existing and Planned Residential Communities
- Planned Commercial Retail Centers
- Industrial Centers
- Mililani Technology Park
- Military Areas

Chapter Four contains **infrastructure policies**, including policies on:

- Transportation
- Water Allocation and System Development
- Wastewater Treatment
- Electrical Power Development
- Solid Waste Handling and Disposal
- Drainage Systems
- School Facilities
- Public Safety Facilities; and
- Other Community Facilities

Chapter Five describes **the means for implementing the Central Oahu *Sustainable* Communities Plan** through:

- Development Priorities
- Special Area Plans
- Functional Plans
- Review and approval of Zone Change Applications, and
- Approval of public and private infrastructure investments as part of the Public Infrastructure Map/CIP Budget Processes

CONCEPTUAL MAPS, GLOSSARY OF TERMS, AND ADOPTING ORDINANCE

The Plan also includes an **Appendix with four conceptual maps** (Open Space, Land Use, Public Facilities, and Phasing) illustrating the vision elements and policies and **a glossary of terms** used in the Plan and on the maps, and, when adopted, an Appendix providing the **adopting Ordinance**.

1. CENTRAL OAHU'S ROLE IN OAHU'S DEVELOPMENT PATTERN

Central Oahu plays a key role in implementing the directed growth policies of the **General Plan of the City and County of Honolulu.**

The towns of Waipahu and Wahiawa serve as gateways to Ewa and the North Shore. Historically, they have been headquarters for the sugar and pineapple plantations and support centers for the military. Beginning in 1968, Central Oahu also began to play a role as a major area for housing development. At that time, Castle & Cooke began development of Mililani Town, a 3,500-acre planned low-density suburban community which offered affordable single-family housing to first-time buyers. Subsequently, additional housing has been developed above Waipahu and the H-1 Freeway in Village Park, Gentry Waipio, Waikele, Royal Kunia, and other development projects.

In 1989, the Honolulu City Council approved changes to the **General Plan** which designated the urban fringe areas in Central Oahu as one of Oahu's principal residential development areas. Since then, Central Oahu, along with the Primary Urban Center (PUC) and the Secondary Urban Center and urban fringe areas in Ewa, has provided the bulk of the new housing developed on the island.

The **General Plan** also calls for maintaining the viability of agriculture on Oahu and specifically states that "sufficient agricultural land" should be provided "in Ewa, Central Oahu, and the North Shore to encourage the continuation of ... pineapple as [a] viable industry."

This update of the Central Oahu *Sustainable* Communities Plan reaffirms these roles and amplifies how they can be accomplished. In support of the **General Plan** policies, the Central Oahu *Sustainable* Communities Plan:

- Promotes diversified agriculture and pineapple on 10,350 acres of prime and unique agricultural lands along Kunia Road, north of Wahiawa, surrounding Mililani, and on the Waipio Peninsula in accordance with the **General Plan** policies to support agricultural diversification in all agricultural areas and to encourage continuation of a viable pineapple industry;

- Provides for the eventual development of up to 25,000 new homes in master planned residential developments at Mililani Mauka, Koa Ridge Makai, Waiawa, and Royal Kunia;

- Provides for a variety of housing types from affordable units and starter homes to mid-size multi-family and single-family units;

- Provides new employment in existing commercial and industrial areas (including Mililani Technology Park), in new commercial areas designed to serve their surrounding residential communities, and at a new medical park at Koa Ridge;

- Identifies the infrastructure needed to meet the likely residential, commercial, and industrial development through 2025; and

- Helps relieve urban development pressures on rural and urban fringe *Sustainable* Communities Plan Areas (Waianae, North Shore, Koolauloa, Koolaupoko, and East Honolulu) so as to preserve the "country" lifestyle of the rural areas and sustain the stable, low density residential character of the urban fringe areas.

2. THE VISION FOR CENTRAL OAHU'S FUTURE

This chapter presents a statement of the vision for Central Oahu's future, discusses key elements of the vision, and presents illustrative maps and tables.

2.1 VISION STATEMENT

The vision for Central Oahu has two horizons. The first is a 25-year horizon, extending from the present to the year 2025. This is the horizon that was used to project likely socio-economic change in Central Oahu and to assess the infrastructure and public facility needs that will have to be met over that period.

The Vision to 2025. By 2025, the Central Oahu *Sustainable* Communities Plan Area shown in Exhibit 1.1 is expected to experience moderate growth as existing areas zoned for residential development are built out. Population will have grown from almost 149,000 people in 2000 to over 173,000 in 2025. Over 11,000 new housing units will have been built since 2000 in master-planned communities.

Significant job growth is also expected, rising from almost 39,000 jobs in 2000 to over 65,000 in 2025 (almost 10% of Oahu total projected). The bulk of the private non-construction job growth is projected to be in services, retail, or transportation/communications/utilities (70%) with another 20% in industrial occupations.

Beyond 2025. In the course of the *Sustainable* Communities Plan revision, it became clear that there was value in looking beyond 2025 to identify what Central Oahu should look like when "fully" developed.

Such a perspective helped identify where open space should be preserved within the urbanized area, where the rapid transit corridor should be located, and where to set the limits to development in Central Oahu. As such, this second horizon might be called the "built-out" horizon and is probably 30 or 40 years in the future.

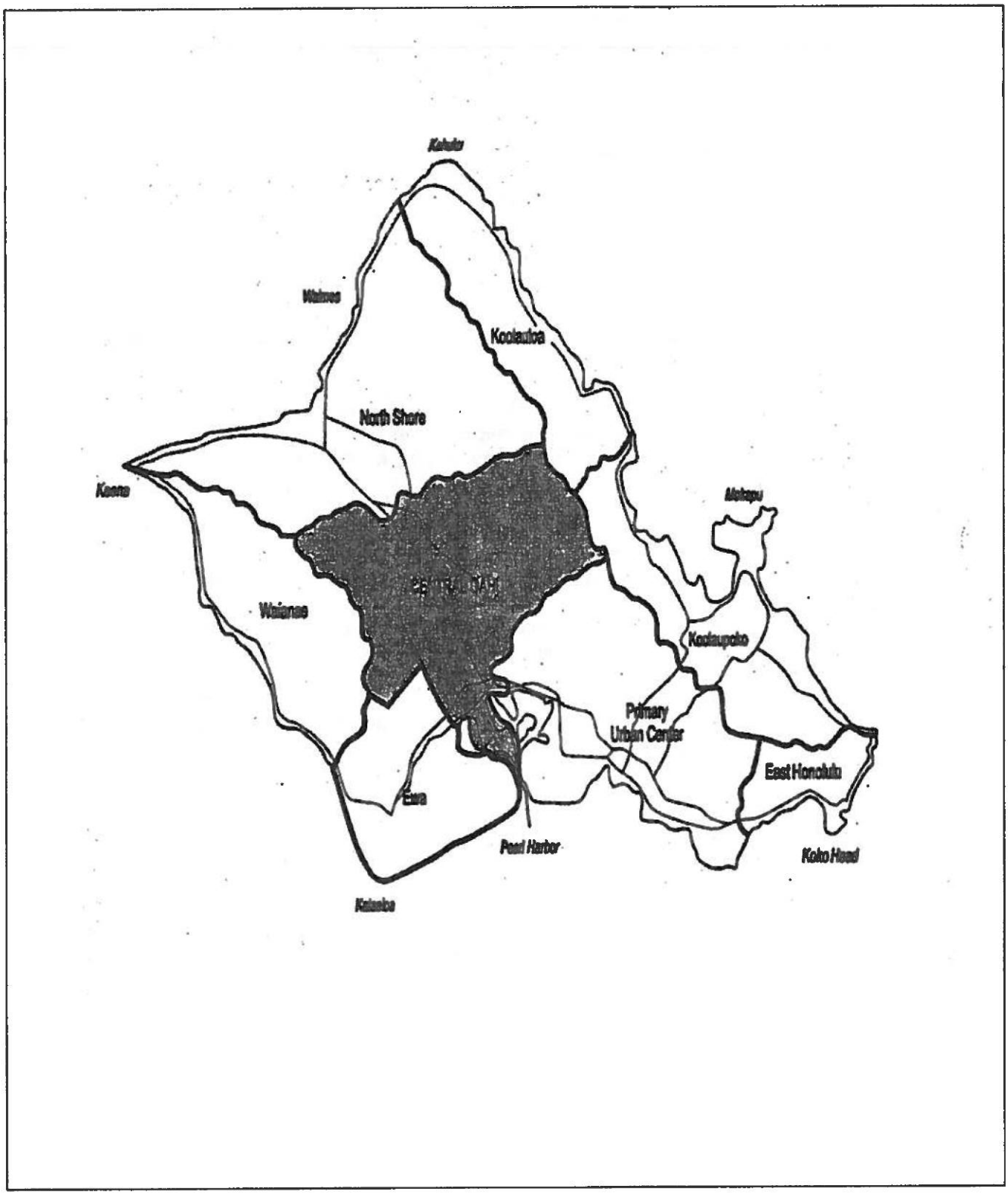
Creation of An Open Space Network

Urban growth will be contained within a boundary which will **protect prime agricultural lands** along Kunia Road, north of Wahiawa, surrounding Mililani, and on the Waipio Peninsula for diversified agriculture and pineapple. Preservation of these prime and unique agricultural lands for use in diversified agriculture and pineapple will help retain open space and views, in addition to supporting economic diversification.

Within the Urban Community Boundary, a regional system of **open space and greenways** will give Central Oahu the feel of a network of communities "within a garden," as opposed to an unbroken suburban sprawl from Wahiawa to Waipahu. Open space will be preserved in parks, golf courses, agricultural areas, deep ravines, and wildlife habitats which will also help to protect significant views.

A major **new regional park at Waiola** will provide significant active and passive recreation facilities and access to the Kipapa and Waikele ravines which could help form part of a Central Oahu ravine recreational network. (See discussion of the ravines in Sec. 2.2.3 below.)

Exhibit 1.1
Development Plan and Sustainable Communities Plan Areas for Oahu



A **Shoreline Park and Preservation Area** developed along the entire shoreline in Pearl Harbor's West Loch and Middle Loch will restore the shoreline in Waipahu to public use, provide active and passive recreation facilities, and help create the Pearl Harbor Historic Trail, a pedestrian path, bikeway, and restored historic train system running from Rainbow Marina near Aloha Stadium to the Waianae Coast.

Revitalization of Waipahu and Wahiawa

Special Area Plans prepared in partnership with the Waipahu and Wahiawa communities will guide redevelopment of these important gateway towns. To support the revitalization of these towns, commercial and industrial development outside of Waipahu and Wahiawa will be limited to completion of the Mililani Technology Park development and building of new commercial centers designed to meet the demand from their surrounding residential communities rather than a regional or islandwide market.

Development within Waipahu and Wahiawa will be supported by two **Enterprise Zones** which will provide State and County tax incentives to businesses which create new jobs within the zones.

Natural, Historic, and Cultural Resources

The Central Oahu *Sustainable* Communities Plan provides a vision for preservation, conservation, and enhancement of community resources.

Natural resources will be conserved through retention of natural drainageways, protecting valuable plant and wildlife habitats, and supporting efforts to minimize degradation of protection provided to the environment by the Conservation District.

Cultural and historical resources will be preserved and enhanced by protecting panoramic views, retaining visual landmarks and significant vistas, and preserving significant historic and prehistoric features from Central Oahu's past.

Building Communities

Growth in Central Oahu will mean **community building,** not just project development. Residential growth will occur primarily in master-planned communities (Mililani Mauka, Royal Kunia, Koa Ridge, Waiawa, and Waikele). Over 11,000 units will be added by 2025 to the 2000 total of 44,800 homes.

The master plans and design of new developments must demonstrate how they would create **communities which interact and support the vision** for development of the entire Central Oahu region.

These communities must be designed to meet the needs of a wide range of families and age groups. **Ample housing** should be provided for families needing affordable units and starter homes as well as for those seeking large multifamily and single-family units. **Housing for persons of all ages** will be needed, including young adults just moving out on their own, families seeking to buy their first home, and senior citizens wanting a retirement home close to their children and grandchildren.

Separate identities should be created for existing and planned communities by using open space, architectural design concepts, streetscape treatments, and landscaping which also is linked to the regional open space and greenway network.

Communities Designed to Reduce Automobile Usage

Central Oahu will be developed with a transportation system which provides easy access to transit, uses traffic calming design, and encourages people to walk and bike, reducing the need for use of the automobile.

Moderate density housing and commercial development will be built along a rapid transit corridor stretching from the City of Kapolei through Waipahu to Pearl City in the Primary Urban Center. The moderate density residential and commercial uses centered at nodes along the corridor will support efficient use of buses and other forms of mass transit along the corridor, allowing some residents to minimize automobile use.

Sufficient land will be reserved in the corridor so that either an elevated or an at-grade separated rapid transit system could be developed on the corridor at some point in the future. (An at-grade separated system would **not** be elevated and would have its own exclusive right-of-way.)

High speed transit will also run along the H-2 Freeway, stretching from Waipahu to Wahiawa.

Adequate Infrastructure to Meet the Needs of New and Existing Development

Public agencies will work with the community (residents, businesses, developers, and landowners) to address current deficiencies in roads, schools, and parks and to create adequate infrastructure to meet the needs of the residential and working population of the area. Especially for public schools, emergency medical services, and peak hour roadway capacity, the construction schedule of new developments that generate increased demand for services will be coordinated with the timing for the development of needed infrastructure capacity.

When applications for new projects are reviewed and approved, conditions will be included as a part of the land use approval, requiring that, before building permits are issued, a determination be made by the Department of Planning and Permitting that key infrastructure will be developed in a timely manner to meet the needs resulting from the new projects.

Public-private mechanisms for financing infrastructure will be developed to support timely development of infrastructure, in accordance with approved private project master plans and public agency functional plans and infrastructure facility development plans.

Public agencies' planning for infrastructure needs will be guided by where the *Sustainable* Communities Plan indicates residential and commercial development should occur. See the discussion of development priorities in Section 2.2.10.

2.2 KEY ELEMENTS OF THE VISION

The vision for Central Oahu's future will be implemented through the following elements:

- The Urban Community Boundary,
- Retention of Prime and Unique Agricultural Lands,
- The Network of Open Space and Greenways,
- A major Regional Park at Waiola,
- Revitalization of the Waipahu and Wahiawa town centers,
- Economic Development which strengthens Waipahu and Wahiawa and meets the needs of master-planned residential communities,
- Enterprise Zones which provide incentives for businesses to create jobs in Central Oahu,
- A Network of Master-planned Residential Communities,
- Communities designed to support non-automotive travel,

- A Rapid Transit Corridor through Waipahu,
- Conservation of Natural Resources,
- Preservation and Enhancement of Cultural Resources, and
- Requirements for Adequate Infrastructure.

Each of these elements is discussed below.

2.2.1 Urban Community Boundary

The Urban Community Boundary for Central Oahu was drawn to give long-range protection from urbanization for 10,350 acres of prime and unique agricultural lands and for preservation of open space while providing adequate land for residential, commercial and industrial uses needed in Central Oahu for the foreseeable future. It is the intent that urban zoning not be approved beyond this Boundary.

The Urban Community Boundary for Central Oahu is illustrated in Exhibit 2.1, and is shown in greater detail on the four conceptual maps in Appendix A.

Boundary Description. On the east, the Urban Community Boundary generally follows the existing State Conservation District (C.D.) except where modified to protect lands proposed to be added to the Conservation District in the State Office of State Planning's **State Land Use District Boundary Review** (1992).

Starting at the boundary between the Primary Urban Center Development Plan Area and the Central Oahu Development Plan area, the Urban Community Boundary runs along the C.D. boundary proposed by the State Office of State Planning (OSP) for protection of the Navy Shaft until it reaches the 1,000 foot elevation.

From this point, the Boundary runs along the C.D. boundaries proposed by OSP for protection of the "Leeward Koolau Watershed," to the rim of the north fork of the Panakauahi Gulch.

At this point, the Boundary turns to the west and runs along the rim of the north fork of Panakauahi Gulch and the edge of the former agricultural fields until it reaches the eastern boundary of the Mililani Memorial Park where it turns and runs south along the boundary of the memorial park until it reaches the middle fork of the Panakauahi Gulch.

At this point, the boundary continues across the middle fork of the Panakauahi Gulch up to the southern rim of the middle fork of the Panakauahi Gulch where it turns and runs southwest along the rim of the middle fork and the edge of the former agricultural fields until it reaches a point opposite the Waipio Interchange on the H-2 Freeway.

At this point, the boundary crosses the Panakauahi Gulch and turns and runs north along the eastern edge of the H-2 right-of-way until it reaches the northern rim of the Kipapa Stream gulch where it turns and runs northwest along the rim and the edge of the existing and approved urban areas of Mililani Mauka until it reaches the C.D. boundary proposed by OSP for protection of the "Leeward Koolau Watershed." The Boundary follows the proposed boundary and then the existing C.D. boundary on the northeast edge of Mililani Mauka, and then across the south fork of the Kaukonahua Gulch (just above where the Wahiawa Reservoir begins) where it generally follows a military road to the top of Wahiawa Heights.

The Boundary then runs along Wahiawa's northern edge to just above where the north fork of the Wahiawa Reservoir begins, where it crosses the Kaukonahua Gulch. (North of Wahiawa, a pocket of urban use is enclosed, indicating the existing use of the U.S. Navy's NAVCAMS EASTPAC Wahiawa station.)

The northern portion of the Boundary continues on from the point where it crosses the northern fork of Kaukonahua Gulch to encompass Whitmore Village, mostly along the existing State Agricultural District (A.D.) boundaries, then back south to Kaukonahua Gulch. It then continues along the north bank of Kaukonahua Gulch to Schofield

Barracks, and then runs along the urbanized areas of Schofield Barracks and Wheeler Army Airfield, following the existing A.D. boundaries.

The western boundary runs along the western edge of Mililani golf course and then follows the edge of the existing urban areas of Mililani along the western and southern edges of Mililani until it reaches Kamehameha Highway where it turns and runs along Kamehameha Highway, crossing Kipapa Stream to the southern rim of the gulch where it turns and runs along the military reservation boundary.

The Boundary follows the military reservation boundary from Kamehameha Highway southwest to the meeting point of Kipapa and Waikele Streams and then continues northwest along the military reservation boundary until it reaches the northern boundary of the Royal Kunia East Golf Course where it turns and follows the northern boundary of the Golf Course to the northern boundary of the Royal Kunia development urban area and proceeds west along the existing Hawaiian Electric Company overhead transmission line corridor which it follows to Kunia Road.

A makai portion of the boundary encloses that portion of the Waipio Peninsula that is in the blast zone for the West Loch Naval Magazine.

Criteria. Criteria for establishing whether an area should be considered inside or outside the boundary are given below:

The boundary generally circumscribes the existing communities and planned developments of Royal Kunia, Wahiawa, Mililani, Mililani Mauka, Koa Ridge Makai, Waiawa, Waiawa Castle & Cooke, Gentry Waipio, Waikele and Mililani Technology Park, and excludes:

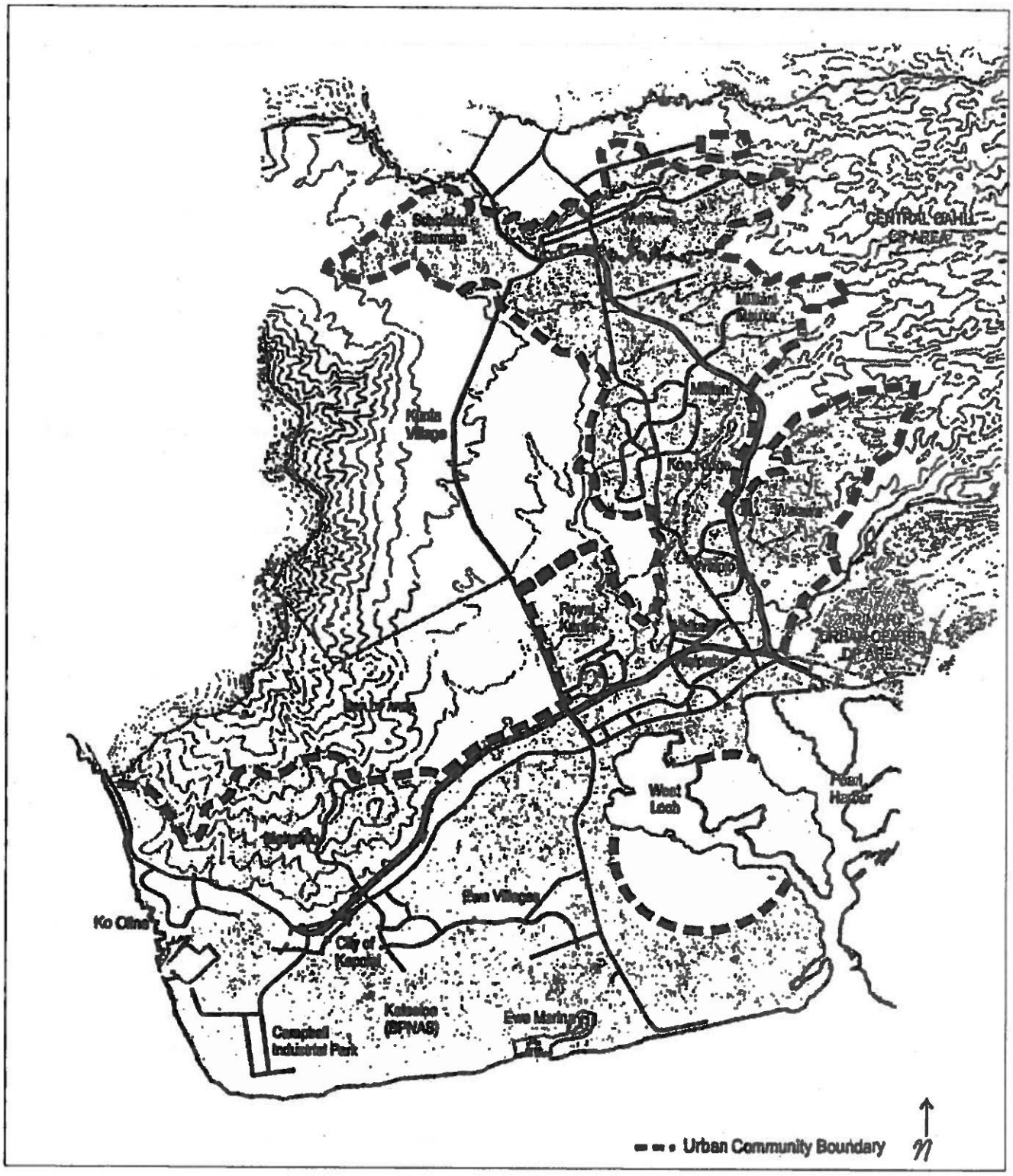
- areas outside of the State Urban District, with the exception of Koa Ridge Makai, portions of Waiawa, and Waiawa Castle & Cooke, and a portion of Royal Kunia;
- areas inside the State Urban District which are in either the Preservation or Agriculture Zoning Districts, with the exception of the Phase II of the Mililani Technology Park (which has Development Plan approval for urban use, but had not been rezoned as of February 1999); the portions of Waiawa that have not been rezoned, and a residential project of about 100 acres proposed for a site in Mililani Mauka previously proposed for the University of Hawaii West Oahu campus.

Objectives. The main objectives of the Central Oahu Urban Community Boundary are to:

- Support General Plan policy;
- Support diversification of agriculture and preservation of the viability of the pineapple industry in Central Oahu;
- Allow residential development in specified master-planned communities;
- Promote an efficient pattern of urban development and support the full development of the Primary Urban Center and the Secondary Urban Center;
- Avoid development of hazardous areas; and
- Protect natural and scenic resources.

Protection for Prime Agricultural Land. The Urban Community Boundary protects prime agricultural lands along Kunia Road, north of Wahiawa, surrounding Mililani, and on the Waipio Peninsula from urban development for the foreseeable future, providing an incentive for landowners to give long-term leases to farmers. No proposals for urban uses will be considered for these areas.

Exhibit 2.1
Urban Community Boundary



Open Space Network. Within the Urban Community Boundary, significant acreage will be retained in open space in parks, wildlife habitats, golf courses, agricultural lands, and natural and grass-lined drainageways. (Of the estimated 21,500 acres within the Urban Community Boundary, almost 5,250 acres or 24% of the acreage will be in open space.) Two agricultural areas within the Boundary, Pine Spur and Honbushin, will be retained in the Agricultural Zoning District, and no proposals for urban uses for these areas will be considered.

Capacity for Growth. Even with the amount of land reserved for agriculture, parks, and open space, there is ample capacity within the Urban Community Boundary for residential, commercial, and industrial development extending beyond the 20-year horizon (2020).

As shown in Table 2.2, 2,600 acres are available for residential development, 160 acres for retail and office development, 100 acres for industrial development, and 270 acres for high-technology and medical park development. Development will be approved in phases to match the provision of infrastructure.

2.2.2 RETENTION OF AGRICULTURAL LANDS

The closure of the Oahu Sugar Company in 1995 raised serious questions about how thousands of acres of former sugar lands in Central Oahu should be used in the future. The Central Oahu *Sustainable* Communities Plan protects the highest value prime and unique agricultural lands in Central Oahu from urban development.

These high value lands are located in four areas: lands along both sides of Kunia Road, lands north of Wahiawa, lands surrounding Mililani, and lands on the Waipio Peninsula which are in the Blast Zone of the West Loch Naval Magazine. State agencies indicated that these prime and unique agricultural lands in Central Oahu should be retained in agriculture because they are among the best in the State, are supported by an extensive, well-developed agricultural infrastructure, and are near the major transportation hub for export markets.

These 10,350 acres have been rated, in the most authoritative studies, as potentially among the most productive lands in the State for diversified agriculture, and as lands uniquely suited for pineapple production. The State Department of Agriculture's November 1977 study, **Agricultural Lands of Importance to the State of Hawaii (Revised)** (ALISH), indicates that the lands along Kunia Road, north of Wahiawa, and surrounding Mililani are uniquely suited for pineapple production. The ALISH study also identifies the former sugar lands along Kunia and a portion of the lands on the Waipio Peninsula as "prime" agricultural lands which generally produce the largest yields and the best quality crops for the least expenditure of energy.

The University of Hawaii Land Study Bureau's December 1972 bulletin, **Detailed Land Classification - Island of Oahu**, rated productive capacity of the former sugar fields in Kunia as A and B and the Waipio Peninsula lands as B and C. Pineapple lands along Kunia Road, north of Wahiawa, and surrounding Mililani were predominately rated as B. (An A rating was given to the highest productivity lands and E was given to the lowest.)

One reason for the high ratings for the Kunia sugar lands is that they have unique advantages in infrastructure, water availability from the Waiahole Ditch, and access to the local markets of Honolulu and to the export markets through Honolulu International Airport.

Successful agricultural operations are currently being pursued both on the Kunia, Wahiawa and Mililani pineapple lands and on the former sugar lands in the Kunia area. Seed crops, potatoes, melons, and other truck crops are being grown on the Kunia sugar lands. The Navy recently requested proposals for agricultural activities on its lands surrounding the West Loch Naval Magazine, and is evaluating the responses.

By protecting agricultural lands from urban development, an opportunity is created for long-term retention and development of diversified agriculture on small farms, corporate lands, and agricultural parks. Public-private partnerships will be needed to solve problems of lease terms and tenure, access to capital, research, and marketing if this vision is to be realized.

2.2.3 OPEN SPACE NETWORK

Large agricultural areas, parks, golf courses, and other open space areas will be linked by a network of ravines and greenways to create an **Open Space Network**. See the Open Space Map in Appendix A. Table 2.1 lists the major components of the Central Oahu Open Space Network.

The **ravines** will remain free of further urbanization, preserving their scenic, natural resource, and recreational values. They provide natural open space breaks between the agricultural fields and urbanized areas, define boundaries, and provide view amenities for the master-planned communities. At some point in the future, they could become part of a ravine recreational network featuring trails and passive open space.

Where possible, drainage, transportation, and utility corridors will be used to create a system of linear greenbelts or **greenways** characterized by landscaping and bikeways which will connect existing and planned communities.

An important new element in the Central Oahu Open Space Network is the **Central Oahu Regional Park** at Waiola which provides needed open space, recreational opportunities, and a point for access to the Kipapa and Waikele Gulches when they become part of the proposed ravine recreational network.

The **Waipahu Shoreline Park** will restore public access to the Pearl Harbor West Loch and Middle Loch shoreline, provide passive and active recreational facilities, and help create the Pearl Harbor Historic Trail, a path shared by bikers and pedestrians running from the Rainbow Marina near Aloha Stadium to Nanakuli.

TABLE 2.1: CENTRAL OAHU OPEN SPACE NETWORK

Mountain and Agricultural Areas
- Waianae Range Conservation District Lands
- Agricultural Lands along Kunia Road
- Agricultural Lands North of Wahiawa in Poamoho
- Agricultural Lands Surrounding Mililani
- Agricultural Lands in the Waipi'o Peninsula Blast Zone
- Military Training Areas (west of Schofield Barracks and East Range)
- Ko'olau Range Conservation District Lands

Natural Gulches and Drainageways
- Waiawa Stream
- Waikele Stream/Gulch
- Kipapa Stream/Gulch
- Panakauahi Gulch
- Waikakalaua Stream
- Kaukonahua Stream (North and South Forks)

Shoreline Areas
- Pearl Harbor access points
- Wetlands and Wildlife Habitats
  - Pouhala Marsh
  - Pearl Harbor Ponds

Parks
- Waipahu Cultural Garden Park
- Waipahu District Park
- Waipahu Shoreline Park (planned)
  - including the Waipio Peninsula Soccer Park
- Central Oahu Regional Park (Waiola)

TABLE 2.1: CENTRAL OAHU OPEN SPACE NETWORK

(Continued)

Parks (Continued)

Mililani District Park
Mililani Mauka District Park
Wahiawa State Freshwater Park
Wahiawa Botanical Garden
Wahiawa District Park

Golf Courses

Ted Makalena
Royal Kunia (built but not opened)
Waikele
Waiawa (2 courses planned)
Hawaii Country Club
Mililani
Leileihua (military)
Kalakaua (military)

Green Way Corridors

Historic OR&L Railway/Pearl Harbor Historic Trail
H-2 Freeway
Kamehameha Highway (from Waipahu Street to Wahiawa)
Meheula Parkway
Wilikina Drive (from Kunia Road to Kaukonahua Stream)

2.2.4 REVITALIZATION OF WAIPAHU AND WAHIAWA

Waipahu and Wahiawa will be revitalized through policies and programs designed to attract new investment and increase levels of activity in their traditional commercial and civic centers. Additional mid-rise development will be allowed in both towns and encouraged along the transit corridor in Waipahu as part of an economic revitalization strategy.

Special Area Plans for Waipahu and Wahiawa have been prepared in partnership with the Waipahu and Wahiawa communities to provide a community-based strategy for the revitalization efforts.

As discussed in the following sections, two **Enterprise Zones** will support job development in Waipahu and Wahiawa by offering businesses incentives to develop and create jobs within the zones. (See Exhibit 2.2 for location.)

2.2.5 ECONOMIC DEVELOPMENT AND ENTERPRISE ZONES

Outside of Waipahu, Wahiawa, and the Mililani Technology Park, new commercial and industrial development will be designed to meet the demand from surrounding residential communities rather than a regional or islandwide market, in order to support the development of the secondary urban center in Ewa and the revitalization of the town centers of Waipahu and Wahiawa.

Two Enterprise Zones (as shown in Exhibit 2.2) have been approved by the City Council in the Central Oahu *Sustainable* Communities Plan Area. The northernmost Zone includes industrial and commercial areas in Wahiawa and Mililani Technology Park. The southernmost Zone includes areas along Kunia Road and in Waipio Gentry, Waiawa, and Waipahu (as well as Pearl City's Manana area which is located in the Primary Urban Center Development Plan Area).

Under enabling legislation approved by the City Council in 1995 (Resolution 95-292) and in 2002 (Resolution 02-227), qualifying businesses will receive rebates on City property taxes for two years, and waiver of certain county fees for seven years. In addition, under State law (Chapter 209E, Hawaii Revised Statutes), the businesses may receive exemptions from State excise taxes for seven years, a decreasing State income tax credit for seven years, and a State income tax credit for unemployment insurance premiums.

2.2.6 MASTER-PLANNED RESIDENTIAL COMMUNITIES

A network of master-planned residential communities provide a wide variety of housing and accommodate the need for affordable housing. Master plans will guide developments in Mililani Mauka, Royal Kunia, Waikele, Waiawa, Waiawa Castle & Cooke, and Koa Ridge Makai. (See Exhibit 2.3 for project locations.)

Development of these communities should incorporate planning principles and guidelines to preserve historic and cultural values, establish open space and greenway networks, and create well-designed, livable communities.

2.2.7 COMMUNITIES DESIGNED TO SUPPORT NON-AUTOMOTIVE TRAVEL

The master-planned residential communities will be designed or redeveloped to support **pedestrian and bike** use within the community and **transit use** for trips outside of the community.

An east-west **Rapid Transit Corridor** through Waipahu will link the Primary Urban Center with the University of Hawaii West Oahu Campus and the City of Kapolei. Medium density residential development will be built along the corridor within walking distance of the major nodes and transit stops.

Medium density residential and commercial development will be developed at two **transit nodes** whose general location is indicated on the Public Facilities Map in Appendix A. Transit nodes are meant to be located at activity focal points which would serve as natural points for transferring from one transportation mode to another.

Through 2020, it is projected that transit service along the corridor will be provided by mass transit bus service running on roadways shared with other vehicles. However, sufficient right-of-way shall be reserved for the establishment, when needed in the future, for either an elevated or a separated at-grade rapid transit system. Such a system will require a 28-foot right-of-way along the route and a 75-foot right-of-way at transit station sites (at the transit nodes).

Access to the future rapid transit system from other Central Oahu communities will be provided by mass transit bus service, park and ride facilities, and express bus service running on High Occupancy Vehicle (HOV) lanes. High speed transit will also run along the H-2 Freeway, stretching from Waipahu to Wahiawa.

Exhibit 2.2
Central Oahu Enterprise Zones

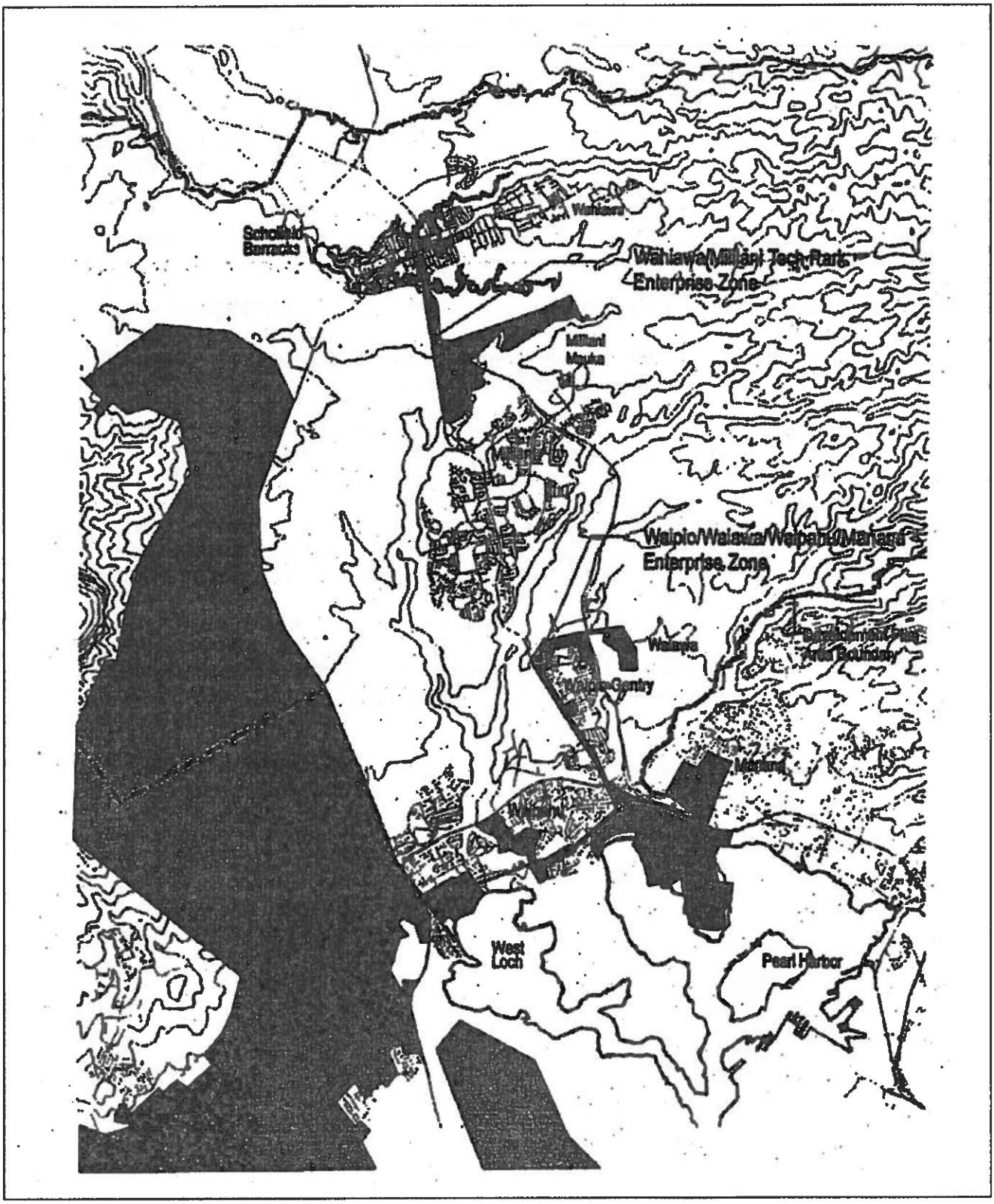
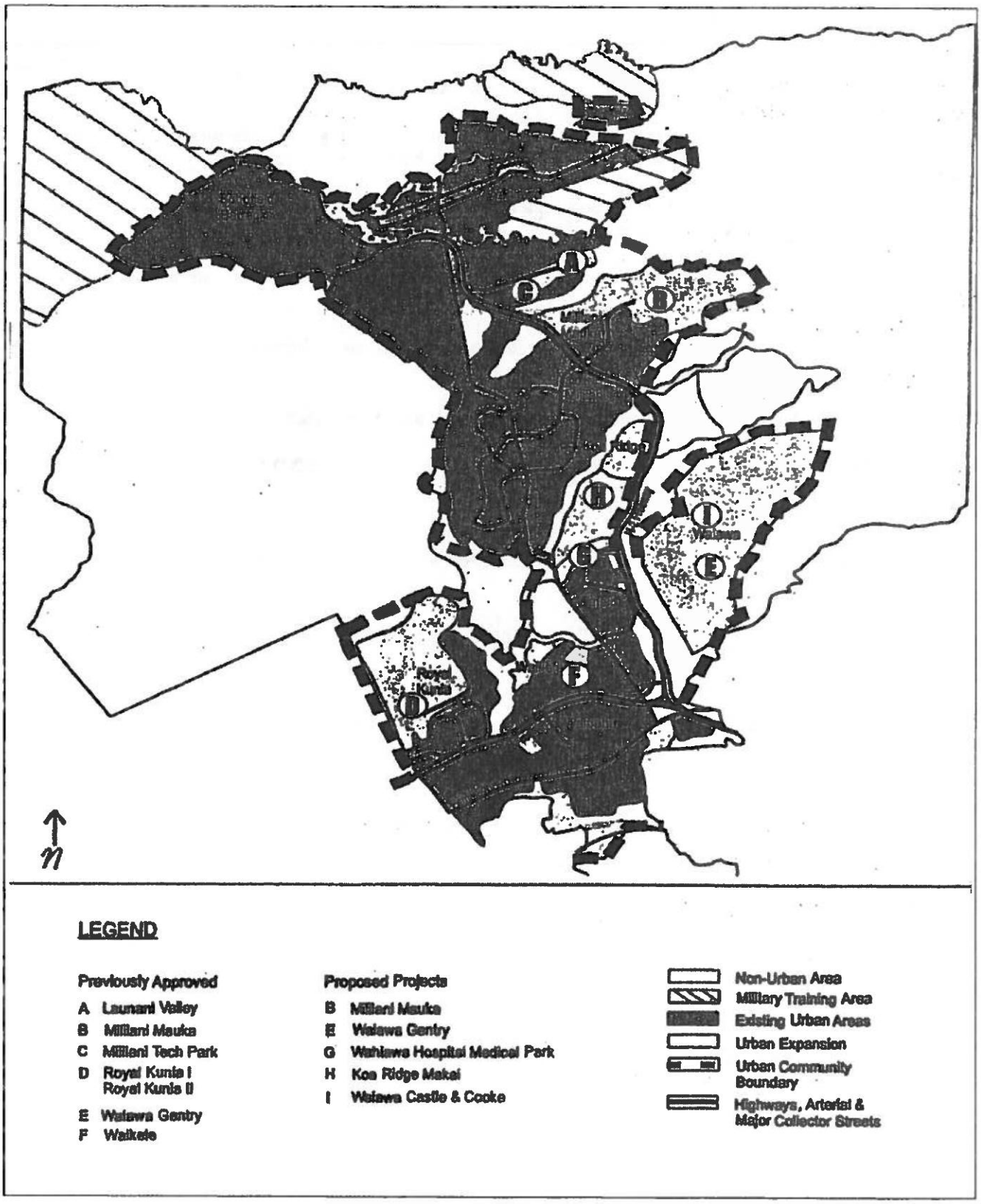


Exhibit 2.3
Existing and Proposed Master Planned Communities



2.2.8 CONSERVATION OF NATURAL RESOURCES

Central Oahu natural resources, including endangered species habitats, ravines, potable water supply, and Pearl Harbor waters, will be conserved by:

- Identifying and protecting endangered species habitats and other important ecological zones from threats such as fire, weeds, feral animals, and human activity;
- Retaining the major Central Oahu ravines as flood plains and open space resources by restricting further development and minimizing grading or other disturbance of the gulch walls;
- Designing the regional drainage and wastewater treatment system to minimize nonpoint source pollution of the ocean and Pearl Harbor;
- Protecting prime watershed recharge areas and the Pearl Harbor potable aquifer which underlies the Central Oahu area; and
- Protecting valuable habitats for endangered waterbirds located on the shoreline of Pearl Harbor at Pouhala Marsh and Pearl Harbor Ponds.

See Exhibit 3.2 in Chapter 3 for a conceptual mapping of key natural resources.

2.2.9 PRESERVATION AND ENHANCEMENT OF HISTORIC AND CULTURAL RESOURCES

Central Oahu's historic and cultural resources will be preserved and enhanced by:

- Preserving significant historic and prehistoric features from the plantation era and earlier periods, including
  - [] The Waipahu Sugar Mill and surrounding related features,
  - [] The OR&L right-of-way,
  - [] Kunia and Poamoho Villages and other remnants of the plantation era, and
  - [] Native Hawaiian cultural and archaeological sites; and
- Retaining visual landmarks and significant vistas, including:
  - [] Distant vistas of the shoreline and Pearl Harbor from the H-2 Freeway and Kunia Road above the Ewa Plain;
  - [] Views of the Waianae and Ko'olau Mountains from Kunia Road, Kamehameha Highway, and H-2 Freeway;
  - [] Views of Pearl Harbor from Farrington Highway in the vicinity of Waipahu High School;
  - [] The view of the Waipahu Sugar Mill from Waipahu Depot Road;
  - [] The view of the Waianae Mountains from the Waipahu Cultural Garden;
  - [] The view of the Waianae Mountains from Mililani High School, from Meheula Parkway near Keaolani Street, and from Mililani District Park;

[] The view of Diamond Head and Pearl Harbor from Mililani Recreation Center No. 2; and

[] The view of the upper Central Oahu plains toward Waialua from the end of Koa Street in Wahiawa;

[] The view of West Loch and of the Waianae Range from Kamehameha Highway while passing the Central Oahu Regional Park; and

- Limiting building heights outside of Waipahu and Wahiawa to low rise structures to protect panoramic views and the character of the built environment.

2.2.10 DEVELOPMENT PRIORITIES

Development in Central Oahu shall be characterized by:

- **Completion of existing and approved master-planned residential developments and proposed developments at Koa Ridge and Waiawa** (see the Central Oahu Phasing Map in Appendix A and Table 2.2 below);
- **Moderate growth of commercial centers in Central Oahu Urban Fringe Areas** to primarily serve the needs of the surrounding residential communities;
- **Adequate Facilities Requirements** to insure that development does not outpace infrastructure development; and
- **Coordinated Public-Private Infrastructure and Project Development** that supports the directed growth strategy of the General Plan. (Examples include a number of transportation projects on the H-2 Freeway.)

Table 2.2, which follows, provides estimates of the approximate size and scale of projects shown in Exhibit 2.3 and on the Land Use Map and Phasing Map in Appendix A. Most projects shown have previously received Development Plan and zoning approval and are at various stages in the development process. Proposed projects would require land use approvals to proceed.

Annual absorption of housing units (housing built less demolitions) in Central Oahu averaged 1,400 units per year from 1990 to 1995, but slowed to about 450 per year between 1996 and 1998. At the higher 1990 — 1995 rate, almost 20 years worth of development capacity is provided within the Urban Community Boundary (UCB) in Central Oahu.

The Department's most recent projections of likely growth for Oahu, prepared in October 2000, project annual housing absorption from 2000 to 2025 for Central Oahu to average 450 units per year. At that rate, over 50 years of residential development capacity is provided within the UCB in Central Oahu.

Table 2.2 shows the estimated number of housing units and the approximate gross acreage by land use category for both the previously approved projects and the proposed projects.

TABLE 2.2: PHASING OF CENTRAL OAHU DEVELOPMENT

Project Area	Housing Units	Land Area (Gross Acres) Resid.	Comm.	Ind.	Tech./Med. Park	Total
Urban Expansion (1)						
Previously Approved						
Launani Valley	82	7				7
Mililani Mauka (2)	1,830	248	22			270
Mililani Technology Park (3)					195	195
Royal Kunia I	438	72				72
Royal Kunia II	2,000	327	20	103		450
Waiawa Gentry (4)	7,095	546	119			665
TOTAL PREVIOUSLY APPROVED	***11,445***	***1,200***	***161***	***103***	***195***	***1,659***
Proposed Project						
Koa Ridge Makai (5)	2,950	400	10			410
Pacific Health Center Medical Park (6)					100	100
Waiawa Castle & Cooke (5)	1,100	150				150
Waiawa Gentry (7)	5,000	750				750
Royal Kunia	900	150				150
TOTAL PREVIOUSLY APPROVED & PROPOSED	**21,395**	**2,650**	**171**	**103**	**295**	**3,219**

NOTES:

See Exhibit 2.3 for location of projects.

(1) Lands included in the urban expansion area would be eligible for processing zoning changes and other development applications starting with adoption of the Plan. Previously approved residential projects listed already have both Development Plan and zoning approvals, except for some parts of Waiawa Gentry which need a zone change.

(2) Includes Mililani Mauka Phase III which received Development Plan and zoning approval in 2002.

(3) Phase II of Mililani Technology Park (135 acres) needs zoning approval.

(4) Commercial acreage includes 68 acres in Commercial/Industrial Mixed Use. Zoning approval is needed for 226 acres.

(5) Estimates based on EIS Prep Notice filed October 2002. Will need zoning approval.

(6) Pacific Health Center Medical Park will need Plan Review Use approval.

(7) Will need State Land Use and zoning approval.

Department of Planning and Permitting estimates of acreages and housing units capacity as of June 2002.

3. LAND USE POLICIES, PRINCIPLES, AND GUIDELINES

The land use policies, principles, and guidelines in this chapter should be used in the review and approval of public and private projects in Central Oahu in order to help implement the vision for Central Oahu's development described in the preceding chapter. Policies are provided for:

		PAGE
3.1	Open Space Preservation and Development	24-48.33
3.2	Regional Parks and Recreation Complexes	24-48.38
3.3	Community-Based Parks	24-48.42
3.4	Historic and Cultural Resources	24-48.43
3.5	Waipahu Town	24-48.49
3.6	Wahiawa Town	24-48.55
3.7	Central Oahu Plantation Villages	24-48.59
3.8	Existing and Planned Residential Communities	24-48.62
3.9	Planned Commercial Retail Centers	24-48.67
3.10	Industrial Centers	24-48.71
3.11	Mililani Technology Park	24-48.73
3.12	Military Areas	24-48.74

3.1 OPEN SPACE PRESERVATION AND DEVELOPMENT

3.1.1 GENERAL POLICIES

Open space will be used to:

- Provide long-range protection for diversified agriculture and pineapple on lands outside the Urban Community Boundary and for two agricultural areas located inside the Urban Community Boundary (Pine Spur and Honbushin);
- Protect scenic views and provide recreation,
- Define the boundaries of communities,
- Provide a fire safety buffer where developed areas border "wildlands" either in preservation or agricultural areas;
- Preserve natural gulches and ravines as drainageways and storm water retention areas, and
- Create linkages between communities through a network of Greenways along transportation and utility corridors and drainageways.

3.1.2 PLANNING PRINCIPLES

The general policies listed above provide the basis for the following planning principles:

- **Visual and Physical Definition of Urban Areas.** The large expanses of open space beyond the Urban Community Boundary should provide the basic definition of the regional urban pattern. Within the Urban Community Boundary, the open space system should visually distinguish and physically separate individual communities, neighborhoods, and land use areas in Central Oahu.
- **Passive and Active Open Spaces.** The open space system consists of areas in active use, as well as passive areas. Active areas include parks, golf courses and agricultural fields. Passive areas include the

State Conservation District, fallow land in the State Agriculture District, wildlife habitat areas, natural preserves, and drainage and utility corridors. Shoreline areas may be either active or passive.

- **Creation of Open Space Network.** The various types of open space should be linked as an open space network, with major open space areas connected by open space corridors along transportation routes, utility corridors, and drainageways.

- **Dual Use of Drainage and Utility Corridors.** To create the regional open space network, drainageways and utility corridors should be viewed as opportunities to link major open spaces with pedestrian and bike paths along open space corridors. To accommodate such uses, where possible, drainageways should be retained as natural or man-made vegetated channels rather than be replaced by concrete channels.

- **Accessibility of Recreational Open Space.** Public parks and most golf courses will be accessible for recreation use, but the open space system should also promote the accessibility of shoreline and mountain areas.

3.1.3 RELATION TO OPEN SPACE MAP

The following areas shown on the Open Space Map in Appendix A are components of the regional open space system:

Mountain and Agricultural Areas. These are the areas outside of the Urban Community Boundary, including areas within the State Conservation District.

Natural Gulches and Drainageways. Within the Urban Community Boundary, the major gulches, as identified in Table 2.1, are indicated for preservation, except for the portion of Waikakalaua Gulch that has been previously designated for urban use.

Shoreline Areas. Along the Pearl Harbor shoreline, coastal-dependent uses and features such as shoreline parks and wetlands are indicated as parks and preservation areas, respectively.

Parks. Only island-wide, regional and district parks are shown. Community and neighborhood parks are part of the open space system, but they are generally too small to display on a regional map, and their location is determined more by community facility design considerations (see Section 3.3 below) than by their relationship to the regional open space network.

Golf Courses. All golf courses are shown, whether public or private, since their visual contribution to the open space system is the same.

Greenways or Open Space Corridors. These corridors are indicated on the map following certain public rights-of-way which are extensive enough to make a significant contribution to the regional open space network as a linear connector.

A listing of significant elements of the Central Oahu Open Space Network is provided in Table 2.1.

3.1.4 GUIDELINES

The following guidelines carry out the general policies and planning principles for regional open space elements:

3.1.4.1 Mountain Areas

- Public campgrounds and hiking trails should be acquired and maintained in the areas beyond the Urban Community Boundary on the slopes of both the Waianae Range and the Koolau Range.

- Public access to mountain areas, including vehicular access to trail heads and public campgrounds, should be required when new mauka developments are approved.

- At higher elevations, in the State Conservation District, the forest should be maintained. Utility corridors and other uses should avoid disturbance to areas with high concentrations of native species.

- Endangered species habitats and other important ecological zones should be identified and protected from threats such as fire, weeds, feral animals and human activity.

- Areas proposed by the State Office of State Planning in the **State Land Use District Boundary Review** (1992) for addition to the State Conservation District to protect the Leeward Koolau Watershed and the hydrologic zone of contribution to the Navy Shaft in Waiawa should be protected from urban development; provided, however, that urban uses such as utility installations and public facilities specifically approved by the State Department of Health and the Honolulu Board of Water Supply may be permitted within the zone of contribution.

3.1.4.2 Natural Gulches and Drainageways.

- The major natural gulches within the Urban Community Boundary as listed in Table 2.1, should be preserved as part of the open space system.

- Planned improvements to Central Oahu drainage systems should be integrated into the regional open space network by emphasizing the use of retention basins and recreational access in the design approach. (See Chapter 4, Section 4.6 below.)

3.1.4.3 Shoreline Areas

- Public access to the Pearl Harbor shoreline should be provided at intervals of approximately one mile, except where access is restricted by the military for security reasons.

- Nearshore wetlands and mangroves should be maintained and enhanced, where necessary, as wildlife habitats.

- At a minimum, a 60-foot setback should be provided along the shoreline, and should, where possible, be expanded to 150 feet.

3.1.4.4 Agricultural Areas

- Facilities necessary to support intensive cultivation of arable agricultural lands should be permitted.

- Facilities to support limited outdoor recreation use, such as camping, horseback riding and hiking, should be permitted in areas where agricultural use is not feasible.

- Residential use should be permitted only to the extent that it is accessory to the agricultural use. Where several dwellings are planned as part of an agricultural use, they should be sited and clustered to avoid the use of more productive agricultural lands and to reduce infrastructure costs.

- Buildings and other facilities that are accessory to an agricultural operation should be designed and located to minimize impact on nearby urban areas and roadways.

3.1.4.5 Parks

- A major Central Oahu Regional Park of approximately 270 acres is being developed at the site known as "Waiola," north of Waikele and west of Waipio. Distant views of the Waianae Range from Kame-

hameha Highway should be maintained in the development and siting of facilities and landscaping in this park. (The location of Central Oahu Regional Park and other parks in Central Oahu is shown in Exhibit 3.1.)

- Trails leading from Central Oahu Regional Park to Waikele Gulch, connecting to a trail system throughout Central Oahu's gulches, should be developed.

- A major new shoreline park should be established at Waipio Peninsula, giving access from Waipahu to the Pearl Harbor shoreline on the West Loch and Middle Loch.

- District parks within master-planned residential communities should include passive areas for picnicking and large, outdoor community gatherings.

- Wahiawa Botanical Garden should be retained primarily as a gulch in its natural state.

- Wahiawa Freshwater Park should be expanded to include most of the area adjacent to the Wahiawa Reservoir, limiting public access only as necessary to protect water quality and public safety.

3.1.4.6 Golf Courses

- Golf courses should be located and designed to optimize their function as drainage retention areas and as buffers between developments.

- In designing new golf courses, the impact of the course on existing and proposed trails, paths, and bike routes should be considered, and where necessary for these trails, paths, and bikeways, safe corridors by or through the course should be provided.

- Golf courses should be designed to provide view amenities for adjacent urban areas, including public rights-of-way.

- When screening is necessary for safety reasons, landscape treatment, setbacks and modifications to the course layout should be used rather than fencing or solid barriers.

3.1.4.7 Wildland - Urban Fire Hazard Setbacks

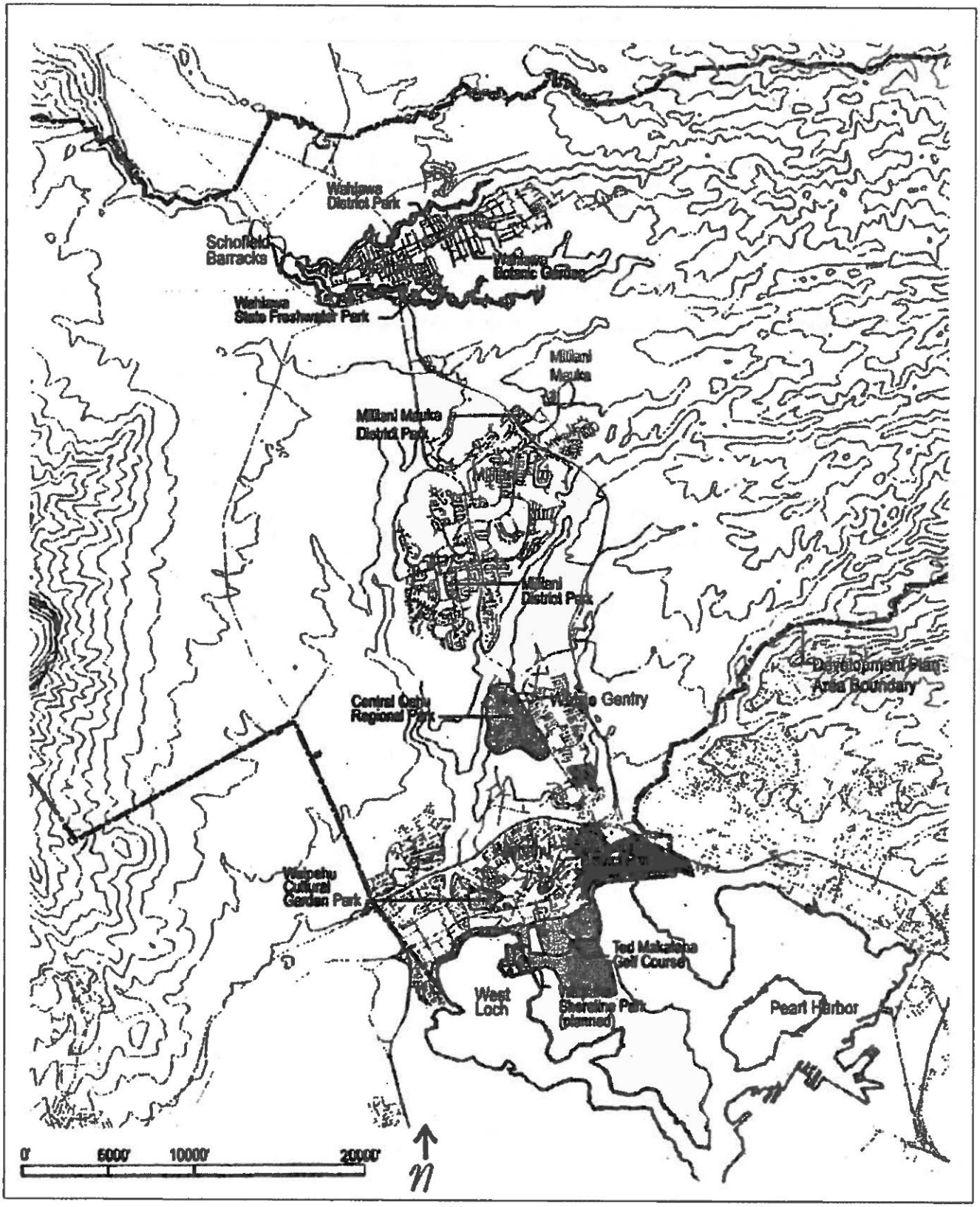
- As determined appropriate by the Honolulu Fire Department, residential or commercial developments which are adjacent either to preservation areas within the Urban Community Boundary or to lands within the State Conservation District may be required to provide a setback to reduce the risk of fire spreading from the "wildlands" to the developed area. Typically, such a setback would be 20 feet wide and should be landscaped with low-growth, low-burn plantings.

3.1.4.8 Greenways and Open Space Corridors

- Sufficient easement width should be provided for the major trunk lines and transmission lines for utility systems, when their alignment is not within a road right-of-way, to permit the growth of landscaping within the easement, consistent with all applicable operations, maintenance, and safety requirements.

- When existing overhead transmission lines are located within or adjacent to a road right-of-way, there should be sufficient width to permit the growth of landscaping adjacent to the transmission line, consistent with all applicable operations, maintenance, and safety requirements. The purpose of the landscaping is to divert attention from the overhead lines and, preferably, obscure views of the overhead lines from the travelway and adjacent residential areas. New transmission lines should be placed underground where possible under criteria specified in State law.

Exhibit 3.1
Map of Parks in the Central Oahu Sustainable Communities Plan Area



- The use of utility easements for pedestrian and bicycle routes should be permitted, consistent with all applicable operations, maintenance, and safety requirements.

- The rights-of-way for major arterials and major collector streets should be designed as landscaped parkways or greenways, complete with a landscaped median strip, landscaped sidewalk, and bikeways. Major arterials should have separate bike paths, and major collectors should have bike lanes. Suggested width for major arterials, including right-of-way and planting strips, is 120 feet wide and for major collectors is 100 feet wide.

- Where urban development abuts the H-2 Freeway, an open space/landscaped buffer of sufficient size should be provided to preserve a view of green, minimize the visual intrusiveness of the development, and reduce the noise and air quality impact of the freeway traffic on the abutting development.

- Wahiawa Botanic Garden should be linked to the Wahiawa Freshwater Park on Lake Wilson by a trail through the gulch connecting the two areas.

3.2 REGIONAL PARKS AND RECREATION COMPLEXES

The following section presents general policies, planning principles, and guidelines for development of regional parks and recreation complexes.

3.2.1 GENERAL POLICIES

Regional recreational sites include the Central Oahu Regional Park, Wahiawa Botanical Garden, Wahiawa Freshwater Park, Waipahu Cultural Garden, the proposed Waipahu Shoreline Park, and public and private golf courses. To sustain economic development, public-private partnerships to build and maintain new park and recreation complexes should be considered.

Regional Parks. Central Oahu Regional Park is a new 269-acre park being developed on a triangle-shaped area across Kamehameha Highway from the Waipio-Gentry planned community. Key features of the regional park and sports complex include:

- A professional quality baseball complex for training and tournaments;

- Softball, youth baseball, soccer and multi-purpose fields;

- Basketball and sand volleyball fields;

- A championship tennis complex with center court and 24 tennis courts;

- A community center and aquatic center with Olympic-sized swimming and diving pools;

- A four field in-line hockey complex;

- A box car racing track;

- A skateboard park; and

- Passive recreational areas for picnicking, kite-flying, and pedestrian paths.

Land for the park has been acquired from the private landowner. Facilities will be constructed incrementally, as funding allows. Private funds will be used to construct some of the athletic facilities in the sports complex, primarily the baseball stadium, and the tennis complex.

Wahiawa Botanical Garden is a 27-acre park with a unique collection of plants representing the mid-level rain forest habitat. It is located in a small ravine in the center of Wahiawa and is one of five botanical gardens operated islandwide by the City Department of Parks and Recreation. It includes a small office, maintenance buildings, a comfort station, and parking stalls.

The Garden has experienced problems with erosion, lack of financial support and patronage, vandalism, and illegal dumping. A new Master Plan has been developed for the Garden and calls for the rehabilitation and expansion of the Garden. Improvements to the facility should focus on the promotion of eco-tourism, environmental education, and conservation of tropical plants, and include development of a visitor center, improvement of a second parking area, development of an activity core at the garden center, and creation of a new system of walking paths.

The Garden should be connected to the Wahiawa Freshwater Park at Lake Wilson by way of a trail through the gulch which connects the two facilities.

Wahiawa Freshwater Park is a 66-acre State recreation area surrounding Lake Wilson (Wahiawa Reservoir) which has picnicking facilities and the only year-round freshwater shoreline and boat fishing area on Oahu. A jogging path has been planned for the park, but has not been constructed. Expansion and improvement of park facilities are warranted.

In addition to its recreation value, the park serves as both an edge for the western end of Wahiawa and as a visual gateway to the North Shore.

Waipahu Cultural Garden is a 49-acre park owned by the City. The private, nonprofit Friends of Waipahu Cultural Garden Park has established and operates (as a concession) a recreated plantation village and a museum to display the cultural traditions, physical forms, and lifestyles of plantation workers and their families. The park is not designed for active recreation, but does include a picnic area, an ethno-botanic garden, and an educational building with a crafts room. Improvements to the park should be consistent with the historical and cultural theme of the park and should enhance open space and passive recreational values.

Waipahu Shoreline Park. A shoreline park and preservation area is planned for the entire length of shoreline in Pearl Harbor's West Loch and Middle Loch. The park will include the Pearl Harbor Historic Trail (a shared use path running on the OR&L right-of-way), the Pouhala Marsh wildlife sanctuary, and the Waipio Peninsula Soccer Park, a multi-field soccer complex on the Waipio Peninsula.

The Pearl Harbor Historic Trail running along the shoreline on the OR&L right-of-way will allow bikers and pedestrians to travel as far as Nanakuli to the west. Riding east, the path will follow a greenbelt linking a network of shoreline parks stretching from West Loch to Rainbow Marina near Aloha Stadium. The shoreline park could also potentially provide access to nearshore fishing and boating in the Pearl Harbor West Loch waters.

As proposed in the **Waipahu Town Plan** (December 1995), Waipio Peninsula Soccer Park has been built on lands on the Waipio Peninsula that are leased from the Navy. The complex provides a venue for local, national and international soccer players to train and compete year-round.

Golf Courses. Central Oahu has eight public and private golf courses. The City operates the Ted Makalena Golf Course on the Waipio Peninsula. Because of the need to use high quality water for irrigation above the Pearl Harbor aquifer, municipal golf course improvements in Central Oahu should be limited to enhancement of Ted Makalena Golf Course. Any new stand-alone municipal courses to serve the region should be planned for Ewa where nonpotable water for irrigation uses will be available from the Honouliuli Wastewater Treatment Plant.

Private golf courses include Hawaii Country Club, Mililani, Royal Kunia and Waikele golf courses. Additional private golf courses are planned for Waiawa. The U.S. military operates the Leilehua golf course near Wheeler Army Airfield and the Kalakaua golf course at Schofield Barracks.

Golf courses can provide protection for open space, and help reduce flooding and nonpoint pollution by helping retain storm waters. Golf course development should be approved only after determination that the course meets social, growth, economic, and environmental guidelines and approval of a community integration program.

Recreation Complexes. Sports and recreation complexes designed to attract visitors from throughout the region and the rest of Oahu have been proposed for various areas in Central Oahu.

Such complexes, if approved, should be designed to be compatible with surrounding land uses and environmental features.

3.2.2 PLANNING PRINCIPLES

The general policies for regional parks and recreation complexes are supported by the following planning principles:

- **Appropriate Scale and Siting.** Architectural elements and siting should be used to heighten the visibility of a major recreation events area as it is approached from principal travel corridors.

- **Environmental Compatibility.** Uses that generate high noise levels should be located and operated in a way that keeps noise to an acceptable level in existing and planned residential areas. The built environment should avoid adverse impacts on natural resources or processes in the coastal zone or any other environmentally sensitive area. To retain a sense of place, the design of recreation areas should incorporate natural features of the site and use landscape materials that are indigenous to the area where feasible.

- **Community Integration.** The design of recreational attractions may have a distinct identity and entry, but there should be elements that link these destinations with surrounding areas through the use of connecting roadways, bikeways, walkways, landscape features or architectural design.

3.2.3 GUIDELINES

The following guidelines implement the general policies and planning principles for regional parks and recreation complexes listed above.

3.2.3.1 Islandwide and Regional Parks

- Central Oahu Regional Park, a major park of approximately 270 acres, is being developed at the site known as "Waiola," near Waikele and Waipio. Distant views of the Waianae Range from Kamehameha Highway should be maintained in the development and siting of park landscaping and facilities.

- Trails leading from the Central Oahu Regional Park to Waikele Gulch, connecting to a trail system throughout Central Oahu's gulches, should be provided.

- A major new shoreline park should be established at Waipio Peninsula, giving access from Waipahu to the Pearl Harbor shoreline.

- District parks within master-planned residential communities should include passive areas for picnicking and large, outdoor community gatherings.

- Wahiawa Botanical Garden should be retained primarily as a gulch in its natural state.

- Wahiawa Freshwater Park should be expanded to include most of the area adjacent to the Wahiawa Reservoir, limiting public access only as necessary to protect water quality and public safety.

  (The location of parks in Central Oahu is shown above in Exhibit 3.1.)

3.2.3.2 Sports and Recreation Complexes

Definition of Use Areas

- Uses that attract a high number of people for events should be separated as much as possible from residential areas and wildlife habitats.
- Parking areas for sporting events should provide amenities and service facilities to accommodate "tailgate" picnics, as well as nearby picnic tables and outdoor grills.

Transportation Facilities

- Bus loading areas and shelters and bicycle parking facilities should be located as close as possible to entry gates for special events areas.
- Bus stops should be located at all principal activity areas.

Views

- Facilities for special events should be located and designed to be readily visible and identifiable from the principal transportation corridors that lead to them.
- The visual identity of the complex should be established through distinctive architecture, landscaping, or natural setting.

Landscape Treatment

- The visibility of perimeter fencing, parking lots and garages and other utilitarian elements should be minimized through plantings or other appropriate visual screens along roadway frontages.
- In large parking lots, canopy trees should be used to provide shade. Special paving or pavement markings could be used to indicate pedestrian routes to destinations and differentiate sections of the parking area.

Natural Environment

- Wetland and other wildlife habitat areas shall be retained, protected, and incorporated as passive recreational resources.

3.2.3.3 Siting

- Island-wide and regional parks and golf courses are shown on the Open Space Map and the Public Facilities Maps in Appendix A.
- Change in the location of an island-wide park or a golf course shall require a City review and approval process which provides adequate public notice and input.
- Funding for new park facilities shall be committed according to the priority for development of the area surrounding the park location, as indicated on the Phasing Map in Appendix A.
- Regional sports and recreation complexes may be located on the Waipio Peninsula, at the Central Oahu Regional Park, and in areas designated for commercial, industrial, or park use, subject to a City review and approval process which provides public review and complete analysis.

3.3 COMMUNITY-BASED PARKS

The following section provides general policies and guidelines for community-based parks and recreation areas.

3.3.1 GENERAL POLICIES

Adequacy. Adequate parks to meet residents' recreational needs should be provided. Currently, Central Oahu has less community-based park acreage than the Department of Design and Construction island-wide parks standard indicates is needed for its existing population. Community-based parks include mini-parks (three acres or less, 1/4 mile service radius), neighborhood parks (4-6 acres, 1/2 mile), community parks (10 acres, one mile), and district parks (20 acres, two miles).

In 2000, Central Oahu had 233 acres of community-based parks, 65 less than the island-wide standard. (However, some of this shortfall is met by private recreation centers maintained by homeowner's associations in most of Central Oahu's planned residential developments, and by the new Central Oahu Regional Park.)

Parks Standard. New residential developments should provide land for open space and recreation purposes at a minimum of two acres of park per 1,000 residents.

Additional park acreage will be needed to eliminate the current deficit and to meet projected growth through 2025. Based on the standards described above, an additional 114 acres of community-based parks and recreation areas would be needed to meet the needs of the projected 2025 Central Oahu population.

The primary method of acquiring the needed additional community-based park land will be through the park dedication ordinance which requires developers to dedicate land for parks and playgrounds (equivalen to 110 square feet per apartment, multi-family building, and planned development project dwelling unit, and 350 square feet per one-family, two-family, and duplex unit) as part of the subdivision approval process.

Recreational Access. Access to recreational resources in the mountains, at the shoreline, and in the ocean should be protected and expanded.

Trails to and through the gulches and mountains are an important public recreational asset. Some areas are difficult to access because of landowner restrictions.

New development projects are an opportunity to provide public access to trail heads from the streets extending toward the mountain slopes or approaching the edges of the gulches. In addition, the City should support other efforts to expand access to mountain and gulch trails in areas where urban development will not occur.

3.3.2 GUIDELINES

The following guidelines implement the general policies for community-based parks:

3.3.2.1 Development of Community-Based Parks

- The Department of Parks and Recreation should co-locate Neighborhood or Community Parks with elementary or intermediate schools and coordinate design of facilities when efficiencies in development and use of athletic, recreation, meeting, and parking facilities can be achieved.

- The Department of Parks and Recreation should coordinate the development and use of athletic facilities such as swimming pools and gymnasiums with the State Department of Education (DOE) where such an arrangement would maximize use and reduce duplication of function.

- Where feasible, the Department of Parks and Recreation should site Community and Neighborhood Parks at the center of neighborhoods, in order to maximize accessibility.

- Development master plans should provide accessible pathways from surrounding streets to facilitate pedestrian and bicycle access to all features in parks.

3.3.2.2 Access to Ravines and Mountain Trails

- Where appropriate, new developments should provide a public access easement and parking area for hikers from the mauka boundary to a public mountain trail easement.

- Where appropriate, new developments should provide a means for a safe trail to major Central Oahu gulches which are either within or adjacent to the project area. (These gulches which are part of the Central Oahu Open Space Network include Waiawa, Panakauahi, Kipapa, Waikele, and Waikakalaua Gulches.)

3.3.2.3 Siting

- Conceptual locations for district parks are shown on the Open Space Map in Appendix A. These locations may be revised without needing to amend the *Sustainable* Communities Plan when more detailed site information and planning analysis is available.

- Community and neighborhood parks are part of the open space system, but their location is determined more by community facility design considerations than by their relationship to the regional open space network. Siting of Community and Neighborhood Parks should be reviewed and decided at the time the Project Master Plan is submitted, prior to the granting of a zone change.

3.4 HISTORIC AND CULTURAL RESOURCES

This section provides policies, planning principles, and guidelines for the preservation and development of historic and cultural resources in Central Oahu.

3.4.1 GENERAL POLICIES

Protection of Key Landmarks. Physical references to Central Oahu's history and cultural roots should be emphasized to help define Central Oahu's unique sense of place. Existing visual landmarks should be protected, and creation of new culturally appropriate landmarks should be supported.

Preservation of Historic Features. Significant historic features from the plantation era and earlier periods should be preserved.

Protection of Kukaniloko. Protection of Kukaniloko must be ensured. The appropriate form of that protection should be determined through consultation with the Hawaiian Council of Elders, the State Historical Preservation Officer, and others.

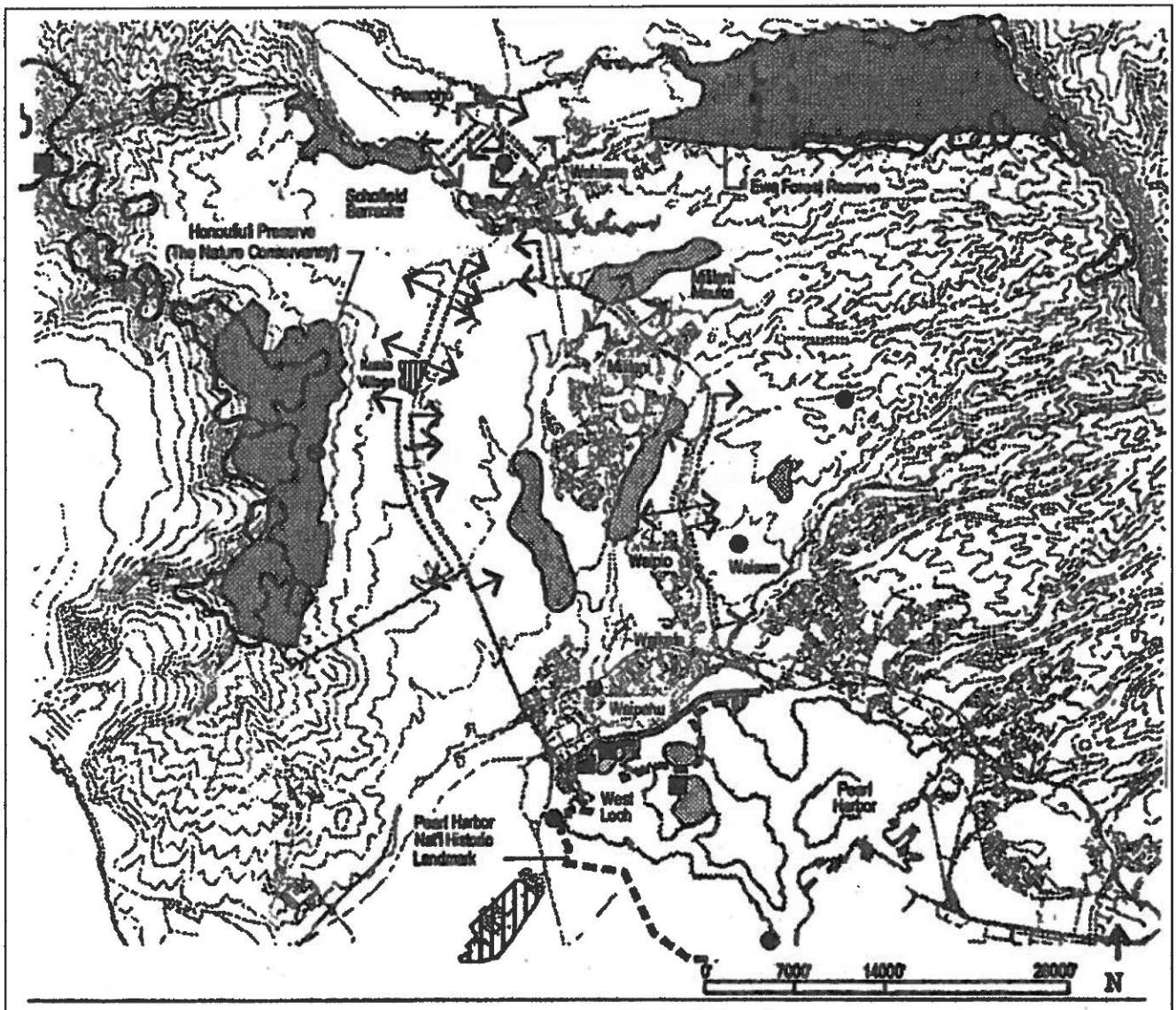
Protection of Vistas. Whenever possible, significant vistas, as identified in Table 3.1, should be retained.

Prior Approved Mitigations Implement Plan Vision and Policies. Where known archaeological and cultural sites have been identified and impact mitigations approved as part of prior development approvals, these mitigations should be assumed to carry out the Plan vision and policies for preservation and development of historic and cultural resources in Central Oahu.

Exhibit 3.2 indicates the locations of a number of these historic and cultural resources which are also listed below in Table 3.1.

OR&L Historic Railway. The railroad right-of-way runs along the edge of Pearl Harbor, with a spur leading up to the Waipahu Cultural Garden Park.

Exhibit 3.2
Map of Natural, Cultural and Scenic Resources in the Central Oahu Sustainable Communities Plan Area



Cultural Resources

- Single and Concentrated Sites
- Dispersed Sites
- Historic Archaeological District
- Plantation Villages
- Historic Railway/Bikeway Corridor

Natural Resources

- Rare/Endangered Native Species
- Natural Preserves/Wildlife Refuges
- Wetland/Waterbird Habitat

Scenic Resources

- Panoramic Views

Note: Some dispersed archaeological sites and rare/endangered species habitat were identified in project Environmental Impact Statements. In such areas, subsequent development approvals and associated mitigation measures should be reviewed to identify which sites still retain archaeological or environment resource value.

TABLE 3.1: SIGNIFICANT CENTRAL OAHU HISTORIC, CULTURAL, AND SCENIC RESOURCES
HISTORIC AND CULTURAL FEATURES • OR&L Historic Railway Right-of-way • Waipahu Sugar Mill and surrounding related features • Kunia Village • Poamoho Village • Pearl Harbor National Historic Landmark
NATIVE HAWAIIAN CULTURAL AND ARCHAEOLOGICAL SITES • Kukaniloko • Kipapa Gulch Archaeological Sites • Waikele Gulch Archaeological Sites • Waikakalaua Gulch Archaeological Sites
SIGNIFICANT VIEWS AND VISTAS • Distant vistas of the shoreline and Pearl Harbor from the H-2 Freeway and Kunia Road above the Ewa Plain. • Views of the Waianae and Koolau Mountains from Kunia Road, Kamehameha Highway, and H-2 Freeway. • Views of Pearl Harbor from Farrington Highway in the vicinity of Waipahu High School • The view of the Waipahu Sugar Mill from Waipahu Depot Road • The view of the Waianae Mountains from the Waipahu Cultural Garden • The view of the Waianae Mountains from Mililani High School, from Meheula Parkway near Keaolani Street, and from Mililani District Park • The view of Diamond Head and Pearl Harbor from Mililani Recreation Center No. 2 • The view of the upper Central Oahu plains toward Waialua from the end of Koa Street in Wahiawa • The view of West Loch and of the Waianae Range from Kamehameha Highway while passing the Central Oahu Regional Park

Waipahu Sugar Mill Environs. The location of the mill is indicated on the map of Waipahu Town in Section 3.5.1.1. Related features nearby include the Waipahu Cultural Garden Park, the grouping of storefronts on Waipahu Depot Road and Waipahu Street, and the OR&L Historic Railway.

Kunia and Poamoho Villages. These plantation villages, still occupied and functioning as housing areas for plantation workers, are both shown on the Urban Land Use Map, but they are both located beyond the designated Urban Community Boundary where agriculture is expected to remain a viable land use.

Native Hawaiian Cultural and Archaeological Sites. Kukaniloko (birthplace of the ali'i), a site where high chiefs were born, is located north of Wahiawa. It has been preserved as an interpretive site to be integrated into a future State park.

Other sites are located throughout Central Oahu, particularly in the ravines, and should be reviewed on a case-by-case basis to determine if they should be preserved and protected or if an adaptive re-use of the site is appropriate.

3.4.2 PLANNING PRINCIPLES

Central Oahu contains several different types of historic and cultural sites which are representative of its history and valuable as historic records and cultural references. The treatment of a particular site should vary according to its characteristics and potential value.

The following planning principles should be used to determine appropriate treatment:

- **Preservation and Protection.** Some historic, cultural, or archaeological sites have high preservation value because of their good condition or unique features. Such sites are recommended for in situ preservation and appropriate protection measures.

- **Adaptive reuse.** Many historic sites can be converted from their original intended use to serve a new function without destroying the historic value of the site, and perhaps even enhancing its interpretative value. In other cases, such as sites with sacred significance, the site should be either restored or remain intact out of respect for its inherent value.

- **Compatible setting.** The context of an historic site is usually a significant part of its value. Care should be taken in the planning and design of adjacent uses to avoid conflicts or abrupt contrasts that detract from or destroy the physical integrity and historic or cultural value of the site. The appropriate treatment should be determined by the particular qualities of the site and its relationship to its physical surroundings.

- **Accessibility.** Public access to an historic site can take many forms, from direct physical contact and use to limited visual contact. The degree of access should be determined by what would best promote the preservation of the historic, cultural and educational value of the site, recognizing that economic use is sometimes the only feasible way to preserve a site. In some cases, however, it may be highly advisable to restrict access to protect the physical integrity or sacred value of the site.

- **Public Views.** Public views include views along streets and highways, mauka-makai view corridors, panoramic, and significant landmark views from public places, views of natural features, heritage resources, and other landmarks, and view corridors between significant landmarks. The design and siting of all structures should reflect the need to maintain and enhance available views of significant landmarks. No development should be permitted that will block important public views, as listed in Table 3.1 and illustrated in Exhibit 3.2. Whenever possible under criteria specified in State law, overhead utility wires and poles that significantly obstruct public views should be relocated or placed underground.

3.4.3 GUIDELINES

The following guidelines for historic and cultural resources implement the general policies and planning principles listed above:

3.4.3.1 OR&L Historic Railway

As recommended in the **Waipahu Town Plan** (December 1995) and the **Pearl Harbor Historic Trail Master Plan** (May 2001), the long-term restoration of the OR&L railroad and development of the right-of-way as a world-class heritage and educational corridor would enhance neighboring communities and serve as a major visitor and cultural attraction.

Method of Preservation

- The existing railway and associated structures should be repaired or reconstructed to the extent feasible, in order to permit its use for historic and educational rides.

- Preferably, the route would extend from Aiea to Nanakuli. Currently, the Hawaiian Railway Society operates a train between Ewa Villages and Kahe Park near Nanakuli.

  The first phase of railway restoration efforts should initially focus on restoring the historic rail link between Ewa Villages and Waipahu, with a train station at Waipahu Depot and a railroad stop and turn-around at the Waipahu Cultural Garden.

Adaptive Reuse

- Expansion and use of the railroad to promote the history and culture of the area should be encouraged.

- There should be a parallel paved shared-use path for bicycles and pedestrians along the length of the rail route, either within or adjacent to the right-of-way. The path should be provided even in those sections where the railroad itself is not operational.

Adjacent Uses

- Design of structures and elements related to the Pearl Harbor Historic Trail should reflect the historic nature of the railway and its surroundings.

- New development should be set back a minimum of 50 feet on either side of the OR&L right-of-way, unless it is either directly related to the operation of the railroad, or reconstruction of an historic use, or use of the right-of-way for open space and bikeway purposes; or is otherwise specified in existing land use approvals.

- Landscaping should be provided along the adjacent path, with occasional rest stops with seating and other amenities.

- Railroad station platforms, maintenance and equipment buildings, kiosks and other accessory structures with an historic architectural theme, as well as parking and loading areas should be permitted in the railroad right-of-way and setback area.

Public Access

- Public use should be encouraged by continuing and expanding the operation and run of the historic railway and by providing a parallel shared path.

- Interpretative signs along the route should explain the historic significance of the railroad and note points of interest.

3.4.3.2 Waipahu Sugar Mill Environs

Methods of Preservation

- The sugar mill stack and boiler room should be retained as visual symbols of Waipahu's plantation town history.
- The historic theme of the Waipahu Cultural Garden Park should be maintained, and opportunities should be sought to establish a more direct physical and economic connection between the park and the mill.
- Economic revitalization and in-fill development should be promoted in the old commercial core along Waipahu Street and Waipahu Depot Road to maintain the historic character of this area.
- Visitors should be attracted to the area by extending the OR&L historic theme train operations to allow rides between Ko Olina Resort and the Waipahu Cultural Gardens.
- A transit linkage should be established between Waikele Center and Waipahu Town.

Adaptive Reuse

- A variety of reuse options which are consistent with the purpose of retaining the historic plantation theme for the old town core should be allowed at the Waipahu Sugar Mill site.
- Adaptive reuse of older commercial buildings in the town core should be encouraged as a means to retain the historic building forms.

Urban Form

- Buildings in the old commercial core should be limited to two or three floors in height in keeping with the area's historic scale and to preserve views of existing mill structures.
- Renovations to the sugar mill for adaptive reuse should minimize exterior alterations that substantially change the building profile or accessory structures that define the mill's original purpose.
- A strong pedestrian shopping orientation in the old town core should be promoted by expanding "storefront" businesses, enhancing the sidewalk areas with street trees and period fixtures, consolidating off-street parking behind buildings, and retaining on-street parking wherever possible.
- Development standards should be modified, as needed, to facilitate the retention and rehabilitation of historic structures and appropriate in-fill development.

Public Access

- The Waipahu Cultural Garden Park should remain a public facility.
- Public access to the Waipahu Sugar Mill and other privately owned historic buildings in the Old Waipahu Town Anchor area (see Sec. 3.5.1.1) should be encouraged.

3.4.3.3 Native Hawaiian Cultural and Archaeological Sites

Method of Preservation

- Preservation in situ should be required only for those features for which the State Historic Preservation Officer has recommended such treatment.

- The preservation method, ranging from restoration to "as is" condition, should be determined on a site-by-site basis, in consultation with the State Historic Preservation Officer.

Adjacent Uses

- Appropriate delineation of site boundaries and setbacks and restrictions for adjacent uses should be determined on a site-by-site basis in consultation with the State Historic Preservation Officer.

- Criteria for adjacent use restrictions should include sight lines that are significant to the original purpose and value of the site.

Public Access

- The appropriateness of public access should be determined on a site-by-site basis in consultation with the State Historic Preservation Officer, appropriate Hawaiian cultural organizations and the owner of the land on which the site is located.

3.5 WAIPAHU TOWN

This section discusses policies, planning principles, and guidelines for development of Waipahu. Waipahu will be revitalized by policies and programs designed to attract new investment and to increase levels of activity in its traditional commercial and civic centers.

The closing of the Oahu Sugar Company in 1995 marked the end of an era and of Waipahu's role as a sugar mill town. Decisions on the future use of the mill site, which is the heart of the old town, will play a major role in defining the future character of Waipahu.

Waipahu's commercial and industrial areas have been adversely affected by the growth of new commercial and industrial developments elsewhere in Ewa and Central Oahu, requiring a search for new service and niche market opportunities if the business areas are to be revitalized.

3.5.1 GENERAL POLICIES

Waipahu's future is addressed in the **Waipahu Town Plan**, the Special Area Plan for Waipahu which was completed in December 1995 and in the **Waipahu Livable Communities Initiative** (May 1998). These community-based plans form the basis for the following policies, planning principles, and guidelines which will be used to evaluate proposed land use changes and infrastructure developments in Waipahu.

The Waipahu of the future is envisioned as a harmonious blend of the old and new. Within the framework of this vision, Waipahu Town should retain and embrace its cultural and plantation heritage — the smokestack and portions of the sugar mill should remain as dominant symbols, and the Waipahu Cultural Garden Park should serve as a reminder of this heritage. There should be a mixture of old style plantation buildings with more contemporary buildings. Streets should be landscaped and pedestrian friendly, with ample roads to get around and through the town. Waipahu Street should remain a slow winding road with large monkey pod trees.

Economic development of Waipahu should be integrated with social, cultural, and recreational enhancements. Waipahu Town should be revitalized for the betterment of the business community and should provide gainful employment serving the immediate community and the region. The economic development and revitalization of Waipahu, particularly within the town core area, is central to implementing the community's desired land use plan. The desired land use plan also recognizes and addresses the social and recreational opportunities that would achieve a balance in the future development of Waipahu, enhance the experiences of residents and workers, and make Waipahu a more attractive place to visit.

Greenery and open spaces should be preserved and enhanced for the current and future residents to use and enjoy. Waipahu's shoreline should be reopened for fishing, boating, and picnicking. The OR&L railway should be restored to allow train rides to and from Ewa and beyond.

The future of Waipahu is envisioned to embrace a vibrant community where the country atmosphere is preserved, where business prospers, and where diverse people can come together to live, work, shop, and play.

3.5.1.1 Anchor Areas

As shown in Exhibit 3.3, the Waipahu Special Area Plan identifies four land use anchor areas:

- The **Old Waipahu Town Anchor** area includes the Manager's Drive site, the Sugar Mill site, Hans L'Orange Park, Waipahu Street and Waipahu Depot Road, and the Waipahu Cultural Garden Park.

  [] The Sugar Mill Site formerly housed Oahu Sugar Company's mill operations. Selected existing structures on the mill site should be retained in future redevelopment of the site.

  Light industrial use should be permitted in the area adjacent and mauka of the sugar mill.

  Commercial and community-oriented uses should be permitted within the remainder of the site. Commercial uses should utilize the mill structure to create a themed commercial experience with shops and restaurants. "Big box" stores would not be appropriate for the site.

  Community-oriented uses for the site include a Heritage Park/Center with an open market, a YMCA facility, and a Filipino Community Center.

  [] Hans L'Orange Park should be expanded from 6.9 acres to 10 acres to expand the existing playing field, and to add more passive park area and parking.

  [] An Old Town Commercial area should be designated along portions of Waipahu Street and Waipahu Depot Road. Guidelines for the streetscape and buildings should be used to enhance the Old Town identity of the area. Existing businesses should be encouraged to revitalize their building facades; new businesses should be encouraged to in-fill in ways that visually maintain the Old Town Commercial character; and a pedestrian-oriented theme should be established.

- The **Community Facilities Anchor** area includes the Civic Center site and the Mini Park and Ride Facility.

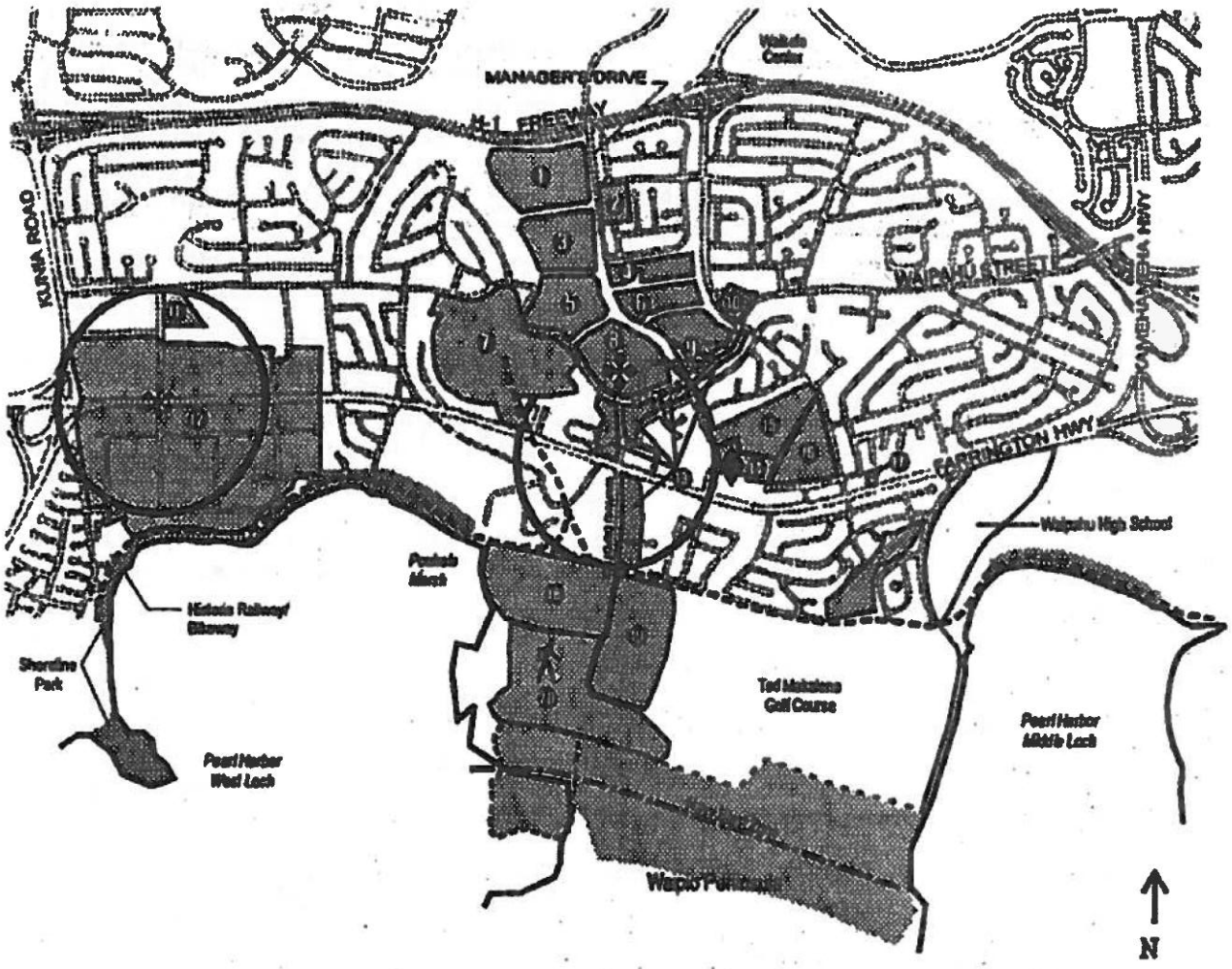
  [] Government services should continue to be consolidated in the vicinity of Mokuola Street and the Waipahu District Park. Existing facilities include the District Park, the Waipahu Civic Center, the new Waipahu Public Library, and elderly rental housing. Planned facilities include a senior citizen center, additional elderly rental units, and low-rise public rental units.

  [] A mini-park-and-ride facility should be located on a portion of a parcel located at the Ewa-mauka corner of Hikimoe and Mokuola Streets.

- The **Recreation Anchor** area includes the Shoreline Park/Preservation Area, Shoreline Pedestrian and Bike Path, the OR&L Right-of-Way, and the Waipio Peninsula.

  [] A Shoreline Park and Preservation Area should be developed along the entire shoreline in Pearl Harbor's West Loch and Middle Loch with a 150-foot setback required for all new developments located on the shoreline. This park would be part of a continuous shoreline park and greenbelt from West Loch to Rainbow Marina near Aloha Stadium. Access to nearshore fishing and boating in Pearl Harbor's West Loch should be sought to improve recreational opportunities.

Exhibit 3.3
Waipahu Town and Key Sites



- Commercial Anchor
- Old Waipahu Town Anchor
- Community Facilities Anchor
- Recreation Anchor
- Transit Node Area

KEY SITES

1 Educational Institution
2 Park
3 Res./Memorial Park/Church
4 Existing/Planned Res.
5 Light Industrial
6 Light Industrial
7 Waipahu Cultural Garden Park
8 Commercial
9 Hans L'Orange Park
10 Existing/Planned Res.
11 Light Industrial
12 West Waipahu Comm./Res. Mixed Use
13 Old Town Commercial
14 Civic Center
15 Existing/Planned Res.
16 District Park
17 Commercial
18 Wildlife Sanctuary
19 Police Academy
20 Multi-field Soccer Complex

[] A Shoreline Pedestrian and Bike Path should be developed within the 40-foot wide OR&L right-of-way, as part of the Pearl Harbor Historic Trail that will run on the OR&L right-of-way from the Waianae Coast to the Rainbow Marina near Aloha Stadium.

[] The OR&L right-of-way should be restored to permit train operations between the Waipahu Cultural Garden Park and the Waianae Coast.

[] The Waipio Peninsula encompasses approximately 1,400 acres of State, City and Navy lands makai of the OR&L right-of-way. Existing City public facilities include the Police Training Academy, the Waipahu Refuse Convenience Center, the Waipahu wastewater pump station, the Department of Parks and Recreation temporary plant nursery, and the Ted Makalena Golf Course.

The initial phase of the Waipio Peninsula Soccer Park, a recreational complex with multiple soccer fields, has been developed on lands leased from the Navy.

- The **Commercial Anchor** area includes a commercial and light industrial area centered around the intersection of Leoku and Farrington Highway.

  Redevelopment of the area to encourage medium-density, mid-rise mixed use residential/commercial development within a one-quarter mile distance of a town center/transit node near the intersection of Leoku and Farrington Highway (as shown on Exhibit 3.3) should be pursued through public-private partnerships.

  In addition, the shoreline setback areas and the shoreline trail park areas along West Loch should be acquired, and view planes opened to allow views of Pearl Harbor from key points along Leokane Street and Pupuole Street on the makai edge of the area.

Exhibit 3.3 identifies the location of the areas and planned land uses at major sites within each area.

3.5.2 PLANNING PRINCIPLES

Six mayor themes guided the preparation of the Waipahu Special Area Plan and provide basic principles for the planning and design of developments in Waipahu Town.

- **Economic Revitalization.** Opportunities for economic revitalization should be provided which generate jobs and attract people to Waipahu while minimizing adverse impacts to existing businesses.
- **Compatible Uses.** New land uses should be compatible with existing uses and provide for community needs.
- **Heritage.** Waipahu's plantation and cultural heritage should be promoted and preserved.
- **Urban Design.** The overall visual appearance and character of Waipahu Town should be improved.
- **Recreation.** Increased opportunities for recreation on the land and in nearshore waters should be provided.
- **Circulation.** Vehicular access into and within Waipahu should be improved, and pedestrian, bicycle, and transit facilities should be integrated.

3.5.3 GUIDELINES

To implement the general policies and planning principles for Waipahu, the following guidelines should be used to design and evaluate land use developments and infrastructure projects.

3.5.3.1 Urban Design

- The scale and sense of Waipahu as a small town should be preserved. Existing zoning heights and densities should be preserved throughout Waipahu Town to help maintain the small town scale.

- The visual dominance of the sugar mill, particularly the smokestack, should be maintained.

- Structures having historic, cultural, and/or visual significance should be retained and renovated as needed. Historic buildings on the mill site and in the Old Town Commercial Area should be identified. Adaptive reuse of these historic buildings should be encouraged.

- The Old Town Commercial Area should have a special image signifying its historic character and role as the cultural and business center for Waipahu. Detailed design guidelines should be established for the Old Town Commercial Area to create the desired historic plantation theme.

- The visual appearance of Farrington Highway and the linkages within and between the Old Town Commercial Area and surrounding areas should be upgraded. Farrington Highway should be landscaped with canopy trees in the median, and landscaped entry features should be created at both ends of Farrington Highway and at the intersection of Waipahu Depot Road and Farrington Highway.

- Open space areas, the shoreline, and other available natural areas should be developed for use by the public and integrated into the built environment. Open space and coastal resource areas on the Waipio Peninsula and along the Pearl Harbor shoreline should be made available for increased use by the public. Parks, open space areas, and centers of interest should be linked by landscaped roads and pedestrian/bicycle pathways.

3.5.3.2 Old Waipahu Town

Sugar Mill Site

- Renovations to the sugar mill for adaptive reuse should retain the visual qualities and building character that defined the mill's original purpose.

Old Town Commercial Area

- The compactness of the town's historic shopping area should be maintained, with new uses encouraged to in-fill between existing buildings along Waipahu Street and Waipahu Depot Road.

- The character of Waipahu Street and Waipahu Depot Road should be maintained except for adjustments to improve traffic flow and safety in order to safeguard the historically and visually significant buildings and maintain the area's pedestrian scale and orientation.

- Existing significant historic structures should be identified, maintained and restored wherever possible, and adaptive reuse encouraged where necessary to ensure their continued viability and use.

- The architectural character of new buildings should reflect the plantation era architecture of Waipahu's historic past. Basic design principles, texture, construction materials, and colors should be compatible with styles from this era.

- A strong pedestrian orientation should be encouraged and maintained through the expansion of "storefront" businesses, enhancement of the streetscape and walking environment, and consolidation of off-street parking behind buildings.

- New buildings or additions should be located close to the street, creating a traditional "street line" of facades, with buildings forming an attractive edge to the roadway.

- Storefronts should be oriented to the street and include elements such as canopies, overhangs, porches, and trellises to scale down building heights and enhance the street-level environment.

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

- Buildings should avoid awkward or overscaled forms, and long building forms should be broken down or offset into smaller masses of more residential proportions.

3.5.3.3 Community Facilities Anchor Area

- Public service uses should be encouraged on large vacant areas within this district.

- Spaces between buildings should be developed and landscaped in a manner which provides the area with a unifying visual image and creates the sense of an active, people-oriented civic park.

3.5.3.4 Commercial Anchor Area

- Attractive and distinctive entry features should be established at each end of the Commercial Anchor Area.

- Landscaping along Farrington Highway and adjoining roadways should be enhanced through the increased use of street trees and the establishment of planting schemes which help to identify and distinguish between the different commercial and industrial areas.

- Mid-rise, medium-density apartment uses should be encouraged within one-quarter mile of the future town center/transit node near the intersection of Leoku and Farrington when combined with retail commercial uses on the ground level.

- The visual appearance of business development should be upgraded through building facade improvement programs and through the greater use of shade trees within parking areas and of landscape buffers between parking areas and adjoining streets.

3.5.3.5 Residential Areas

- Where possible and appropriate, small community gardens should be established in residential and apartment areas in order to increase green space and maintain a connection with the town's agricultural roots.

- Street trees should be provided in all neighborhoods in order to soften the visual impact of development and enhance the walking environment for residents.

- Mid-rise, medium density apartment buildings, including mixed-use developments, should be encouraged in areas within one-quarter mile of future town centers/transit nodes at the intersection of Leoku and Farrington and at the intersection of Waipahu Depot Road and Farrington, with the exception of the Old Town Commercial Area.

3.5.3.6 Circulation Design Guidelines

- Existing pedestrian connections to nearby residential areas from the old commercial core and to recreational and cultural facilities located around this area should be improved, and new ones developed where

appropriate. All pathways should be landscaped in a manner which identifies their role as visual and functional linkages between open spaces and centers of activity. Where possible, they should be designed to accommodate safe movement for walkers, joggers and bicycle riders.

- Landscape improvements to streets and front yards in the Farrington Highway business areas should accommodate, where possible, walkways and bicycle paths which link the different business developments together and connect these areas to adjoining residential neighborhoods.

- Sidewalks, traffic signal improvements, and other measures should be developed to facilitate pedestrian circulation between mauka and makai areas of Waipahu.

- Space for a possible future transit corridor should be reserved along Farrington Highway and higher intensity uses encouraged near future transit nodes along that route.

3.5.3.7 Open Space and Views

- Existing and planned parks and open space areas should, wherever possible, be connected by a series of tree-lined pedestrian pathways, jogging paths and bikeways.

- Visual and physical connections between Waipahu Cultural Garden Park, the old commercial core and significant adjoining areas and roadways should be strengthened.

- Significant views should be preserved, including views of the Koolau and Waianae Mountain Ranges from along Farrington Highway, views of Pearl Harbor from Farrington Highway in the vicinity of Waipahu High School, the view of the Waipahu Sugar Mill from the Waipahu Cultural Garden, and the view of the Waianae Mountains from the Waipahu Cultural Garden.

- Mature trees should be preserved.

3.6 WAHIAWA TOWN

Wahiawa's historic role as a stopping point for people traveling to and from the North Shore has been eroding as a result of improvements in the highway system and the residential development of areas around Pearl Harbor and on the Ewa Plain.

Wahiawa's role as a regional center for Central Oahu has been diminished by the development of major new towns and residential areas such as Mililani Town and Melemanu Woodlands. Its commercial areas have had difficulty competing with the shopping centers of the newer communities and the major new "big box" retailers in power centers at Mililani, Waikele, and Pearl City.

Wahiawa has also been affected by the decline in both the pineapple and sugar industry and changes in military force levels at Schofield Barracks and Wheeler Army Airfield.

3.6.1 GENERAL POLICIES

Earlier planning efforts which considered Wahiawa's development include the **Central Oahu/North Shore Regional Plan** (July 1993) and the **Wahiawa Town Master Plan** (1994).

Beginning in 1996, the Planning Department (now the Planning Division of the Department of Planning and Permitting) began working with a Wahiawa Urban Design Task Force, comprised of various community businesses, organizations, and elected representatives to formulate an urban design plan for Wahiawa as part of its Central Oahu *Sustainable* Communities Plan revision program.

Wahiawa and Waipahu had been identified as areas needing Special Area Plans, plans providing more detail than is provided in the *Sustainable* Communities Plan (see Chapter 5). It was agreed that the Special Area Plan for Wahiawa should take the form of an urban design plan.

A number of community meetings and public workshops were held during 1996 and 1997, and in August 1998, the **Wahiawa Urban Design Plan** was transmitted to the City Council. The following general policies are drawn from the **Wahiawa Urban Design Plan** and earlier community-based planning efforts.

Key Policies. Wahiawa should build on the strength of its stable and attractive residential areas and protect and enhance its unique characteristics:

3.6.1.1 Maintain and Enhance Wahiawa's Plantation Heritage and Rural, Small Town Atmosphere. The scale and feeling of Wahiawa as a small town should be maintained. Wahiawa's plantation heritage and "country town" atmosphere give it a character that is not found in newer master planned communities. Commercial and civic buildings and residential neighborhoods which reflect the town's plantation heritage and multi-cultural roots should be preserved. The quality of the living environment offered by existing single-family residential areas should be maintained and protected.

3.6.1.2 Enhance Wahiawa's Role as a "Gateway" Between Town and Country. Wahiawa has historically been the boundary between the urban growth of Central Oahu and the broad vistas of the agricultural and rural areas of the North Shore. This role should continue with Lake Wilson and Kaukonahua marking the northernmost extent of urban development in Central Oahu. Appropriate gateway entry features should be established on Kamehameha Highway at both the northern and southern entrances to Wahiawa.

3.6.1.3 Enhance the Town Core as a Setting for Social, Civic, and Commercial Interactions. Wahiawa's State and County offices have historically provided services to both upland Central Oahu and to North Shore communities, and played a role as a regional civic and shopping center. Wahiawa's civic center should be strengthened by consolidating public services and encouraging the location of more social and community service organizations in the town. In addition, the character and role of Wahiawa's business area as a community shopping district and regional service center should be maintained and enhanced in order to encourage Oahu residents and visitors to discover what Wahiawa has to offer.

3.6.1.4 Protect and Enhance Forest and Lake Features. Wahiawa's unique forest and lake features should be protected and enhanced. Wahiawa is unique because it is a town surrounded by forest, it has a forest within town in the tree-lined gulch that courses through the center of town, and it borders on Lake Wilson which provides special views and recreational opportunities. Public-private partnerships should be pursued to explore opportunities to redevelop commercial and residential areas on the Town side of the northern and southern gateway entry points (where Kamehameha Highway crosses Lake Wilson) to take advantage of shoreline views and make the shoreline more accessible and enjoyable to the public while reinforcing the integrity of the Wahiawa Town Center.

Exhibit 3.4 shows the town's business district and civic center, as well as other major land uses within Wahiawa.

3.6.2 GUIDELINES

This section provides guidelines for the development of the business district, civic center, and residential areas; for improvement of circulation; and for preservation of open space and views.

3.6.2.1 Business District

- Wahiawa's historic "identity" should be re-established within a "Town Center" located along Kamehameha Highway in the vicinity of California and Kalani Avenue.

- Existing structures that reflect the historic character of Wahiawa should be maintained and restored where possible, and adaptive reuse encouraged where necessary to ensure their continued viability and use.

- Redevelopments should reflect an architectural theme consistent with the historic character of Wahiawa. The architectural character of new buildings and of the building renovations should be compatible with historic buildings in the area and reflect the town's plantation heritage.

- Open space and landscaping should be provided to reinforce the historic character of Wahiawa.

- Distinctive and attractively landscaped gateway features should be established at each of the Kamehameha Highway entries to the town to reinforce a "sense of arrival" along these approaches.

- New commercial uses should be encouraged to in-fill on vacant and underutilized parcels within Wahiawa's existing business district. Expansion of the district is not needed and should be avoided.

- Repair shops, storage and similar uses which provide needed services should continue to be allowed, but should be confined to the town's existing industrial area between Palm and North Cane Street. Buffer landscaping and similar edge treatments should be provided to minimize impacts on adjoining areas.

- Building heights should generally be in keeping with Wahiawa's small town scale. However, some flexibility should be given for public buildings, such as government offices and churches, in order to allow for designs that create symbols of identity for the community.

- The location of parking areas behind commercial establishments should be encouraged in order to improve the pedestrian environment and appearance of the streetscape.

- The visual appearance of business developments should be upgraded through building facade improvement programs and through the greater use of shade trees within parking areas and of landscape buffers between parking areas and adjoining streets.

3.6.2.2 Civic Center

- Expansion of existing government facilities and community services should be welcomed and encouraged. To the extent possible, these uses should be clustered within and bordering the area bounded by California Avenue, North Cane Street, Kilani Avenue and Lehua Street.

- Parking for civic center and Wahiawa General Hospital users should be expanded and consolidated within a multi-level parking garage located on Center Street.

- The Wahiawa Satellite City Hall should be relocated adjacent to the police station.

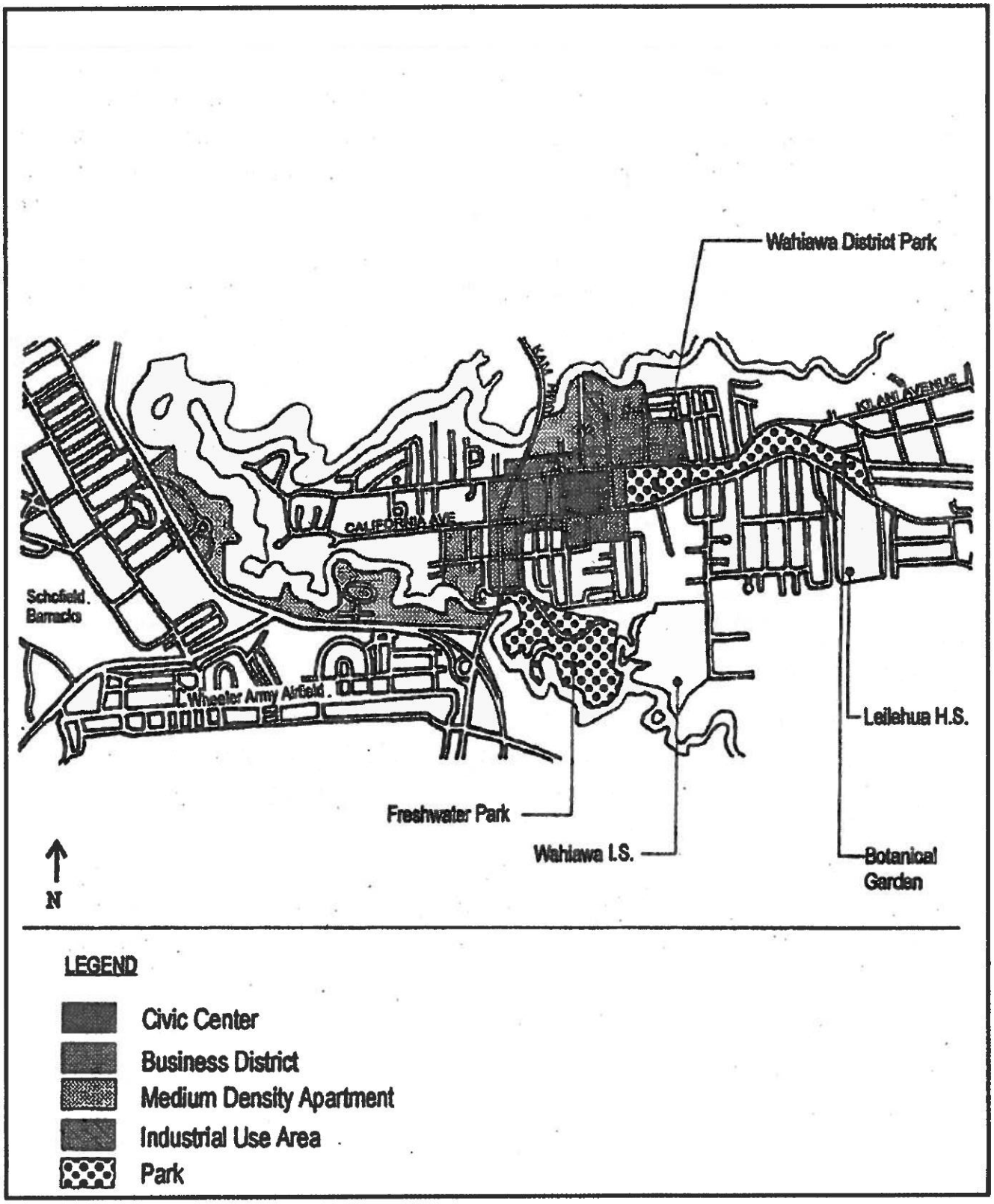
- Available setback areas and open spaces should be landscaped and developed in a manner which gives the area a unifying visual image and provides a "village green" for informal gatherings and relaxation.

3.6.2.3 Residential Areas

- The intrusion of apartment buildings or other incompatible uses into existing single-family residential areas should be prevented.

- The extensive use of street trees to enhance Wahiawa's rural character and image as a "town within a forest" should be maintained and extended into all of its residential areas.

Exhibit 3.4
Wahiawa Town



3.6.2.4 Circulation

- Minor adjustments to street rights-of-way, alignments and on-street parking should be made where they would improve traffic flow and safety. In general, however, new streets or major street widenings should be avoided as they are not needed and would detract from Wahiawa's rural and small town character.

- On-street parking should be provided during non-peak traffic hours to "slowdown" traffic along Kamehameha Highway. Where possible, off-street parking should be expanded in areas where the existing supply is inadequate, such as for many of the businesses along Kamehameha Highway.

- A network of bicycle paths and designated bicycle routes should be established along major traffic corridors in order to improve safety and convenience and encourage increased use of bicycles for travel within the community.

- The Wahiawa Botanic Garden should be connected to the Wahiawa Freshwater Park on Lake Wilson by way of a trail through the gulch which connects the two facilities. In addition, jogging paths and bike trails should be developed to take advantage of the Lake Wilson shoreline.

- Landscaping, sidewalk and other streetscape improvements should be made in areas lacking in greenery or with unsafe or inadequate provision for pedestrian traffic.

3.6.2.5 Open Space and Views

- The natural scenic character of Lake Wilson and adjoining forested areas are vital elements of Wahiawa's "town in a forest" image and should be preserved and protected from alteration or encroachment of urban uses.

- Wahiawa Freshwater Park should be expanded and improved with appropriate facilities which will encourage and accommodate greater public use without major disruption to the site's natural beauty.

- Recreational facilities in existing community parks should be upgraded and, where possible, new facilities added in order to meet current and future demands for sports activities.

- Prominent natural views in Wahiawa involve Lake Wilson and the Waianae Mountains, and, to a lesser degree, the Koolau Mountains. Where possible, site layouts and building orientations for new developments should maximize view opportunities of these areas.

- Significant vistas should be preserved, including the view of the upper Central Oahu plains toward Waialua from the end of Koa Street in Wahiawa.

3.7 CENTRAL OAHU PLANTATION VILLAGES

This section provides general policies, planning principles, and guidelines for preservation and maintenance of the plantation villages at Kunia and Poamoho.

The villages of Kunia and Poamoho, both located in the vast pineapple fields of Central Oahu, are the only two plantation villages in this region that have substantially retained the character and ambiance of a traditional agricultural camp.

As shown in Exhibit 3.5, Kunia Village is located off Kunia Road in the middle of the Del Monte pineapple fields, about one mile south of Schofield Barracks. Exhibit 3.5 also provides a map of Poamoho Village which is located about 1 1/2 miles north of Wahiawa in the pineapple fields of north-central Oahu.

3.7.1 GENERAL POLICIES

At the present time, neither Kunia nor Poamoho seems at risk of significant changes in operation or management. They are likely to be maintained, at least to minimum levels, for the foreseeable future. However, their long-term future currently depends on the future of pineapple production. The villages could also serve a function as affordable housing for workers from new diversified agricultural activities on lands along Kunia Road and north of Wahiawa.

Central Oahu's plantation era heritage and physical reminders of that period are important to preserve as the region becomes urbanized. The existing village structures in the two villages should be rehabilitated or adapted for reuse.

Related affordable housing could be developed to support diversified agricultural employees.

3.7.2 PLANNING PRINCIPLES

Planning principles for the Kunia and Poamoho Plantation Villages include:

3.7.2.1 Historic Function and Character. The existing rural forms and historic character exhibited within the villages should be preserved and enhanced. This includes the perpetuation of rural agriculture functions and activities in the surrounding area, in conjunction with village land uses.

3.7.2.2 Preservation of Historic Structures. Existing buildings of historical, cultural and/or architectural significance should be preserved.

3.7.2.3 Housing Affordability. Where feasible, existing housing units should be retained and rehabilitated in a manner which allows them to remain affordable to the existing residents.

3.7.2.4 New Development Forms. The design, visual appearance and placement of any new structures within or adjoining the existing villages, should reflect and complement their original historic character and forms.

3.7.3 GUIDELINES

To implement the general policies and planning principles for the Central Oahu Plantation Villages, the following guidelines should be followed.

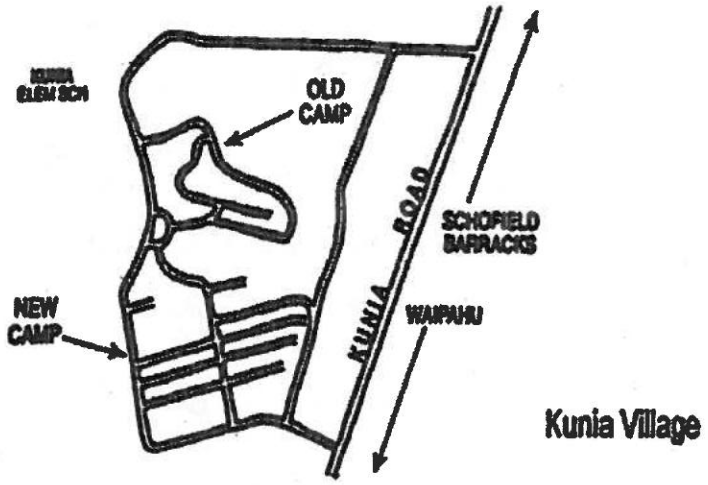
3.7.3.1 Method of Preservation

- Existing historic plantation houses should be rehabilitated as part of an assisted housing program.
- Rental dwellings should be rehabilitated and converted for sale, giving preference to existing residents to minimize displacement and retain the sense of community.
- The historic development pattern, architectural character and street appearance should be preserved by varying conventional subdivision and other development codes, as appropriate.
- Structures that must be razed should be replaced, and other vacant areas developed with new in-fill development that respects the historic character of the original village.

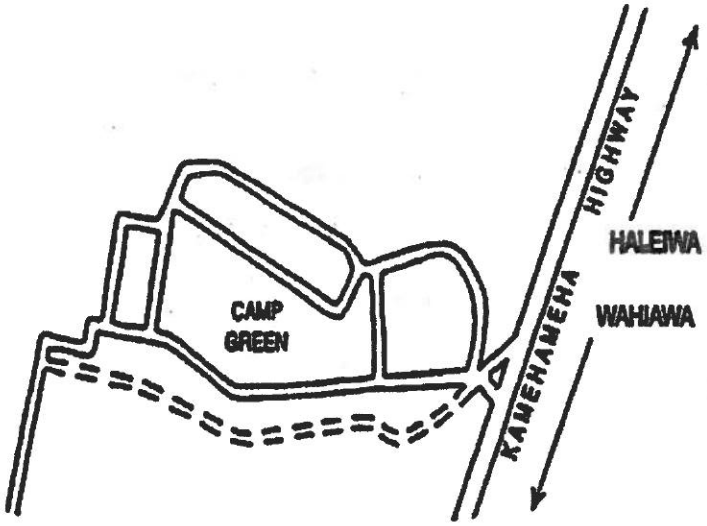
3.7.3.2 Adaptive Reuse.

- Residential areas should be rehabilitated with an emphasis on affordable home ownership opportunities for existing residents.

Exhibit 3.5
Central Oahu Villages



Kunia Village



Poamoho Village

- When a historic structure is converted to a use other than its original purpose, rehabilitation should be done in a manner that does not alter its exterior appearance.

3.7.3.3 Urban Form

- The current grid street pattern should be maintained in the existing villages and replicated in new in-fill development.
- The standard subdivision street hierarchy and design standards should not be used. Narrow street widths without sidewalks should be maintained in the residential portions of existing villages and established in new villages to minimize impacts on front yards and structures and retain a rural village character.
- Any new collector streets should be located in between and not within existing villages.
- Principal entry roads to and through the villages should be tree-lined boulevards. Entries should be highlighted with landscape features.
- Appropriate canopy trees should be provided along all street frontages.
- Lot sizes and dimensions for new in-fill homes in the existing villages should be similar to those of existing house lots.
- New structures on vacant lots in the existing villages should complement the exterior design of adjacent homes.
- Yards and other open spaces should be landscaped and maintained in a manner which preserves and enhances the open space appearance of the villages.

3.7.3.4 Open Space/Views

- Existing village greens and playfields should be preserved and maintained as places for community gatherings and recreation.
- Existing landscaping with the villages and stands of trees in bordering ravines should be preserved.

3.7.3.5 Adjacent Land Uses

- Agricultural use should be maintained on adjacent lands.
- The visibility of any new structures in the vicinity should be minimized by appropriate landscape screening and building siting. If visibility is unavoidable, the new structure should be designed to respect the scale and character of the villages.

3.7.3.6 Public Access

- Since the preservation concept is to perpetuate and revitalize a living community, public access should be the same as for other communities.

3.8 EXISTING AND PLANNED RESIDENTIAL COMMUNITIES

This section provides general policies and guidelines for the development of new communities and the expansion or renovation of existing communities.

3.8.1 General Policies

The following general policies may be applied to the expansion or renovation of existing residential communities, as well as to new communities.

3.8.1.1 Overall Density. To achieve the desired compactness and character of development in planned residential communities, the housing density of the aggregate area zoned for residential use (including the streets) should be in the range of 10 to 15 units per acre. (This average does not include areas zoned for commercial or industrial use.)

Table 3.2 gives an overview of the density and height guidelines for planned and existing residential developments.

Conceptual locations for residential, and low and medium density apartment development are shown on the Urban Land Use Map in Appendix A. See Section 3.8.3 for further discussion of the Urban Land Use Map.

TABLE 3.2: DENSITY AND HEIGHT GUIDELINES BY RESIDENTIAL DENSITY CATEGORY

Residential Category	Density (Housing Units)	Building Height
Residential	5-12/acre	not over two stories
Low Density Apartment	10-30/acre	not over three stories
Medium Density Apartment[1]	25-90/acre	not over 60 ft.[2]

[1] Medium Density Apartment uses are appropriate in the Medium Density Residential/Commercial mixed use areas around the two transit nodes in Waipahu, in the Wahiawa Regional Town Center, and adjacent to the Waiawa Major Community Commercial Center.
[2] Medium Density Apartment building heights in the transit node area centered on the Waipahu Depot Road and Farrington Highway intersection should not exceed the lower of the elevation of the roof ridge line of Waipahu Sugar Mill or 60 feet.

3.8.1.2 Higher Density Housing Along the Waipahu-Kapolei Transit Corridor. To promote use of mass transit, higher-density residential use should be developed along a major rapid transit corridor linking Waipahu with Kapolei in the west and with Primary Urban Center communities to the east. Medium Density Apartment and Commercial mixed uses should be developed at two transit nodes, which would cover a one-quarter-mile radius around major transit stops. Areas along the rapid transit corridor should have housing densities of 25 units per acre, and greater densities are expected within the transit nodes. See Exhibit 3.3 and the Urban Land Use Map and the Public Facilities Map in Appendix A for location of the transit nodes in Waipahu.

3.8.1.3 Physical Definition of Neighborhoods. The boundaries of neighborhoods should be made evident through the use of street patterns, landscape or natural features, and building form and siting. The focus of neighborhood activity should be on the local street or a common pedestrian right-of-way or recreation area.

Where urban development abuts the H-2 Freeway, an open space/landscaped buffer of sufficient size should be provided to preserve a view of green, minimize the visual intrusiveness of the development, and reduce the noise and air quality impact of the freeway traffic on the abutting development.

3.8.1.4 Compatible Mix of Building Forms. There should be a variety of housing types and densities to avoid visual monotony and accommodate a variety of housing needs, but without sharp contrasts between the exterior appearance of adjacent housing areas.

3.8.1.5 Transit-Oriented Streets. Street patterns and rights-of-way should be designed to accommodate mass transit (bus) service and make it convenient to access for as many households as possible.

3.8.1.6 Pedestrian and Bicycle Travel. Pedestrian and bicycle travel should be encouraged, particularly to reach neighborhood destinations such as schools, parks and convenience stores.

3.8.1.7 Integration of Linear Corridors. Physical and visual connections between communities should be encouraged through the creative design of transportation and utility corridors and drainage systems.

3.8.1.8 Provision of Community Facilities. Land should be provided for community facilities including churches, community centers, and elderly and child care centers.

3.8.2 GUIDELINES

Guidelines to implement the general policies are provided below.

3.8.2.1 Residential

Residential areas consist of one- and two-story, single-family attached and/or detached dwellings with individual entries.

Density

- Residential density should be 5 to 12 units per acre, typical of residential zoning districts and allowing the application of optional design standards for Clusters and Planned Unit Developments.

Building Height

- In general, buildings should not exceed two stories, although the height may vary according to required flood elevation, slope, and roof form.

Site Design

- The site design for small-lot developments should avoid monotonous rows of garages and driveways along neighborhood street frontages by employing features such as varied building setbacks and shared driveways.

Building Form

- Buildings should provide visual interest and individual identity by using varied roof forms, exterior colors and finishes, building orientation, floor plans and architectural details.

3.8.2.2 Low Density Apartment.

Low Density Apartment areas consist of two- and three-story townhouse or low-rise apartment buildings. Dwelling units may have common entries, but buildings are typically non-elevator structures.

Density

- Low Density Apartment density should be 10 to 30 units per acre.

Height

- In general, buildings should not exceed three stories above grade. Maximum building heights should allow for pitched roof forms.

Building Form

- Building form, orientation, location of entries and landscape screening should be employed to maintain a sense of residential scale and provide greater privacy individual identity for housing units.

Compatibility

- Building scale, roof form and the quality of materials should be compatible with those of adjacent low-density residential areas.

3.8.2.3 Medium Density Apartment

Medium Density Apartment developments take the form of multi-story apartment buildings. They may be located in mixed-use zones, with the ground floor or lower floors occupied by retail and service commercial uses.

Location

- Medium Density Apartment is intended to be the predominant form of housing near two transit nodes in Waipahu on the planned rapid transit corridor, either as a single use or mixed use development.

- Medium Density Apartment is also appropriate in Wahiawa near the Town Center, and in Waiawa adjacent to the Major Community Commercial Center.

Density

- Allowable building density should accommodate 25 to 90 units per acre.

Height

- Building heights should not exceed 60 feet.

- In Waipahu, Medium Density Apartment building heights in the transit node area centered on the Waipahu Depot Road – Farrington Highway intersection should not exceed 60 feet or the elevation of the roof ridge line of the Waipahu Sugar Mill, whichever is lower.

Architectural Character

- The building scale, roof form and the quality of materials may reflect a more urban character.

Height Setbacks

- Building height setbacks and landscaping should be employed to reduce the direct visibility of taller buildings from lower density residential areas and from the streetfront. Lower building elements may directly abut the streetfront.

3.8.2.4 Circulation System

Master-planned projects should each have a circulation plan, or a "circulation element" in their Project Master Plan.

Transit Routes and Facilities

- The circulation plan should define the hierarchy of streets within the project and its relationship to the surrounding transportation network.
- The circulation plan should also indicate existing and proposed bus routes and specific measures to accommodate efficient transit service for as many households as possible.
- Street patterns showing the alignment of proposed transit routes should be submitted to the Department of Transportation Services at the first stage of the site development planning process.
- Potential transit routes should be identified by the developer such that at least 85% of all proposed residential housing units are within 1/4 mile of a proposed transit stop, unless localized topographic conditions make such a requirement impractical.
- All commercial development with more than 1,000 square feet and all employment sites with more than ten employees should be within 1/8th mile of a transit stop.
- All development should be within 1/2 mile of a transit stop, unless localized topographic conditions make such a requirement impractical.
- The developer should construct all necessary transit stops in accordance with DTS design standards.
- Proposed transit routes should have two different access points into the proposed development. The route alignment should seek to achieve optimal operational efficiency between the two access points.
- The rights-of-way along transit routes should make provisions for bus shelters, bus pull-outs, and, if applicable, park-and-ride facilities and/or future transit stations.

Pedestrian and Bicycle Routes and Facilities

- The circulation plan should indicate any principal pedestrian and bicycle paths that are physically separated from roadways.
- Street intersections along these separated paths should have a narrow curb radius and include special signage and paving to encourage safe and convenient pedestrian and bicycle crossings.
- Interior pedestrian/bicycle routes may be provided as an alternative to paved sidewalks along local streets.

Landscape Treatment

- Conceptual street tree plans should be indicated in the circulation plan.
- Entries to the community should be identified with special landscape treatment.
- The rights-of-way for major arterials and major collector streets should be designed as landscaped parkways, complete with a landscaped median strip, landscaped sidewalk, and bikeways. Major arterials should have separate bike paths, and major collectors should have bike lanes. Suggested width for major arterials, including right-of-way and planting strips, is 120 feet wide and for major collectors is 100 feet wide.
- Where urban development abuts the H-2 Freeway, an open space/landscaped buffer of sufficient size should be provided to preserve a view of green, minimize the visual intrusiveness of the development, and reduce the noise and air quality impact of the freeway traffic on the abutting development.

- Canopy trees should be planted to shade the sidewalk/bikepath areas.

- Landscape treatment along the edges of the project should be appropriate for the natural setting and designed to provide continuity and transition from adjacent developed areas.

3.8.3 Relation to Urban Land Use Map

Residential areas are shown on the Central Oahu Urban Land Use Map in Appendix A as follows:

Residential and Low Density Apartment. Areas with this designation should be zoned as a residential or a low-density apartment district, subject to appropriate siting considerations and the General Policy for "Overall Density" provided above in Section 3.8.1.

Medium Density Residential/Commercial Mixed Use. Areas with this designation should be zoned predominantly for medium-density apartment use. Mixed use, with retail activities at the ground level, is encouraged.

Uses Allowed in All Residential Areas. The following uses are not specifically designated on the Urban Land Use Map but can be located in all residential areas:

- Neighborhood commercial centers
- Elementary schools
- Parks
- Churches
- Community centers
- Elderly care centers
- Child care centers
- Fire stations, and other public facility and utility uses serving the area.

3.9 PLANNED COMMERCIAL RETAIL CENTERS

This section provides general policies, planning principles and guidelines for the development of commercial retail centers in Central Oahu.

3.9.1 GENERAL POLICIES

Planned commercial centers, outside of Waipahu and Wahiawa, should provide retail shopping and services for the Central Oahu residential communities in which they are located. These centers differ from commercial areas within towns such as Waipahu or Wahiawa because they are typically managed as a unit with shared parking and center management.

Commercial centers outside of Waipahu and Wahiawa should concentrate commercial uses in central locations instead of in continuous commercial strips along arterial roads. Pedestrian and transit access to and within the centers should be emphasized.

3.9.1.1 Definitions. Four types of commercial centers can be defined based on size and function:

- **Neighborhood Commercial Center** (5-10 acres or less, typically located within or adjacent to residential area, up to 100,000 square feet [sq. ft.] of floor area);

- **Community Commercial Center** (10-30 acres, typically located on an arterial highway or at the intersection of two major collector streets, up to 250,000 sq. ft. of floor area);

- **Major Community Commercial Center** (up to 50 acres, located in communities which are not near an urban center, up to 500,000 sq. ft. of floor area); and

- **Regional Commercial Center** (more than 50 acres, located with frontage on a major arterial highway and access from freeway interchange, more than 500,000 sq. ft. of floor area).

3.9.1.2 Neighborhood Commercial Center. Neighborhood Commercial Centers can be located within any residential community, and should be reviewed and approved as part of master planned residential communities or redevelopment plans of existing communities. Neighborhood Commercial Centers have frontage on at least one collector street, and may have up to 100,000 sq. ft. of floor area, which is leased to tenants such as grocery stores, sundries stores and other services and shops catering to common household needs.

Single commercial establishments, such as convenience stores or "Mom and Pop" stores, or groupings of stores smaller than five acres in size also fall within this category, provided that they are appropriately located and will not contribute to the evolution of a commercial strip.

3.9.1.3 Community Commercial Center. This type of center principally serves the community in which it is located, providing for basic shopping and service needs on a larger scale than the neighborhood center. Community Commercial Centers may contain up to 250,000 sq. ft of floor area, and major attractions typically include a large grocery store, a drug store, and/or a department store. The other, smaller tenants in the center are largely dependent on the effectiveness of the major tenants to draw customers. Examples of this type of commercial center include the Gentry Waipio Shopping Center and the Mililani Shopping Center.

Locations for four existing and planned Community Commercial Centers are shown on the Urban Land Use Map for Mililani, Mililani Mauka, Waipio, and Royal Kunia.

3.9.1.4 Major Community Commercial Center. Major planned communities not located near an urban center may need a larger commercial center. The Major Community Commercial Center provides for many of the same community shopping needs as the standard Community Commercial Center, but, due to its larger market, it is able to support more large stores and a wider variety of small retail and service commercial tenants. The Major Community Commercial Center occupies up to 50 acres and contains up to 500,000 sq. ft. of floor area.

An existing Major Community Commercial Center is shown on the Urban Land Use Map at Mililani and a planned Major Community Commercial Center at Waiawa. The planned Waiawa center should be developed to support the residential communities surrounding Waiawa and not to become a regional center drawing shoppers from other parts of Oahu.

3.9.1.5 Regional Commercial Center. Waikele is the only Regional Commercial Center shown for Central Oahu. No new Regional Commercial Centers are indicated for Central Oahu. The planning objective is to withhold development that would compete with the objective of redeveloping the commercial areas of Waipahu and Wahiawa and developing regional shopping attractions in the City of Kapolei.

3.9.1.6 Office Uses. Office uses should not be a principal use in Central Oahu Major Community and Community Commercial Centers. Offices which provide services to the local community may be included in the centers, but the emphasis of Central Oahu Community Commercial Centers should be on retail uses. These limitations on office uses are specifically applicable to Waiawa so as to promote the development of office uses in the Secondary Urban Center and in Waipahu.

In Central Oahu, developments primarily oriented to office uses should be located in Waipahu, Wahiawa, or at either the Mililani Technology Park or Koa Ridge Medical Park. (Offices at the Mililani Technology Park should be developed at low densities typical of campus-like business parks.)

3.9.2 PLANNING PRINCIPLES

Planning principles for retail centers vary according to the size of the commercial center and the purpose it serves.

3.9.2.1 Mix of Uses. Planned commercial centers should be dedicated primarily to retail uses and to accessory office uses that provide services to the surrounding community. Residential uses and other uses which meet the social, cultural, recreational, and civic needs of the surrounding community may also be incorporated in such commercial centers.

3.9.2.2 Appropriate Scale. The building mass of a commercial center should be in keeping with its urban and natural setting. In the case of major community commercial centers, the visibility of large building volumes and expansive parking areas should be minimized through site planning, architectural treatment of elevations and landscaping.

3.9.2.3 Compatible Style. The architectural character of commercial centers should respect the surrounding urban and natural features, particularly when located adjacent to a residential area or significant natural or historic feature. Neighborhood commercial centers should reflect a residential architectural character.

3.9.2.4 Accessibility. Commercial centers should incorporate site design and facilities to promote pedestrian, bicycle and transit access. Pedestrian and bicycle access is more important for smaller, neighborhood centers, while transit access is more significant for community centers.

3.9.2.5 Community Commercial Centers as the Hub of Their Communities. In addition to being a commercial center, Community Commercial Centers can help create communities out of residential developments by playing the role of meeting place, and of recreational, social, cultural, and civic center that the town square and Main Street play in traditional towns.

These planning principles should be applied to the expansion or renovation of existing commercial centers, as well as to new centers.

3.9.3 GUIDELINES

The following guidelines would help implement the policies and principles listed above.

3.9.3.1 Neighborhood Commercial Centers

Architectural Character

- The architectural character should respect adjacent residential uses.
- Gable and hip-form roofs are encouraged, using breaks in the roof line to reduce the apparent scale of large roof plates.
- Residential character may also be expressed by using exterior materials and colors that are typically found in residential construction.

Building Siting

- Buildings should be oriented to the pedestrian.
- Storefronts should face the street and, to the extent possible, be sited close to the sidewalk.
- Parking and service areas should be placed behind the buildings or otherwise visually screened from streets and residential areas.

Building Height and Density

- Buildings should maintain a residential scale.

- Building height limits should allow for gable and hip-form roof elements.
- The total floor area for a lot or contiguous lots with common parking should not exceed 100,000 sq. ft.

Vehicular Access

- Access to the parking and loading areas should be from a collector street.
- Access to a local residential street may be permitted if it is only for emergency or secondary access and would not encourage through traffic along the local street.

Pedestrian and Bicycle Facilities

- There should be at least one pedestrian access from the public sidewalk or other off-site pedestrian pathway to the entrances of establishments in the commercial center that does not require crossing a traffic lane or parking lot aisle or driveway.
- Bicycle racks should be designed to provide security and be visible from the street entry.

Visual Screening, Lighting & Signage

- Parking and service areas should be screened from the street and adjacent residential lots by planting a landscape screen of trees and hedges along street frontages and property lines and planting shade trees throughout the parking lot.
- Only low-level lighting or indirect lighting, if any, should be used in parking lots.
- All signage should be unilluminated or indirectly illuminated.

3.9.3.2 Community Commercial Centers

The following guidelines apply to both the standard Community Commercial Center and the Major Community Commercial Center.

Architectural Character

- The architectural character may be varied, depending on the context.
- Commercial center buildings that are visible from adjacent residential areas should reflect a residential character; other facades may have a character more typical of a commercial building.
- The design should avoid disruptive contrasts between facades that are visible simultaneously from public areas.

Building Bulk and Massing

- When the building is adjacent to a residential area or a building of historic value, there should be a transition in scale from larger building elements of the commercial center to finer elements near the adjacent use.
- Portions of buildings visible from a street should avoid blank facades by using texture, articulation, color and fenestration to create visual interest.

- Facades that are close to the public right-of-way should be composed of display windows and pedestrian entrances.

Building Height and Density

- Building heights should generally not exceed 45 feet.
- The total floor area should not exceed 250,000 sq. ft. for a standard Community Commercial Center and 500,000 sq. ft. for a Major Community Commercial Center.

Pedestrian, Bicycle and Transit Facilities.

- Street frontage improvements for bus stops, including a bus shelter and a pull-out off a traffic lane, should be provided along all abutting streets which have bus routes.
- There should be a pedestrian pathway from the bus stop to the nearest entrance of the nearest building of the commercial center. The pathway should be clearly indicated with special paving or markings and covered to provide weather protection, if the commercial center building is not directly connected to the bus shelter.
- Bicycle racks should be designed to provide security and be visible from the street entry to the commercial center.

Visual Screening

- The visibility of parking and service areas from the street and adjacent residential areas should be minimized through screening.
- A landscape screen, consisting of trees and hedges, should be planted along the street fronting the parking lot or garage.
- If there is a parking lot, shade trees should be planted throughout.
- If there is a parking garage close to and readily visible from a street, landscape planters should be provided along the facade of each parking level fronting the street.
- Service areas should be visually screened from public and residential areas.

Signage

- Signage visible from residential areas should be indirectly illuminated.

3.9.3.3 Transit Access

- All commercial development with more than 1,000 square feet and all employment sites with more than ten employees should be within 1/8th mile of a transit stop.

3.10 INDUSTRIAL CENTERS

This section provides general policies, planning principles, and guidelines for development of industrial centers and industrial uses in Central Oahu.

3.10.1 GENERAL POLICIES

Major industrial uses and utility plants on Oahu are meant to be located in the Primary Urban Center or Ewa. However, there is a need for limited industrial development in Central Oahu to accommodate services and storage for surrounding residential communities.

Existing industrial areas in Central Oahu include areas in Waipahu makai of Farrington Highway (94 acres) and in Gentry Business Park in Waipio (127 acres), while new industrial areas are planned for Royal Kunia (123 acres) and Waiawa (40 acres). An expansion of Mililani Technology Park is expected to attract mostly high-technology office uses seeking a campus-style setting similar to the character of Phase I.

Small lots should also be made available in Waipahu and Wahiawa for industrial small businesses, particularly automobile repair shops, contractors' yards, "incubator" businesses, and businesses which serve residential and commercial areas, but not on the main commercial streets.

3.10.2 PLANNING PRINCIPLES

The general policies for industrial centers in Central Oahu are supported by the following planning principles:

3.10.2.1 Appropriate Scale. The visibility of large building volumes and tall building or machinery elements from arterial roads, major regional collector roads, residential areas, commercial and civic districts, and parks should be minimized through site planning and landscaping.

3.10.2.2 Environmental Compatibility. Operations that discharge air or water pollutants, even when treated, should be located in areas where they would impose the least potential harm on the natural environment in case the treatment process fails to perform adequately. Uses that generate high noise levels should be located and operated in a way that will keep noise to an acceptable level in existing and planned residential areas.

3.10.2.3 Siting. Industrial areas located within residential communities should be buffered from residential uses, so that larger industrial building forms do not have a negative visual impact on residential areas.

3.10.3 GUIDELINES

Based on the above planning principles, the following are guidelines for development:

3.10.3.1 Uses

- Uses allowed in Central Oahu industrial areas should include all those which may provide direct services within adjacent residential communities, including automobile service and repair.

- The following heavy industrial uses should not be allowed:

  - [] petroleum processing;
  - [] resource extraction, and
  - [] the manufacture of chemicals and explosives.

  Other industrial uses may be allowed based on performance criteria established by regulatory agencies.

- Retail establishments should be allowed as accessory uses only.

- Offices and business services may be allowed in a building or complex of buildings which primarily consists of industrial uses and industrial building types. No building should be primarily used for offices or business services.

3.10.3.2 Location

- Industrial areas may be located within the master-planned communities of Waipio-Gentry, Royal Kunia and Waiawa.

- Industrial areas oriented to small businesses providing consumer services should be maintained within Wahiawa (north of Cane Street) and Waipahu, but should not front on commercial streets or major collector streets; provided that designation of use areas is subject to redefinition through Special Area Plans for those towns.

- New industrial developments should not front on streets with residences on the opposite side, and should, to the extent possible, direct industrial traffic away from residential neighborhoods.

3.10.3.3 Building Height

- Building heights should generally not exceed 60 feet, except that taller vertical structures are acceptable when required as part of an industrial operation.

3.10.3.4 Landscape Treatment

- Landscaped setbacks and street trees should be required along the edges of industrial areas abutting arterial or major collector streets.

- In small-lot industrial areas, outdoor work and storage areas for vehicles, equipment and supplies should be visually screened from the street and adjacent lots by privacy walls and buildings, with minimal reliance on landscaping.

- In large-lot industrial subdivisions, visual screening should be accomplished primarily with landscaped setbacks and street trees.

3.10.4 RELATION TO URBAN LAND USE MAP

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

3.11 MILILANI TECHNOLOGY PARK

This section provides general policies, and planning principles for development of Mililani Technology Park.

3.11.1 GENERAL POLICIES

Mililani Technology Park (MTP) is a unique development located on a strip of land north of Mililani and east of the H-2 Freeway. It is bounded on the north by Leilehua Golf Course and other military lands and on the south by the upper part of Waikakalaua Gulch.

MTP was originally envisioned as a means for attracting "clean" high technology research and development industry to Oahu and expanding the City's economic base. At least 45% of either the area of all the lots or the total number of lots are required under existing approvals to initially be sold or leased to and occupied by high technology firms and businesses.

Phase II of MTP adds 135 acres of Commercial/Industrial Emphasis Mixed-Use lands to the 103 acres in Phase I.

MTP should offer a place where high technology industries such as electronics firms, computer software developers, and biotechnology firms and their support services may locate in a campus-like business park setting.

In addition, MTP could also be developed for appropriate and compatible commercial and industrial uses which desire fee simple lots and can conform to the low density campus design of MTP.

3.11.2 PLANNING PRINCIPLES

The following planning principles implement the general policies for development of Mililani Technology Park:

3.11.2.1 Uses

- Mililani Technology Park should be primarily intended for emerging technology-intensive industries, including but not limited to electronics and biotechnology and support services.
- Individual lots should be able to mix light industrial uses with office use, with no limitation on the allocation of floor area.
- Retail and service uses supporting activities in the business park should be limited to ten percent of the total floor area of the business park.
- The following should not be permitted in the business park:
  - [] Uses that produce noise and noxious emissions;
  - [] Uses connected with agricultural production;
  - [] Large-scale retailing/wholesaling operations such as factory outlets, department stores, home improvement centers, warehouse outlets and similar commercial activities; and
  - [] Dwelling units or overnight accommodations of any kind.

3.11.2.2 Building Height and Density

- Building heights should generally not exceed 40 feet, except for necessary communications antennae.
- The floor area ratio and maximum building coverage permitted on lots should be appropriate to an open, landscaped campus environment.

3.11.3 RELATION TO URBAN LAND USE MAP

The Mililani Technology Park is shown as "Technology Park" on the Urban Land Use Map.

3.12 MILITARY AREAS

This section contains general policies, planning principles, and guidelines regarding military areas in Central Oahu.

3.12.1 General Policies

The major military bases of Schofield Barracks/Wheeler Army Airfield and Pearl Harbor Naval Base are expected to remain, but they are not expected to expand beyond their existing boundaries. City policies regarding the two areas are provided below.

3.12.1.1 Schofield Barracks/Wheeler Army Airfield

Schofield Barracks/Wheeler Army Airfield supports the 25th Infantry Division and consequently has large areas committed to residential use, including commercial and recreational facilities. The bases also support quasi-

industrial uses including operation and maintenance of heavy equipment and helicopter airfield operations and maintenance.

In addition to these urban uses, the base also includes large areas of open space, most of which is used for infantry training. These areas extend beyond the Urban Community Boundary. One area is west of Schofield Barracks urban areas, extending to the Waianae Mountains, and a second area known as the East Range extends south and east from Wahiawa to the Koolau Mountains.

The Army operates a 4.2 mgd secondary wastewater treatment plant located at Wheeler Army Airfield that treats flows from Schofield Barracks, Wheeler Army Airfield, Helemano Military Reservation, and the East Range. Effluent from the plant is currently discharged into an irrigation flume owned by the Waialua Sugar Company (WSC). The Army has entered into a seven-year lease with Dole Foods to use 2,970 acres for effluent irrigation, and wants to implement a long-term solution to the disposal of effluent from its plant.

The Army has prepared an Environmental Impact Statement and is reviewing alternative treatment options for its plant.

3.12.1.2 Pearl Harbor Naval Base (Waipio Peninsula)

Most of the Waipio Peninsula lies within the Explosives Safety Zone of the West Loch Naval Magazine. Waipio Peninsula lands have been used mostly for sugar cultivation in the past. The City supports continued use of these lands for diversified agriculture or aquaculture activities. In addition, a portion of the northernmost part of the Waipio Peninsula will be used for active recreation playing fields in conjunction with a new soccer complex built on the adjacent area.

The City should request expansion of limited public access to the shoreline waters of West Loch beyond the West Loch Shoreline Park and should support retaining and enhancing wetland areas along the Pearl Harbor shoreline.

3.12.2 PLANNING PRINCIPLES

The general policies and the guidelines for circulation systems and landscape treatment for residential communities (described above in Section 3.8) should be applied to military lands in residential use.

The planning principles for industrial areas (described above in Section 3.10) should be applied to the quasi-industrial uses on lands designated "Military."

3.12.3 GUIDELINES

The following guidelines should apply to development on the two bases, and where appropriate, in areas adjacent to the bases. The City will request the Department of Defense consider them in planning for development at each of the bases:

3.12.3.1 Schofield Barracks/Wheeler Army Airfield

- Uses within the base should include residential, commercial, recreational and civic areas for the support of military personnel and their dependents and may be expanded to accommodate additional residents on base and/or augmented activities which do not significantly conflict with surrounding residential communities.

- The visibility of security fencing and utilitarian military facilities from off-base should be minimized through the planting of a landscape screen, consisting of trees and hedges, along highway frontages.

- Adequate buffers should be provided for residential developments immediately adjacent to the Central Oahu training areas to ensure that residents will not be adversely impacted by noise or other environmental impacts of the training activities.

3.12.3.2 Pearl Harbor Naval Base

- Limited public access to the shoreline waters of West Loch for recreational purposes should be expanded beyond the West Loch Shoreline Park.
- Wetlands along the West Loch and Middle Loch shorelines should be protected and enhanced.
- Agricultural uses should be continued on the Waipio Peninsula in the West Loch Naval Magazine Blast Zone.

3.12.4 RELATION TO URBAN LAND USE MAP

The "Military" designation on the Urban Land Use Map shows those parts of military bases planned primarily for military activities which are quasi-industrial in nature. Areas used by the military for typical urban activities are shown according to their planned use. Portions of military installations that are planned to remain in open space are represented as on the Open Space Map as "Military Training Areas," "Preservation," "Agriculture," and "Drainageways/Gulches."

4. PUBLIC FACILITIES AND INFRASTRUCTURE POLICIES AND PRINCIPLES

This chapter sets forth policies and principles to guide the planning and construction of proposed public and private public facility projects and infrastructure systems to carry out the vision for the future development of Central Oahu, as described in Chapter 2.

Information on timing and phasing of both planned and proposed infrastructure and public facilities projects available during plan preparation is also included. However, each project proposal is only identified and presented conceptually; not on a site-specific basis. More detailed information on the specific need, route alignment, site boundaries, capacity and other specifications for each project, as applicable, will be prepared at the master planning stage which precedes approval of actual development.

As noted in Chapter 5, existing unilateral agreements, zoning and Urban Design Plans will continue to guide development in the area.

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

		PAGE
4.1	Transportation Systems	24-48.77
4.2	Water Allocation and System Development	24-48.85
4.3	Wastewater Treatment	24-48.88
4.4	Electrical Power Development	24-48.89
4.5	Solid Waste Handling and Disposal	24-48.89
4.6	Drainage Systems	24-48.90
4.7	School Facilities	24-48.91
4.8	Public Safety Facilities	24-48.92
4.9	Other Community Facilities	24-48.94
4.10	Added or Changed Public Facilities	24-48.94

4.1 TRANSPORTATION SYSTEMS

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

The planned and proposed roadway elements and other transportation system features which are listed as potentially being needed to meet the projected development in Central Oahu were identified through the regional planning and transportation analysis done for the *Sustainable* Communities Plan Revision Program, the revision of the Oahu Regional Transportation Plan, and the City's Oahu Trans 2K transportation planning process.

4.1.1 EXISTING ROADWAY NETWORK

The major east-west arterials of the Central Oahu roadway system include:

- The H-1 Freeway which is the major arterial road connecting Central Oahu with the Primary Urban Center,
- Farrington Highway which functions as a secondary east-west route and as a commercial district street through Waipahu.

The three major north-south arterial highways include:

- The H-2 Freeway which extends from the H-1 Freeway at the Waiawa Interchange to Wahiawa,
- Kamehameha Highway which is the island's original major circle island route and serves as a parallel alternate route to the H-2 Freeway during peak periods and as a carrier for local traffic between Waipahu; Waikele, Waipio, Mililani, and Wahiawa, and
- Kunia Road which links Schofield Barracks and Wahiawa with Ewa.

According to the **2020 Oahu Regional Transportation Plan** (November 1995), the existing roadway system in Central Oahu has sufficient capacity for current volumes during peak-hour traffic, but experiences congested conditions because of bottlenecks and lack of capacity on the corridor from Pearl City to Downtown Honolulu. Traffic going from Central Oahu to the Primary Urban Center must transition through interchanges to get onto the H-1 Freeway. A major bottleneck occurs at the Waiawa Interchange where the H-2 Freeway joins the H-1 Freeway. Traffic volume on the H-2 at Kipapa is projected to increase by almost 40% by 2020, while traffic on the H-1 by Aiea is projected to increase by 10%.

The substantial development of jobs in Ewa and Central Oahu (from 52,000 jobs in 2000 to 110,000 jobs by 2025) is projected to increase the number of Central Oahu residents who work in Ewa or Central Oahu from existing levels.

However, it is also projected that the number of commuters traveling to the PUC from Ewa and Central Oahu will still increase, although at a lower rate than would occur if development of the Secondary Urban Center was **not** supported.

A summary of the transportation analysis and need assessments done in preparing the **Plan** is provided on pp. 2-32 to -34 of the **Central Oahu Development Plan Report** (June 1995), the technical report prepared by the Plan consultant team.

The following two sections describe improvements needed to meet these existing and projected transportation needs.

TABLE 4.1: CENTRAL OAHU ROADWAY NETWORK

Existing System		
Major East-West Arterials		
o H-1 Freeway		
o Farrington Highway		
Major North-South Arterials		
o H-2 Freeway		
o Kamehameha Highway		
o Kunia Road		
Planned Extensions	**ORTP 2020 #** *(ORTP 2025#)*	**ORTP 2020 Phasing**
North-South Corridors		
o Widen Kunia Road (4 lanes, H-1 to Royal Kunia)	**S23a** *(C-10)*	1995-2000
o Widen HOV lane inbound connector and bridges through Waiawa Interchange to provide PM outbound HOV lane	**HOV-3**	2001-2005
o Widen Kunia Road (6 lanes, H-1 to Royal Kunia)	**S23b**	2001-2005
o Widen Kunia Road (4 lanes, Royal Kunia to Wahiawa)	**S40**	2006-2020
o Widen Kam. Hwy (4 lanes, Ka Uka Blvd to Lanikuhana Ave)	**S39** *(C-7)*	2006-2020
o Village Park Connector	NA	NA
o Waipahu Depot Rd widening makai of Farrington Hwy	*(C-15)*	NA
East-West Corridors		
o Widen Waipahu Street from Kamehameha Highway to Paiwa Street and/or add turn lanes, bus pull-outs, etc.	**C27** *(C-17)*	2001-2005
o Realign Farrington Hwy eastbound near Waipahu Depot Road	(C-5)	NA
o Extend Waipahu Street eastward to Waihona Street	(C-16)	NA
Interchange Improvements		
o Waipio Interchange	**S6**	1995-2000
o Waiawa interchange	**S18**	2001-2005
New Interchanges		
o Second Waipio Interchange	**S30**	2006-2020

KEY: NA (Not applicable, project proposed after 2020 ORTP completed)

SOURCE: ORTP 2020 identification numbers and phasing from 2020 Oahu Regional Transportation Plan, November 1995. (ORTP 2025 *identification numbers from* ***Transportation for Oahu Plan TOP 2025****, April 6, 2001.)*

4.1.2 PLANNED EXTENSIONS OF THE ROADWAY NETWORK

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

OMPO prepared the **2020 Oahu Regional Transportation Plan** (November 1995) which provides a fiscally-constrained long-range transportation plan for Oahu to 2020. Analysis and recommendations in the **2020 Oahu Regional Transportation Plan (ORTP)** are based on year 2020 traffic volumes projected to be generated by land uses approved under the previous **Development Plan** Special Provisions and Land Use Map. (The **2020 ORTP** is currently being updated and will be replaced by the **2025 ORTP**.)

The 2020 ORTP includes a number of major improvements for Central Oahu including:

- Widening of Kamehameha Highway to four lanes between Ka Uka Boulevard and the Lanikuhana Avenue intersections;
- Widening of the existing High Occupancy Vehicle (HOV) lane inbound connector and bridges through the Waiawa Interchange to provide an outbound HOV lane in the afternoon peak hours;
- Widening of Kunia Road to 6 lanes from H-1 to Royal Kunia and to 4 lanes from Royal Kunia to Wahiawa;
- Improvement of Waipahu Street from Kamehameha Highway to Paiwa Street, either by widening and/or adding turn lanes, bus pull-out lanes, and other improvements at critical areas;
- Improvement to existing interchanges at Kunia, Mililani, Waipio, and Waiawa; and
- A new interchange at Waipio.

In addition, in 1999, the Waipahu Vision Team proposed establishing a connector road between Village Park and Waipahu using an existing cane haul road. The City Council approved funding for planning of the project in the Fiscal Year (FY) 2000 Capital Improvements Program (CIP) budget, and for planning, design, and construction in the FY 2001 CIP budget. The road was also placed on the Central Oahu Public Facilities Map by the Council in 2000. Negotiations to acquire the right-of-way are underway.

The OMPO Policy Committee, on March 19, 2001, also identified three new projects for inclusion for funding under the **2025 Oahu Regional Transportation Plan:**

- Widening of Waipahu Depot Road makai of Farrington Highway;
- Realignment of Farrington Highway eastbound near Waipahu Depot Road; and
- Extension of Waipahu Street eastward to Waihona Street.

(A number of projects previously listed in the **2020 ORTP** were not selected.)

4.1.3 TRANSIT

With population growth, the City should increase transit service in Central Oahu in order to enhance circulation among Central Oahu communities and between Central Oahu and the adjacent Ewa and North Shore areas, and provide convenient service for peak-hour commuting.

4.1.3.1 Bus Service

Bus service is provided through the Department of Transportation Services, which currently contracts with Oahu Transit Services (OTS) for operation of TheBus. OTS also operates the City's para-transit service, the Handi-Van.

Central Oahu falls mostly within the Central Oahu/North Shore Bus Service Area. Waipahu falls within the Pearl Harbor Bus Service Area. In 2001, about 50 buses were assigned to the Central Oahu/North Shore Service Area.

As of 2001, there were 11 regular service bus routes serving the Central Oahu *Sustainable* Communities Plan area:

- Route 40 Honolulu-Makaha, through Waipahu
- Route 42 Ewa Beach, through Waipahu
- Route 43 Honolulu/Ala Moana - Waipahu Street
- Route 52 Honolulu - Wahiawa - Circle Island
- Route 62 Honolulu - Wahiawa Heights
- Route 72 Schofield - Wahiawa - Whitmore (Circulator)
- Route 431 Ewa Mill/Villages - Waipahu (Circulator)
- Route 432 East-West Waipahu (Circulator)
- Route 433 Waikele (Circulator)
- Route 434 Village Park (Circulator)

In addition, there were 11 express bus routes operating during the peak commuting hours:

- Route A City Express (Waipahu-UH Manoa)
- Route 81 Waipahu
- Route 83 Wahiawa Town - (HANG) Armory
- Route 83A Mililani - Wahiawa
- Route 84 Mililani - Wahiawa Armory
- Route 84A Mililani (Meheula)
- Route 96 Waipia Gentry
- Route 97 Village Park
- Route 98 Wahiawa Park & Ride (Armory P&R) - Mililani Mauka P&R
- Route 103 Waikele
- Route 201 Honolulu - Waipahu - Ewa Beach
- Route 202 Honolulu - Upper Waipahu

The City is currently in the process of converting its linear bus system into a Hub-and-Spoke system, a combination of express, local and community circulator buses which meet at transit centers throughout the island. There has also been an increase in the number of buses assigned to the Central Oahu/North Shore Bus Service Area.

In its planning for the conversion to a hub-and-spoke system, the City is addressing the need for "transit centers" and park-and-ride facilities in Central Oahu.

- Transit centers are bus transfer points having a protected environment for waiting passengers, like that on the mauka side of Ala Moana Center. Through the Primary Corridor Transportation Project, a site on Hikimoe Street near the Civic Center in Waipahu has been developed as a transit center. In addition, the City is in the process of developing transit centers in Mililani and in Wahiawa.

- Park-and-rides are special parking lots where commuters access the transit network. There are three park-and-ride facilities in Central Oahu located at:

  - Royal Kunia,
  - Mililani Mauka, and
  - the Army National Guard Armory in Wahiawa.

The City's Primary Corridor Transportation Project, which began in 1998, is intended to address existing and future mobility constraints in Oahu's primary transportation corridor, which extends from the City of Kapolei in Ewa to the University of Hawaii-Manoa and Waikiki in the Primary Urban Center.

In November 2000, the Bus Rapid Transit (BRT) Alternative was selected by the City Council as the alternative to be used for the next phase of project development. The BRT system proposed would build upon the hub-and-spoke system and includes Regional and In-Town BRT elements.

The Regional BRT element includes a continuous Interstate H-1 BRT corridor from Kapolei to Middle Street comprised of zipper lanes and new express lanes to form an uninterrupted transitway. Special ramps may facilitate movement between the H-1 BRT Corridor and selected transit centers.

The In-Town BRT component would be a high capacity transit spine from Middle Street to the University of Hawaii-Manoa and Waikiki.

4.1.3.2 Planned Transit Corridor

As shown on the Public Facilities Map in Appendix A, a transit corridor is planned to connect Waipahu with the City of Kapolei to the west and with the Primary Urban Center to the east. Two transit nodes in Waipahu would be the centers of medium density residential and commercial development.

A transit node is more than a transit center. A transit node does have a transit center at its core where passengers can park their cars, and wait in protective shelters. The difference is that the node has shops, entertainment centers, restaurants, offices and residences within easy walking distance of the transit center. These "transit-oriented" land uses attract and supply passengers for the transit, and in turn, enjoy higher volume of customers because transit makes it easy to get to the node or to live in the area surrounding the transit center.

The corridor could support both a shuttle service connecting Waipahu, the UH West Oahu campus, the City of Kapolei, and Ko Olina and commuter service for peak-hour express service to and from the Primary Urban Center. In peak-hour commuting, the corridor could carry express bus service, or eventually, higher-speed dedicated transit service running on a separated route.

Through 2025, it is projected that transit service along the corridor will be provided by mass transit bus service running on roadways shared with other vehicles. However, sufficient right-of-way should be reserved for the establishment, when needed in the future, for either an elevated or a separated at-grade transit system. Such a system will require a 28-foot right-of-way along the route and a 75-foot right-of-way at transit station sites (at the transit nodes). The transit corridor runs along Farrington Highway in Waipahu where sufficient right-of-way and setback areas should be reserved to allow the possibility of eventually accommodating a separated transit system.

Medium density apartment and commercial mixed-use development should be permitted in Waipahu within one-quarter mile (15 minutes' walking distance) from the transit station/park-and-ride facility sites at the two major transit nodes. (See more specific land use policy guidelines for Waipahu in Section 3.5 above.)

The objective is to create a land use pattern along the transit corridor and around the two nodes that would allow Waipahu residents to minimize use of the private automobile and encourage use of transit for longer trips and walking or biking for short trips.

4.1.4 BIKEWAYS

The proposed bikeway system for Central Oahu shown in Exhibit 4.1 generally incorporates facilities recommended in **Bike Plan Hawaii** (the State Bikeway Plan) and the **Waipahu Town Plan**.

The Exhibit shows existing and planned routes for two types of bicycle facilities: **bike paths** which are separated from the roadway and **bike lanes** which are four- to six-foot lanes exclusively for bike use included in the roadway.

Bike Paths. As part of the Pearl Harbor Historic Trail, a major bike path should run east-west along the OR&L right-of-way (with branch routes to the Waipahu Cultural Garden and Leeward Community College). Use of the OR&L right-of-way is to be shared with restored historic train operations (see Sec. 3.4.3.1). Other major bike paths, to run north-south, should include Kunia Road between Farrington and H-1 Freeway, Managers Drive/Mokuola Street, Waipio Uka Street, and Lanikuhana Avenue between Kamehameha Highway and Meheula Parkway.

Bike Lanes. Bike lanes should be provided on Waipahu Street, the Village Park connector between Village Park and Waipahu, Hikimoe Street, Waipahu Depot Road, Meheula Parkway, Kilani Avenue, and California Avenue. In addition, Kamehameha Highway, Kunia Road north of H-1, and Wilikina Drive should be designated as bike routes with a curbside vehicle lane of minimum 12-foot width allowing shared use by bikes and automobiles.

4.1.5 GENERAL POLICIES

The following general transportation system policies support the vision for development of Central Oahu.

Adequate Access and Services. Before zoning approvals are given for new residential and commercial development in Central Oahu, the Department of Transportation Services and State Department of Transportation should:

- Report if adequate transportation access and services can be provided with existing facilities and systems; and
- If adequate capacity cannot be provided by existing facilities, recommend conditions that should be included as part of the zone change approval in order to assure adequacy, including the timing of any necessary improvements.

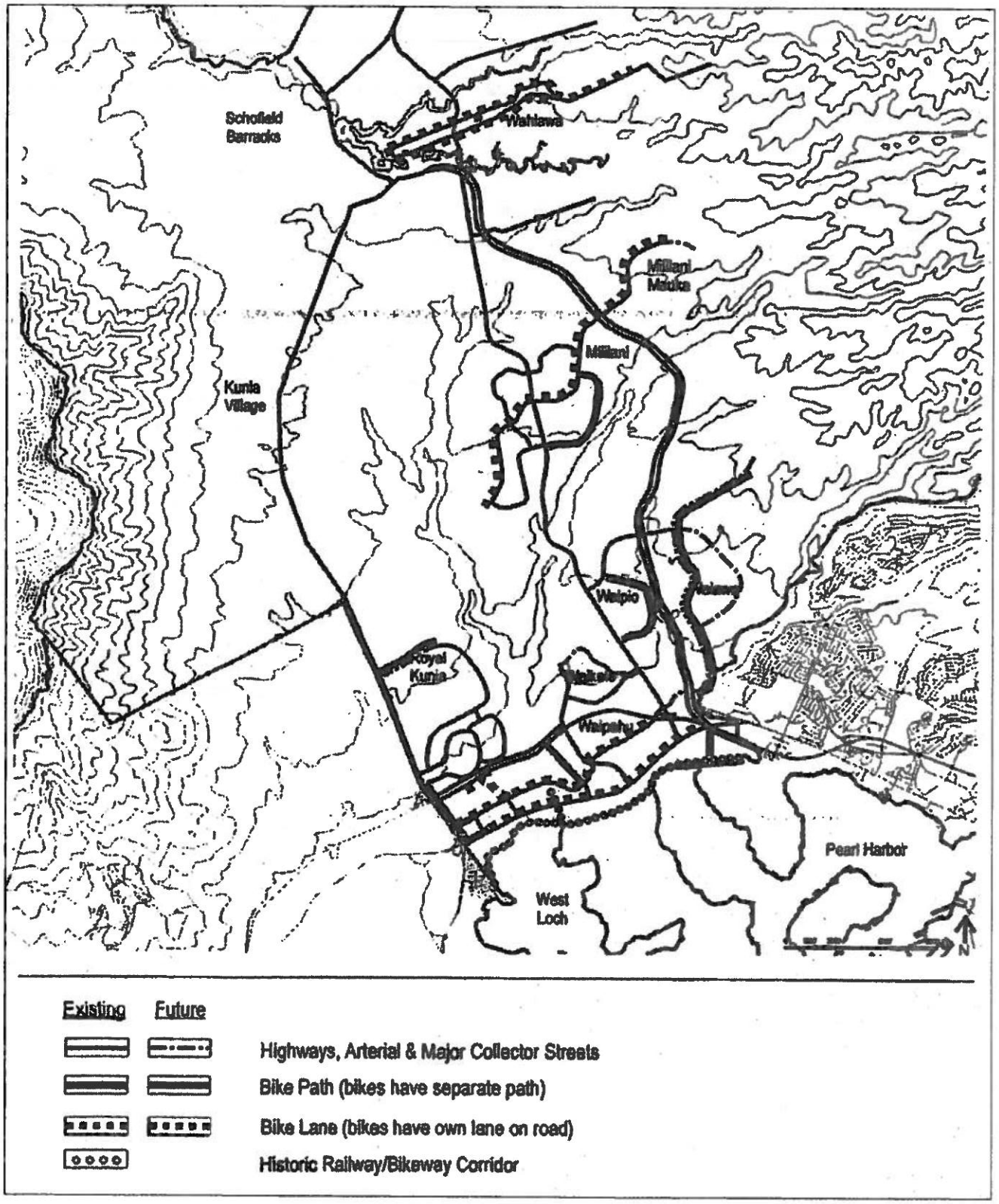
Transportation System Functions. Central Oahu's transportation system should:

- Provide adequate access between jobs, shopping, and recreation centers in Central Oahu;
- Provide improved access to and from adjacent areas, especially the employment centers of the Secondary Urban Center in Ewa, and
- Provide adequate capacity for peak-hour commuting to work in the Primary Urban Center. (Although the share of residents who will be able to live in Central Oahu and work either in Ewa or Central Oahu is projected to increase by 2025, a majority will continue to commute to jobs outside Ewa and Central Oahu.)

Reduction in Automobile Use. Reliance on the private passenger vehicle should be reduced by:

- Provision of circulation systems with separated pedestrian and bicycle paths and convenient routes for public transit service;
- Design of street systems in new development areas with layouts to facilitate bus routes and encourage pedestrian travel;
- Provision of supporting facilities and amenities for pedestrian, bicycle, and public transit use (Bicycle racks at commercial centers, bicycle storage facilities at employment centers, and bus shelters at bus stops will be encouraged);

Exhibit 4.1
Central Oahu Bikeway System



- Preservation of existing right-of-way and establishment of setback areas sufficient to permit future development of a dedicated transit right-of-way on Farrington Highway; and

- Support for medium-density and high-traffic land uses along the Farrington Highway transit corridor, especially within a quarter-mile of the transit nodes.

Transportation Development Priorities. Projected demand for peak-hour transportation in Central Oahu should be met by:

- Increased use of transit; and

- Transportation demand management through:

  - HOV facilities,
  - Park-and-ride facilities, and
  - Other programs which encourage reduced use of the private automobile.

Relying on adding private automobile commuting capacity to meet the projected growth in demand from Oahu's Leeward areas would be prohibitively expensive and have undesirable results. To increase commuting capacity from Central Oahu to Honolulu would require widening or double-decking the freeways in the Aiea/Pearl City area. Even if this extra capacity was added in the Aiea/Pearl City area, destructive, divisive, and expensive street widening would have to be done in Central Honolulu to create sufficient capacity to absorb the extra cars that the expanded freeways could bring to the central city.

4.1.6 PLANNING PRINCIPLES

The topography of Central Oahu is characterized by plateaus, divided by gulches. Major arterials run north-south, generally parallel to the major gulches - Waikele and Kipapa.

Disadvantages. Central Oahu's topography has a number of disadvantages for transportation system development:

- The gulches, because of their depth and width, represent a barrier to east-west roadway connections.

- Since both the H-2 Freeway and Kamehameha Highway have to cross Kipapa Gulch and other smaller gulches, widening of those arterials would involve major costs.

- The topography also makes Central Oahu a costly long-range prospect for rapid transit. In addition to the gulch crossings, the steep incline from Waipahu to Mililani may limit available technology.

- Traffic going from Central Oahu to the Primary Urban Center - where the major peak-hour demand occurs - must transition through interchanges to get onto the H-1 Freeway. A major bottleneck occurs at the Waiawa Interchange, where the major Central Oahu arterial, the H-2 Freeway, joins the H-1 Freeway.

Principles. Planning principles and guidelines addressing residential and commercial land uses, which are set forth in Chapter 3 (Sections 3.8 and 3.9), provide substantial guidance toward enhancing pedestrian; bicycle and transit modes of transportation.

The following planning principles should guide the development of a multi-modal transportation system for Central Oahu:

- **Increased Arterial Capacity for Transit.** Increases in arterial lanes should be oriented to HOV and mass transit. Exclusive lanes and park-and-ride facilities should be developed to improve transit speed and to provide enhanced incentive for commuters to opt for mass transit or HOV use.

- **Land Use Anticipating Dedicated Transit Lanes on Farrington Highway.** Land use planning for Waipahu should emphasize and strengthen Farrington Highway's role as a transit corridor by:

  - Reserving adequate right-of-way and establishing setbacks to allow for establishment of a separate transit right-of-way; and

  - Encouraging intensive residential and commercial uses around the two transit nodes and along the transit corridor.

  Express bus service, feeder buses, and park-and-ride facilities should be used to link other Central Oahu communities to any future rapid transit system and to reinforce the development of the transit nodes.

- **Transit-Oriented Community Street Systems.** Circulation systems within residential communities and commercial centers should emphasize accessibility from residences to bus routes, parks, schools, and commercial centers. Circulation systems should be designed to facilitate bicycle and pedestrian travel, to increase transit use, and to reduce dependence on automobile travel.

  See Chapter 3, Sections 3.8 and 3.9, for more detailed planning principles and design guidelines for circulation in residential communities and commercial centers.

- **Community-Level Street Standards.** Standards for public streets within residential communities and commercial centers should be revised to support and improve pedestrian and bicycle travel and on-street parking. While average motor vehicle speed may be reduced, safety and enjoyability would be increased, and greater efficiency in land use, reduced construction costs, and improved street function may occur.

4.2 WATER ALLOCATION AND SYSTEM DEVELOPMENT

In 1987, the State enacted the State Water Code in order to protect, control, and regulate the use of the State's water resources for the benefits of its people. Under the Code, the City is responsible for preparing the water use and development plan for the City and County of Honolulu.

This plan, called the **Oahu Water Management Plan** (OWMP), is prepared by the Department of Planning and Permitting with the assistance of the State Commission on Water Resource Management and the Board of Water Supply, and approved by the City Council following extensive public review and comment. The OWMP was adopted by the State Commission on Water Resources and the City Council in 1990. The most recent revision of the **Technical Reference Document** for the OWMP (December 1998) includes updated supporting data, analyses, and conclusions which reflect the closing of Oahu Sugar Company and Waialua Sugar Company and the most recent data and analytical review. Future revisions to the OWMP shall be submitted to the Council for its review and approval.

The Board of Water Supply evaluated the water development needs of the existing and new residential and commercial (including retail, office, resort, recreational, and industrial) development likely by 2025 as a result of implementation of the new Ewa Development Plan and the proposed Central Oahu *Sustainable* Communities Plan.

The Board of Water Supply projects that an additional 17 million gallons per day (mgd) of **potable** (or drinkable) water will be needed in Ewa and Central Oahu by 2025 to meet projected growth in residential and commercial demand. In addition, long-term demand for **nonpotable** water for existing and new urban irrigation and other urban purposes is estimated to be approximately 26 mgd. Agricultural demand for nonpotable water for the 13,500 acres of agricultural land in Ewa and Central Oahu protected from development by this plan and the new **Ewa Development Plan** is estimated to be 38 mgd. Meeting this demand will require reallocation of water within the island-wide system, as well as development of new sources.

As shown below in Table 4.2, the Board of Water Supply has identified potential sources of potable and nonpotable water to meet the projected demand in Ewa and Central Oahu through 2025. These sources will be pursued as part of the Board's development and operation of an integrated island-wide water system.

The water management strategy called for the **Oahu Water Management Plan** is for ongoing groundwater source development coupled with efforts to increase water use efficiency, water conservation, and continued development of alternative sources of water.

4.2.1 GENERAL POLICIES

The following general policies should be followed in developing Central Oahu potable and nonpotable water systems to meet the projected demand.

Adequacy of Water Supply. Before zoning approval is given for new residential or commercial developments in Central Oahu, the Board of Water Supply should either indicate that adequate potable and nonpotable water is available or recommend conditions that should be included as part of the zone change approval in order to assure adequacy.

Watershed Protection. Central Oahu watersheds are important to the recharge of the Pearl Harbor Aquifer, one of Oahu's most important sources of potable water. As a result, the watershed should be protected to maintain an adequate supply of good quality water and to retain sufficient acreage to ensure infiltration into groundwater aquifers.

Development and Allocation of Potable Water. The State Commission on Water Resource Management has final authority in all matters regarding administration of the State Water Code. Under that authority, the Board of Water Supply should coordinate development of potable water sources and allocation of all potable water intended for urban use on Oahu. State and private well development projects could then be integrated into and made consistent with City water source development plans.

Use of Nonpotable Water. An adequate supply of nonpotable water should be developed for irrigation and other suitable uses in Central Oahu in order to conserve the supply of potable water.

The Pearl Harbor aquifer is the most cost-effective and accessible water resource of potable quality and it is needed to support the existing and future domestic potable water uses described in the development plans. To minimize the risk of impacts to our precious potable water sources, the use of reclaimed water ("reclaimed wastewater effluent") and brackish waters as nonpotable irrigation sources in the coastal caprock area such as the Ewa Plain should be given high priority.

Significant demand exists for nonpotable water for golf courses, landscape irrigation and industrial uses on the Ewa Plain. In addition to the compatibility of the source to the demand in the area, the infrastructure to distribute the reclaimed water in that area is being planned. Use of reclaimed water and brackish water from the Honouliuli Water Recycling Facility will focus on meeting the nonpotable water demand in the Ewa Plain.

Experiences with increasing chloride, nitrate and pesticide contamination of groundwater indicate that activities on the surface of the land can have a detrimental effect on the quality of drinking water. Nonpotable water used above Pearl Harbor aquifer should be low in total dissolved solids to protect the quality of drinking water withdrawn from wells located down-gradient of the application.

Agricultural Water Sources. A sufficient amount of water is needed to meet the diversified agricultural needs for Ewa and Central Oahu along with high quality recharge of the Pearl Harbor aquifer. A number of potential sources are identified in Table 4.2, including: caprock, surface water, spring waters, Waiahole Ditch Water and wastewater effluent. The amount of water available and the potential use of each of these sources varies according to location. The State Commission on Water Resource Management should consider all sources of water in making allocations.

TABLE 4.2: POTENTIAL SOURCES OF POTABLE AND NONPOTABLE WATER FOR EWA AND CENTRAL OAHU

POTABLE GROUNDWATER RESOURCES

Ground Water Source	Estimated Source Yield (Million Gallons per Day)
1. Waipahu Wells III	3.00
2. Ewa Shaft	15.00
4. Waiawa Wells (1)	
a. Waiawa Wells I	2.24
b. Waiawa Wells II	2.31
c. Waiawa Wells III	2.11
5. Ekahanui Wells	2.00
6. Waipahu Wells IV	3.00
7. Kunia Wells III	3.00
8. Waipahu Wells II Addition	1.50
9. Mililani Wells IV	3.00
10. Kunia Wells II Addition	1.50
Total Estimated Source Yield (2)	38.66

ALTERNATIVE WATER RESOURCES

Source	Available Resource (Million Gallons Per Day)	
	Minimum Estimate	Maximum Estimate
Potable:		
1. Kalaeloa Desalination Plant	5	15
Nonpotable (3)		
2. Nonpotable Caprock (4)	NA	NA
3. Surface Nonpotable Water	2	3
4. Wastewater Nonpotable Reuse (5)	10	26
5. Waiahole Ditch	0	28
6. Pearl Harbor Springs Nonpotable	14	20
Total Nonpotable	26	77

NOTES:

NA Not Available
(1) Based on approved Waiawa Water Master Plan of Dec. 15, 1993.
(2) Source construction is contingent on the availability of sustainable yield.
(3) Nonpotable resources will be needed for agricultural and urban uses.
(4) Ewa Caprock aquifer sustainable yield is being reevaluated.
(5) BWS currently has contracts for 12 mgd of recycled water from Honouliuli WRF and for 2 mgd from Wahiawa WWTP which will be used for direct irrigation.

Pearl Harbor aquifer sustainable yield has decreased by 19 mgd due to the reduction in agricultural recharge. Specific source capacities are only estimates. Allocations of groundwater and surface water sources require the approval of the State Commission on Water Resource Management.

Source: Board of Water Supply, 2002

Water Reclamation. The City will reclaim wastewater effluent and distribute nonpotable water, provided that customers can be found for this source of nonpotable water, and that no threat is posed to the quality of the potable water aquifer.

Under the City's agreement through a Consent Decree with the U.S. Environmental Protection Agency and the State Department of Health (DOH) for Honouliuli Wastewater Treatment Plant (WTP), the City is reclaiming and using 10 mgd of Oahu's wastewater.

As part of a Consent Decree with the State DOH for the Wahiawa WTP, the City has upgraded the Wahiawa WTP to provide tertiary treatment of wastewater to allow unrestricted usage of the effluent for irrigation and application purposes. This reclaimed water is discharged into Lake Wilson as has been done for over 50 years. The effluent is indirectly used for irrigation when water from Lake Wilson is applied to croplands.

Integrated Resource Management. Management of all potable and nonpotable water sources, including groundwater, stream water, storm water, and effluent reuse should be integrated through amendments to the Oahu Water Management Plan and future Integrated Resource Management plans. Policies in those plans will be adopted only after adequate public review and Council approval, following City development of plans and adoption of an appropriate management process.

4.3 WASTEWATER TREATMENT

The Department of Design and Construction estimates treatment/disposal capacity at the Honouliuli Wastewater Treatment Plant (WTP) will need to be increased from existing capacity for primary treatment of 38 million gallons per day (mgd) to 51 mgd by 2025 to meet projected population and economic growth in Ewa and Central Oahu resulting from implementation of the revised Plans. In addition, the capacity of specific sewer lines and pump stations will need to be increased.

The City's Wahiawa WTP is operating under a Consent Decree from the State Department of Health. Under the Consent Decree, the City has agreed to upgrade the WTP to tertiary treatment and deepen the outfall in order to continue discharging to Wahiawa Reservoir (Lake Wilson). The plant now treats approximately 2.0 mgd domestic wastewater collected from Wahiawa Town, Whitmore Village, and the Navy Naval Computer and Telecommunications Area Master Station communities.

The City has upgraded the Wahiawa WTP to produce tertiary treated effluent. This highly treated water is discharged into Wahiawa Reservoir (Lake Wilson) through a new 24-inch outfall at a depth of approximately 40 feet below the water level.

The City is also considering reactivating and upgrading the Mililani WTP (which is currently out of operation) to provide tertiary treated effluent for irrigation purposes at Royal Kunia, Waiola, and Waiawa.

4.3.1 GENERAL POLICIES

All wastewater produced by new developments in Central Oahu should be connected to a regional or municipal sewer service system.

Where feasible, effluent should be treated and used as a source of nonpotable water for irrigation and other uses below the Underground Injection Control (UIC) line of the State Department of Health and the "No-Pass" Line of the Board of Water Supply. Above the UIC line and "No-Pass" line, use of tertiary treated effluent (R-1 Quality) for irrigation purposes may be appropriate if approved by the Department of Health and Board of Water Supply. As noted above, the City is meeting its commitment to the U.S. Environmental Protection Agency and the State Department of Health to reclaim and use up to 10 million gallons a day (mgd) of wastewater island-wide by 2001.

Wastewater treatment plants should generally be located in areas shown as planned for industrial use and away from residential areas shown on the Urban Land Use Map in Appendix A. Existing treatment plants are shown on the Urban Land Use Map and Public Facilities Map in Appendix A.

A City review and approval process which provides adequate public notice and input should be used for any major new private wastewater treatment plant. Other system elements, such as pump stations and mains, should not require such comprehensive review and approval.

4.4 ELECTRICAL POWER DEVELOPMENT

The Hawaiian Electric Company (HECO) expects that increased electrical demand may create a need for additional power generation capacity before 2025. Overall economic development, the associated increase in electrical demand, the effectiveness of energy conservation and efficiency programs, and the development of new energy-related technologies will all play a role in determining how soon additional generation capacity will be required. One potential site for additional generating units identified by HECO is the Waipio Peninsula. The site is owned by the U.S. Navy which would have to agree to such a use for the site.

4.4.1 GENERAL POLICIES

Major system improvements — such as development of a new power generating plant and/or major new transmission lines — should be analyzed and approved based on island-wide studies and siting evaluations. Strong consideration should be given to placing any new transmission lines underground where possible under criteria specified in State law.

Electrical power plants should generally be located in areas shown as planned for Industrial use and away from residential areas shown on the Urban Land Use Map in Appendix A. Any proposed major new electrical power plant should be considered through a City review and approval process which provides public notification and opportunity to comment and public agency analysis of impacts and mitigations.

4.5 SOLID WASTE HANDLING AND DISPOSAL

There are no landfills in Central Oahu because of concerns about the potential impacts on Oahu's water supply. The entire *Sustainable* Communities Plan area, with the exception of a small area bordering Pearl Harbor, is considered one of Oahu's most important groundwater recharge areas.

The **Solid Waste Integrated Management (SWIM) Plan** prepared by the Department of Public Works and adopted by the City Council in 1995 identified existing landfills which could be expanded and potential sites for developing new landfills to provide new capacity. No potential sites in Central Oahu were identified.

While the City is augmenting the number and scope of its waste diversion programs, most of Central Oahu's solid waste will continue to receive final treatment and disposal either through incineration at the H-POWER plant or disposal at landfills in other areas. The Waipahu Incinerator was closed in 1995.

4.5.1 GENERAL POLICIES

Siting and/or expansion of sanitary landfills should be analyzed and approved based on island wide studies and siting evaluations.

Siting of landfills above the UIC line and the "No Pass" line should be approved only if recommended for approval by the Department of Health and the Board of Water Supply.

A City review and approval process which provides adequate public notice and input, complete technical analysis of the project, and approval by the City Council, should be used for any new or major modification of private land-

fills, incinerators, garbage-to-energy plants, refuse convenience centers, or other major solid waste handling or disposal facility.

4.6 DRAINAGE SYSTEMS

Central Oahu can be divided into two areas for assessing drainage needs: the uplands mauka of the H-1 Freeway and the lowlands makai of the freeway.

The urban developments sited on high plateaus in the Central Oahu uplands benefit from the natural flood protection provided by the deep gulches which drain storm waters and filter some pollutants. Historically, flooding problems in the uplands have only occurred in the portion of Waiakakalaua Gulch which has been developed with houses and apartments.

Flooding has been more prevalent in the Central Oahu lowlands, particularly in Waipahu around Waikele Stream and in Waiawa around the lower reaches of Waiawa Stream where flood plain and wetland areas have been developed.

The discharge of drainage to Pearl Harbor has caused serious siltation problems and has aggravated water pollution which was already a significant problem due to shipyard uses. Siltation causes navigation problems in the harbor and forces the Navy to dredge at frequent intervals.

The City, in response to a federal government mandate, has initiated a major program to reduce nonpoint source pollution. The City has established new rules for its storm drainage standards. These rules, which were adopted in 2000, include provisions for storm water quality and retention.

4.6.1 GENERAL POLICIES

Drainage system design should emphasize control and minimization of nonpoint source pollution and the retention and/or detention of storm water on-site and in appropriate open space and wetland areas.

Storm water should be viewed as a potential irregular source of water for recharge of the aquifer which should be retained for absorption rather than quickly moved to coastal waters.

Natural and man-made vegetated drainageways and retention basins should be the preferred solution to drainage problems wherever they could promote water recharge, help control nonpoint source pollutants, and provide passive recreation benefits.

4.6.2 PLANNING PRINCIPLES

Principles to guide the development of Central Oahu drainage systems include:

- **Retention and Detention.** Public and private agencies should employ methods of retaining or detaining storm water as the preferred strategy for management of nonpoint source pollutants in storm water. Where feasible, any open space, including parking lots, landscaped areas, mini and community parks, and public and private golf courses should be used to detain or infiltrate storm water flows to reduce their volume and runoff rates, and the amounts of sediments and pollutants transported.

- **Relation to the Regional Open Space Network.** To the extent possible, the developers should integrate planned improvements to the drainage system into the regional open space network by emphasizing the use of retention basins, creation of passive recreational areas, and recreational access for pedestrian and bicycles.

- **Preservation of Gulches as Natural Drainageways.** The major natural gulches which are listed in Table 2.1 should be retained as flood plains and open space resources. Further development of residential,

commercial, or industrial uses within the gulches should be avoided, and grading or other disturbance of gulch walls, other than what is necessary to clear the gulch of debris or other floodway obstructions or to construct and maintain drainage, access, and utility facilities, should not be allowed.

- **Preservation of Flood Plain Capacity Around Pearl Harbor.** Urban development should be restricted in the lowlands around Pearl Harbor if it reduces flood plain capacity or allows increased siltation and pollution of Pearl Harbor.

- **Restrictions on Stream Channelization.** Streams should not be channelized, and existing flood plains should be left intact except where absolutely necessary to protect existing urban development from flooding.

4.7 SCHOOL FACILITIES

Statewide, the State Department of Education (DOE) faces an enormous shortfall in funding to meet projected needs for new classrooms. As a result, the DOE is asking for developer "fair-share" contributions, exploring alternative school financing options such as lease/purchase agreements, and seeking to increase the number of schools operating year-round and/or with multi-track scheduling.

As shown in Table 4.3, based on expected development, the DOE projects a need for seven new elementary schools, three new intermediate schools, and two new high schools in Central Oahu by 2025.

The conceptual locations for one new intermediate school and one new high school are shown on the Public Facilities Map in Appendix A. Elementary schools are not mapped, because their sites are of community rather than regional concern. Sites have been reserved for the five of the seven elementary schools. The minimum site size recommended by the DOE for elementary schools is 12 acres, for intermediate schools is 18 acres, and for high schools is 50 acres.

TABLE 4.3: PLANNED SCHOOLS IN THE CENTRAL OAHU *SUSTAINABLE* COMMUNITIES PLAN AREA

School	Site Reserved	Opening Date
Elementary Schools		
Mililani Mauka II	X	2001-2003
Royal Kunia	X	2003-2005
Waiawa	X	N.D.
Waiawa II	X	N.D.
Waiawa III	X	N.D.
Koa Ridge		N.D.
Koa Ridge II		N.D.
Intermediate/High School		
Waiawa Intermediate	X	N.D.
Site Undetermined Intermediate		N.D.
Site Undetermined Intermediate		N.D.
Waiawa/Koa Ridge High School		N.D.
Site Undetermined High School		N.D.

NOTES:
N.D. Not Determined.

SOURCE:
State Department of Education, March 2001

4.7.1 GENERAL POLICIES

Project Review and Approval Assessment. As new residential developments are reviewed as part of the project application review and approval process, the State Department of Education should report to the Department of Planning and Permitting whether the DOE will be able to provide adequate school facilities, either at existing schools or at new school sites so that needs from the proposed development can be met.

Fair Share Provisions. Developers should pay their fair share of all costs needed to provide adequate school facilities for the children living in their developments.

4.7.2 PLANNING PRINCIPLES

The following principles should be followed in planning and operating schools in Central Oahu:

- **Schools as Community Centers.** Because of the difficult financial problems for all sectors, new communities are likely to have fewer churches, private social halls, and recreation facilities. As a result, schools may have to assume important functions as cultural and recreational centers and as meeting facilities. The State DOE should design school facilities to facilitate community use during non-school hours and weekends.

- **Co-location with Parks.** Elementary and intermediate schools should be co-located with neighborhood or community parks, and designs of facilities should be coordinated by the State DOE and the Department of Design and Construction when needless duplication of parking and of athletic, recreation, and meeting facilities can be avoided.

- **Shared Facilities.** The Department of Design and Construction should coordinate the development and use of athletic facilities such as swimming pools and gymnasiums with the DOE where such facilities would maximize use and reduce duplication of function.

- **Fair-Share Contribution.** The City will support through its zoning powers the State Department of Education's requests for fair share contributions from developers of residential projects so that the DOE can provide adequate school facilities to meet the needs of residents.

4.8 PUBLIC SAFETY FACILITIES

Table 4.4 provides a listing of existing and planned fire stations, police stations, and emergency medical services facilities and response units in the Central Oahu *Sustainable* Communities Plan area.

To meet projected population and economic growth by 2025, the Fire Department recently built two stations.

Because police operate primarily in the field and do not have a need for outlying stations, the Police Department plans no new regional stations in Central Oahu. Land has been donated for a substation at Waikele, but construction of the substation is not expected in the near future.

The expected population growth and development of new communities and community facilities in Central Oahu will result in a need for additional emergency medical service facilities and response units. The specific needs will depend on the size, demographics, and location of the future population. The State Department of Health has identified a need for three new stand-alone emergency medical services facilities in Central Oahu by 2010.

TABLE 4.4: EXISTING AND PLANNED PUBLIC SAFETY FACILITIES IN THE CENTRAL OAHU *SUSTAINABLE* COMMUNITIES PLAN AREA

Facilities	Site	Service Area	Service Date
Fire Stations			
Wahiawa	Wahiawa	Wahiawa, Schofield, Wheeler, Whitmore Village	Existing
Mililani	Mililani	Mililani, Leilehua, Waikakalaua	Existing
Mililani Mauka	Mililani Mauka	Mililani Mauka, Waikakalaua	Existing
Waikele	Waikele	Waikele, Waipio-Gentry, Waipahu	Existing
Waipahu	Waipahu	Waipahu, Royal Kunia, Waikele, Ewa Villages, West Loch, Crestview, Waipio-Gentry	Existing
Police Stations			
Wahiawa District Station	Wahiawa	Wahiawa, Schofield, Wheeler, Whitmore Village, Leilehua, and Waikakalaua	Existing
Pearl City District Station	Pearl City	Waipahu, Royal Kunia, Waikele, Crestview, Waipio-Gentry	Existing
Waikele Substation	Waikele	Waikele	N.D.
Emergency Medical Service Facilities			
Wahiawa	@ Wahiawa General Hospital	Wahiawa, Schofield, Wheeler, Whitmore Village	Existing
	Stand-alone facility		2005
Mililani Mauka	co-locate @ Mililani Mauka Fire Station	Mililani, Mililani Mauka, Leilehua, Waikakalaua	2003
Waikele	Stand-alone facility	Waikele	2008
Waipio	Provide four RRUs		2002
Waipahu	@ Waipahu Fire Station	Waipahu, Royal Kunia, Waikele, Ewa Villages, West Loch, Crestview, Waipio-Gentry	Existing
	Stand-alone facility		2006

NOTES:

N.D. Not Determined

RRU Rapid Response Unit (Does not transport patients but is used by an emergency medical technician to reach an emergency site and provide advanced life support treatment.)

4.8.1 GENERAL POLICIES

Adequate staffing and facilities are needed to ensure public safety. New development should be approved only if staffing and facilities will be adequate to provide fire and police protection and emergency medical services when development is completed.

4.9 OTHER COMMUNITY FACILITIES

Other existing community facilities shown on the Urban Land Use Map in Appendix A include hospitals, colleges, correctional facilities, and cemeteries. Key facilities include Leeward Community College, Wahiawa Hospital, and the Waiawa Correctional Facility. A medical park is proposed for a portion of Koa Ridge nearest the new Central Oahu Regional Park.

Location of new community facilities should comply with the following principles:

- **Colleges and Hospitals.** Colleges and hospitals should generally be located in urban areas near transit nodes, commercial centers, or high-density residential areas.

  A medical park can be located near the Central Oahu Regional Park on Koa Ridge Makai. Uses at the Medical Park could include:

  - A diagnostic-treatment center;
  - A physician's office building;
  - A sports medicine and research center;
  - A birthing center;
  - An acute-care facility;
  - An Alzheimer's center;
  - A hospice;
  - A center for alternative medicine;
  - An adolescent mental health facility;
  - A dental clinic;
  - A rehabilitation and wellness center;
  - A geriatric center;
  - A cardiac center; and
  - Other medical and health services.

  Building heights and densities allowed at the park should be comparable to those allowed at Mililani Technology Park.

- **Correctional Facilities.** Correctional facilities should generally be located on lands planned for industrial and agricultural use. If such a facility is proposed for lands not planned for industrial or agricultural use, a City review and approval process which provides public review, complete project analysis, and City Council approval should be used.

- **Approval of Major Facilities.** Major public, quasi-public or private facilities or utilities which provide essential community services but which could have a major adverse impact on surrounding land uses should be considered through a City review and approval process which provides public notification, review by appropriate agencies, opportunities for public comment, and approval by the City Council.

4.10 ADDED OR CHANGED PUBLIC FACILITIES

Public facilities other than those listed in this plan shall be identified on the Public Infrastructure Map.

5. IMPLEMENTATION

OVERVIEW

Implementation of the City's revised Development and Sustainable Community Plans will be a major challenge for the City's planners, engineers, and other technical and policy-level personnel, as well as elected officials who determine the allocation of City resources.

In contrast to previous Development Plans, which functioned primarily as regulatory guides and a prerequisite for City zoning of parcels proposed for development, the revised plans are oriented toward implementation on a broader scale. They now seek to implement a vision for the future by providing wider guidance for decisions and actions related to land use, public facilities, and infrastructure as well as for zoning matters. As a result, many of their provisions reflect the consultations which occurred throughout the planning process with pertinent implementing agencies and community representatives.

Many other City, county, and town jurisdictions on the U.S. mainland have instituted comprehensive planning programs that emphasize a proactive community based planning and implementation process. These local governments seek to establish a strong link between planning policies and guidelines, and specific organization, funding, and actions needed to implement a variety of public and private projects and programs.

The following sections of this Chapter are intended to strengthen the linkage to implementation to realize the vision of the future presented in this plan.

Implementation of the Central Oahu *Sustainable* Communities Plan will be accomplished by:

- Limiting residential and non-residential development to areas within the Urban Community Boundary to support the vision for protection of agricultural and preservation lands in Central Oahu, for development of the Primary Urban Center and Secondary Urban Center at Kapolei, and for ending infrastructure investments which promote urban sprawl;

- Guiding development in areas of critical concern including Waipahu and Wahiawa through Special Area Plans;

- Guiding public investment for infrastructure through Functional Plans which support the vision of the *Sustainable* Communities Plan;

- Recommending approval, approval with modifications, or denial of developments seeking zoning and other development approvals based on how well they support the vision for Central Oahu's development;

- Incorporating *Sustainable* Communities Plan priorities through the Public Infrastructure Map and the City's annual budget process;

- Evaluating progress in fulfilling the vision of the Central Oahu *Sustainable* Communities Plan every two years and presenting the results of the evaluation in the **Biennial Report**; and

- Conducting a review of the vision, policies, principles, and guidelines, of the Central Oahu *Sustainable* Communities Plan every five years and recommending revisions as necessary.

5.1 DEVELOPMENT PRIORITIES

5.1.1 PUBLIC FACILITY INVESTMENT PRIORITIES

The regional directed growth strategy requires the cooperation of both public and private agencies in planning, financing, and constructing infrastructure. The City should take an active role in planning infrastructure and coordinating the expansion of Honouliuli Wastewater Treatment Plant and reuse of its effluent, improvement of the Wahiawa Treatment Plant, provision of recreational open spaces, and development of the regional transportation system, parks, and police and fire facilities.

5.1.2 PRIVATE DEVELOPMENT PRIORITIES

The Central Oahu *Sustainable* Communities Plan provides a clear signal to private landowners and developers as to where development will be supported.

The **Urban Expansion** area is shown on the Phasing Map in Appendix A. The Urban Expansion Area shows where new urban development is occurring and where applications for new urban development will be accepted for processing. As shown in Table 2.2, several projects in this area already have Development Plan approvals and most zoning changes needed for proceeding with development immediately.

Projects in the Urban Expansion area needing zoning changes and other development approvals would be eligible for processing starting with adoption of the Plan and will be supported if:

- the project implements the vision for Central Oahu and relevant policies, principles, and guidelines, and
- adequate infrastructure will be available to meet the demand resulting from the project.

No additional areas should be approved for residential development beyond the Urban Expansion area in order to protect agricultural and preservation lands.

5.2 SPECIAL AREA PLANS

Special Area Plans provide more detailed policies, principles, and guidelines than the *Sustainable* Communities Plan for areas requiring particular attention. The form and content of Special Area Plans depends on what characteristics and issues need to be addressed in greater detail in planning and guiding development or use of the Special Area.

Special Area Plans can be used to guide land use development and infrastructure investment in Special Districts, Redevelopment Districts, or Resource Areas. Plans for Special Districts would provide guidance for development and infrastructure investment in areas with distinct historic or design character or significant public views. Plans for Redevelopment Districts would provide strategies for the revitalization or redevelopment of an area. Plans for Resource Areas would provide resource management strategies for areas with particular natural or cultural resource values.

Waipahu and Wahiawa are the only areas in Central Oahu currently designated for a Special Area Plan.

Waipahu. The **Waipahu Town Plan**, the Special Area Plan for Waipahu, was completed in December 1995. The Plan provided the basis for policies, principles, and guidelines for Waipahu in Section 3.5 above. The policies in Section 3.5 will be used to evaluate both applications for zoning changes and other development approvals and proposals for public and private infrastructure in Waipahu.

Wahiawa. A Special Area Plan, the **Wahiawa Urban Design Plan**, was prepared for Wahiawa and transmitted to the City Council in 1998. The Plan focuses on urban design issues and implementation proposals and builds on the **Wahiawa Town Master Plan** (prepared in 1994 by members of the Wahiawa community).

5.3 FUNCTIONAL PLANS

Functional Plans are meant to provide guiding principles and strategies which will be used by the various functional agencies to determine needs, assign priorities, phase infrastructure and facilities development, and secure financing to meet the needs identified in the *Sustainable* Communities Plan.

City agencies responsible for developing infrastructure and public facilities shall review existing Functional Plans, and in consultation with the Director of the Department of Planning and Permitting, update the existing Plans or prepare and submit to the Mayor new long-range Functional Plans for providing facilities and services for Central Oahu to the year 2020.

Agencies with Functional Planning responsibilities include:

- Board of Water Supply
- Department of Design and Construction
  - City Buildings
  - Parks and Recreation
  - Drainage Systems
  - Wastewater
- Department of Transportation Services
- Honolulu Fire Department
- Honolulu Police Department

The Functional Plans should provide:

- A Resource-constrained Long-Range Capital Improvement Program with priorities,
- A Long-Range Financing Plan, with any necessary new revenue measures,
- A Development Schedule with first priority to areas designated for earliest development, and
- Service and facility design standards, including Level of Service Guidelines for determining adequacy.

A resource-constrained program is one which identifies the fiscal resources that can be reasonably expected to be available to finance the improvements.

Level of Service Guidelines for determining adequacy of public facilities and infrastructure to support new development should be established by the responsible City agencies as part of their review and update of Functional Plans. Level of Service Guidelines for infrastructure and utilities which are primarily State agency responsibilities (such as schools) shall be developed by the Department of Planning and Permitting in consultation with the responsible State agencies.

In preparing the Functional Plans, a proactive public participation process should be established which provides the public with access to complete information about infrastructure and public facility needs assessment, alternatives evaluation, and financing. Outreach activities should involve the Neighborhood Boards, community organizations, landowners, and others who might be significantly affected by the infrastructure or public facilities projects to be developed under the Functional Plan.

The process should be characterized by opportunities for early and continuing participation, timely public notice, public access to information needed to review the decision, and the opportunity to suggest alternatives and to express preferences.

5.4 REVIEW OF ZONING AND OTHER APPLICATIONS

A primary way in which the vision of the Central Oahu *Sustainable* Communities Plan will guide land use will be through the review of applications for zoning changes and other development approvals. Approval for all development projects should be based on the extent to which the project supports the policies, principles, and guidelines of the *Sustainable* Communities Plan.

Projects which do not involve significant zone changes will be reviewed by the Department of Planning and Permitting for consistency with the policies, principles, and guidelines of the Central Oahu *Sustainable* Communities Plan during the Zone Change Application process. Those projects requiring environmental assessments shall follow the provisions of Hawaii Revised Statutes, Chapter 343.

Projects involving significant zone changes will require an Environmental Assessment which must include a Project Master Plan when 25 acres or more are involved. This is submitted to the Department of Planning and Permitting for review as part of the first Zone Change Application. (See definition of significant zone change and Project Master Plan in Section 24-5.1 of the adopting ordinance.)

Zone change applications to permit urban uses on parcels outside the Urban Community Boundary or on parcels identified as part of the Open Space Network will not be accepted for processing.

5.4.1 ADEQUATE FACILITIES REQUIREMENT

All projects requesting zone changes shall be reviewed to determine if adequate public facilities and infrastructure will be available to meet the needs created as a result of the development. Level of Service Guidelines to define adequate public facilities and infrastructure requirements will be established during the Capital Improvement Program.

In order to guide development and growth in an orderly manner as required by the City's **General Plan**, zoning and other development approvals for new developments should be approved only if the responsible City and State agencies indicate that adequate public facilities and utilities will be available at the time of occupancy or if conditions the functional agency indicates are necessary to assure adequacy are otherwise sufficiently addressed.

The Department of Planning and Permitting will review and summarize any individual agency's findings regarding public facilities and utilities adequacy which are raised as part of the EA/EIS process or as part of the agency review of the zone change application and recommend conditions that should be included in the Unilateral Agreement or Development Agreement to insure adequacy of facilities.

5.5 FIVE-YEAR *SUSTAINABLE* COMMUNITIES PLAN REVIEW

The Department of Planning and Permitting shall conduct a comprehensive review of the Central Oahu *Sustainable* Communities Plan and shall report its findings and recommended revisions to the City Council five years after adoption and every five years thereafter.

In the Five-Year review, all the elements of the Central Oahu *Sustainable* Communities Plan (regional vision, policies, principles and guidelines, and implementing actions) will be evaluated to see if they are still appropriate. In addition, the development phasing guidelines will be reviewed to see if its purpose is being achieved and if phasing priorities should be revised.

The Plan evaluation will include an evaluation of the Urban Community Boundary since it is a key vision element of the Plan. However, the Urban Community Boundary (UCB) was drawn with the intent that it will remain fixed through the 2025 planning horizon because of the vision that key agricultural and preservation lands should be protected for the foreseeable future and the analysis that there are ample developable lands to meet the urban development needs for the foreseeable future within the UCB in Ewa and Central Oahu.

5.6 TRANSITION FROM THE CURRENT SYSTEM

This section discusses the transition from the former Development Plan to this revised Sustainable Communities Plan, including its independence from Development Plan Common Provisions, its relationship to the **General Plan** guidelines, and the need for review and revision of development codes, standards, and regulations.

5.6.1 DEVELOPMENT PLAN COMMON PROVISIONS AND EXISTING LAND USE APPROVALS

This *Sustainable* Communities Plan will go into effect upon adoption by ordinance. At that time, the revised *Sustainable* Communities Plan will become a self-contained document, not reliant on the Development Plan Common Provisions which formerly applied to the Central Oahu Development Plan as well as all the other Development Plans.

Land use approvals granted under previous Development Plan amendments should generally remain in force and guide zoning decisions unless clearly inconsistent with the vision and policies of the Central Oahu *Sustainable* Communities Plan. Development can proceed in accordance with existing zoning, Unilateral Agreements, and approved Urban Design Plans.

If an Environmental Assessment or Environmental Impact Statement (EA/EIS) was accepted in the course of a Development Plan land use approval for a project, it should be acceptable to meet the requirement for an initial project EA/EIS when zone change applications are submitted for subsequent phases of the project unless the project scope and land uses are being significantly changed from that described in the initial EA/EIS.

5.6.2 RELATION TO GENERAL PLAN POPULATION GUIDELINES

The Central Oahu *Sustainable* Communities Plan implements the **General Plan** population policies (in Population Objective C) as follows:

- Central Oahu's likely share of Oahu population in 2025 (16.8%) will be quite close to the **General Plan** 2025 population distribution guideline (17%). Central Oahu's share in 2000 was 16.9%.

- Planned developments in the Central Oahu urban-fringe will implement Population Objective C, Policy 2 which encourages such development in order to "relieve developmental pressures in the remaining urban-fringe and rural areas and to meet housing needs not readily provided in the primary urban center."

The **General Plan** population distribution guidelines will continue to be used as a guide to direct the pattern of growth and development in the Central Oahu *Sustainable* Communities Plan Area. Assessments of this performance will be reported in both the **Biennial Report** and in the Five-Year Review of the *Sustainable* Communities Plan.

Under the new Central Oahu *Sustainable* Communities Plan, projects will be evaluated against how well they fulfill the vision for Central Oahu enunciated in the *Sustainable* Communities Plan and how closely they meet the policies, principles, and guidelines selected to implement that vision.

5.6.3 REVIEW AND REVISION OF DEVELOPMENT CODES

Upon completion of the Development Plan and *Sustainable* Communities Plan Revision Program, current regulatory codes and standards should be reviewed and revised, as necessary, to maintain their consistency and effectiveness as standards to guide attainment of the objectives and policies envisioned for all Development Plan areas.

To achieve the vision for Central Oahu as identified in this plan, at the time such reviews are conducted, the following regulatory codes and standards may warrant further review and revision to ensure achievement of the vision for the Central Oahu region, as well as consistency with the Central Oahu *Sustainable* Communities Plan:

- **Land Use Ordinance** (Department of Planning and Permitting, pursuant to Chapter 21, Revised Ordinances of Honolulu). Zoning code standards and the zoning map for Central Oahu need to be revised to reflect policies, principles and guidelines in the *Sustainable* Communities Plan.

- **Subdivision Rules and Regulations** (Department of Planning and Permitting, pursuant to Chapter 22, Revised Ordinances of Honolulu). Public right-of-way standards used for subdivision and consolidation of land need to be revised to reflect transportation policies, principles, and guidelines in the *Sustainable* Communities Plan.

- **Traffic Standard Manual** (Department of Transportation Services, July 1976, as revised). Standards which are applied to local and most collector streets need to be revised to reflect transportation policies, principles, and guidelines in the *Sustainable* Communities Plan.

- **State Highways Division Procedures Manual**, Vol. 8, Chapter 5, Section 4 (State Department of Transportation). These State highway standards need to be reviewed to identify provisions which may conflict with the transportation policies, principles, and guidelines in the *Sustainable* Communities Plan.

- **Standard Details for Public Works Construction** (Honolulu Department of Public Works with Kauai, Maui, and Hawaii County Departments of Public Works, September 1984. *Department of Planning and Permitting now responsible for revisions*). Engineering standards for the dedication of public works construction need to be revised to reflect *Sustainable* Communities Plan principles and guidelines.

- **Storm Drainage Standards** (Department of Public Works, March 1986. *Department of Planning and Permitting now responsible for revisions).* Standards for the dedication of drainage systems to incorporate grassed swales and retention basins into the design need to be created to reflect the *Sustainable* Communities Plan policies, principles, and guidelines for open space.

- **Park Dedication Rules and Regulations** (Department of Planning and Permitting, pursuant to Chapter 22, Article 7, Revised Ordinances of Honolulu). Regulations need to be reviewed to determine if passive drainage systems which are designed for recreation use should count toward park dedication requirements, especially in cases where the area would exceed the amount of land that would be required under current rules and regulations.

- **Wastewater Management Design Standards** (Department of Wastewater Management, Vol. I: 1993, Vol. II: 1984) pursuant to Chapter 14, Revised Ordinances of Honolulu. *Department of Planning and Permitting now responsible for revisions.* These standards and ordinance may require review to further implement *Sustainable* Communities Plan policies and guidelines.

APPENDIX A: CONCEPTUAL MAPS

This appendix includes the four primary conceptual maps used to illustrate the vision for Central Oahu's future development. The maps include:

	PAGE
OPEN SPACE	**24-48.108**
URBAN LAND USE	**24-48.109**
PUBLIC FACILITIES	**24-48.110**
PHASING	**24-48.111**

These maps illustrate the long-range vision of the future of the plan area and the major land use, open space, and public facility policies that are articulated in the plan. In using these maps, the reader should keep in mind that:

1. These maps are general and conceptual, and are not intended to be used to determine specific land use boundaries. Such boundaries are to be determined during the review of specific land use or public facilities investment decisions, and their exact locations are to be guided by the vision and policies of this Plan.

2. These maps illustrate the Plan's vision and policies which are presented in Chapters Two, Three, and Four. These policy statements are considered the most important elements of the Plan.

The maps are considered illustrations of the policies. However, it is recognized that the maps may be more accessible and more interesting than the written policies.

This section of the appendix, therefore, presents a brief explanation of the contents of each of these maps.

GLOSSARY OF TERMS

Elements common to each of the four maps include organizing boundaries and the following land use designations. They are presented in the following section. Information particular to each map (Open Space, Land Use, Public Facilities, Phasing) is presented under the section for each map topic.

COMMON ELEMENTS

Urban Community Boundary

The urban community boundary defines and contains the intended extent of developed or "built up" areas of urban and urban fringe communities. Its purpose is to provide adequate land to support established or developing communities while protecting lands outside this boundary for agriculture or open space values. Areas within this boundary are generally characterized by extensive tracts of residential, commercial, industrial, or mixed-use development clearly distinguishable from undeveloped or more "natural" portions of a region's environment.

In the Central Oahu *Sustainable* Communities Plan, the Urban Community Boundary generally circumscribes the existing communities of Waipahu, Wahiawa, and Mililani, and planned developments of Royal Kunia, Wahiawa, Mililani, Mililani Mauka, Koa Ridge Makai, Waiawa, Waiawa Castle & Cooke, Waiawa Mauka, Gentry Waipio, Waikele and Mililani Technology Park, and excludes:

- areas outside of the State Urban District, with the exception of Koa Ridge Makai, portions of Waiawa, Waiawa Castle & Cooke, and Waiawa Mauka, and a portion of Royal Kunia;

- areas inside the State Urban District which are in either the Preservation or Agriculture Zoning Districts, with the exception of the Phase II of the Mililani Technology Park (which has Development Plan approval for urban use, but had not been rezoned as of February 1999) and a residential project of about 100 acres proposed for a site in Mililani Mauka previously proposed for the University of Hawaii West Oahu campus.

Agriculture Boundary

The agriculture boundary is to protect important agriculture lands for their economic and open space values, and for their value in helping to give a region its identifiable character. This boundary is not displayed as a discrete boundary line on the Open Space, Land Use, Public Facilities, and Phasing maps. It is implied, rather by the "agriculture" land use designations outside the Urban Community Boundary.

Lands within this boundary include agriculturally valuable lands outside the Urban Community Boundary. They include agriculturally important lands designated by ALISH as "prime," "unique," or "other."

Preservation Boundary

The primary purpose of the Preservation boundary is to protect lands which are not valued primarily for agriculture, but which form an important part of a region's open space fabric for their natural, cultural, or scenic resource values. The boundary generally circumscribes undeveloped lands designated "Preservation" outside the Urban Community Boundary on the Open Space, Land Use, Public Facilities, and Phasing maps.

Preservation Areas

Preservation lands include those lands not valued primarily for agriculture, but which form an important part of a region's open space fabric. They possess natural, cultural, or scenic resource values, and include important wildlife habitat, cultural sites, significant landforms, views, or hazard areas. They include the following types of land:

- Land necessary for protecting watersheds, water resources and water supplies.
- Lands necessary for the conservation, preservation and enhancement of sites with scenic, historic, archaeologic or ecologic significance.
- Lands necessary for providing and preserving park lands, wilderness and beach reserves, and for conserving natural ecosystems of endemic plants, fish and wildlife, for forestry, and other related activities to these uses.
- Lands with topography, soils, climate or other related environmental factors that may not be normally adaptable or presently needed for urban, rural or agricultural use.
- Lands with general slopes of 20 percent or more which provide for open space amenities and/or scenic values.
- Lands susceptible to floods and soil erosion, lands undergoing major erosion damage and requiring corrective attention by the State or Federal Government, and lands necessary to the protection of the health, safety and welfare of the public by reason of soil instability or the lands' susceptibility to landslides and/or inundation by tsunami and flooding.
- Lands used for national, state or city parks.
- Lands suitable for growing of commercial timber, grazing, hunting, and recreation uses, including facilities accessory to such uses when said facilities are compatible with the natural physical environment.

Agriculture Areas

Lands with agricultural value by virtue of current agricultural use or high value for future agricultural use, including those areas identified as Prime, Unique, or Other Important lands on the Agricultural Lands Important to the State of Hawaii (ALISH) maps. "Agriculture" includes lands suitable for crop growing, grazing and livestock raising, flower cultivation, nurseries, orchards, aquaculture, or similar activities.

OPEN SPACE MAP

The Open Space Map illustrates the vision for the Central Oahu Open Space Network which would consist of large areas of preservation and agricultural lands outside the Urban Community Boundary and a network of parks, wildlife habitats, golf courses, agricultural lands, ravines, grass-lined drainageways, and greenways along utility corridors and major arterials within the Urban Community Boundary. (See definitions of terms and discussion in Sections 2.2.1, 2.2.2, 2.2.3 in Chapter 2 and in Section 3.1 in Chapter 3.)

The Open Space Map is intended to illustrate the region's major open space patterns and resources as outlined in Chapter 3. It highlights major open space elements and resources, including agricultural and preservation lands, major recreational facilities, important "panoramic" views, natural stream corridors and drainageways, and important boundaries.

Military Training Areas

Open space areas used by the military for training purposes.

Urban Areas

Areas which have been developed or are planned for development for residential, commercial and industrial uses.

Wetlands

Habitat areas for endangered waterbirds located on the shoreline of Pearl Harbor which are to be protected.

Historic Railway/Bikeway Corridor

Part of a continuous shoreline park and greenbelt stretching from West Loch to Rainbow Marina near Aloha Stadium with a connection to the Waipahu Cultural Garden Park. The corridor would include a shoreline bike path and a restored OR&L right-of-way that would allow train operations between Ko Olina and Waipahu with a possible extension on to the Makalapa area in the Primary Urban Center.

Natural Drainageways/Gulches

Natural waterways which are to be retained as flood plains and open space resources and protected from development, disturbance, or channelization except where absolutely necessary to protect existing urban development from flooding.

Panoramic Views

Significant views and vistas which are to be retained, whenever possible. (See Table 3.1 and Section 3.4.2.)

Landscaped Boulevard/Greenway

Major arterials and major collector streets which should be developed as landscaped parkways, complete with a landscaped median strip, landscaped sidewalk, and bikeways. (See Sections 3.1.4.8 and 3.8.2.4.)

URBAN LAND USE MAP

The Urban Land Use Map illustrates the vision for the foreseeable future for Central Oahu's land uses within the Urban Community Boundary. It portrays the vision for revitalization of Waipahu and Wahiawa, for the development of master planned residential communities, and for creation of new jobs in existing and planned community shopping centers, at Mililani Technology Park, and at a new medical park at Koa Ridge. (See definition of terms and discussion in Sections 2.2.4, 2.2.5, 2.2.6, 2.2.7, and 2.2.10 in Chapter 2, and in Chapter 3.)

This map illustrates the desired long-range land use pattern for Central Oahu. It supports the plan's vision and policies. The map includes the following terms:

Parks

Public and private parks and recreational facilities, including beach parks, playgrounds, playfields, district parks, botanical gardens, zoos, and golf courses.

Residential Uses

In certain instances, residential designations displayed on the map may denote the predominant residential pattern but also contain minor occurrences of other residential categories. For instance, "rural residential" may contain minor pockets of "low density apartment." These distinctions are cited and elaborated on in the text.

Rural Single-family homes on large lots. On-site development is characteristically low-intensity, typically consisting of a single-family detached home, ancillary structures if necessary, low site coverage, non-urban development standards, and a large predominance of landscaped open space.

Rural Residential Single-family homes in country settings on medium-sized to large lots, on which rural development standards are employed and provisions for pedestrian circulation, landscaping, and open space are emphasized.

Residential Single-family detached and attached homes or townhouse units with individual entries.

Low-Density Apartment Low-density, low-rise, multi-family residences, including townhouses, stacked flats, or apartment buildings.

Medium-Density Apartment Medium-density, low- to mid-rise multi-family residences which may occur in mixed-use contexts, with the ground or lower floors occupied by retail or service commercial uses.

High-Density Apartment High-density, mid- to high-rise multi-family residences consolidated into large structures.

Commercial

The following commercial designation descriptions summarize the types of commercial establishments within the region. As with the overall approach taken by the plan, they indicate vision and intent.

Rural Community Commercial Center A small cluster of small-scale, low-rise commercial and service businesses which serve primarily the immediate community. Its primary visual appearance is rural. Buildings are generally compatible in scale and form with adjacent residential areas.

Rural Regional Commercial Center A consolidated cluster of small-scale, low-rise retail, office, and dining establishments that serve the immediate and nearby communities. Its primary visual appearance is rural, pedestrian circulation and amenities are emphasized to and throughout the complex, and structures are compatible in scale and form with adjacent residential areas. While supermarkets are encouraged, "big box" retail is not.

Country Town A small-scale, low-rise, mixed use center of commerce and community activity in rural character and setting in which principal establishments are oriented to the street. Land use mixtures may include retail, office, and dining establishments, compatible service businesses and light industry, and residential uses. Commercial activity is concentrated along street frontages in typically "Main Street" settings.

Neighborhood Commercial Center An urban or urban fringe commercial center cluster of commercial establishments intended for neighborhood service in urban and urban fringe areas. Uses are typically grocery and sundry stores and other services or shops catering to common household or neighborhood-level convenience items. (See Sec. 3.9.1.1, 3.9.1.2, and 3.9.3.1.)

Community Commercial Center An urban or urban fringe commercial center intended to serve a specific community and its constituent neighborhoods. In addition to facilities offered by Neighborhood Centers, this type of center often incorporates "anchor" tenants and includes offices, service industrial businesses, entertainment facilities, and social centers. (See Sec. 3.9.1.1, 3.9.1.3, and 3.9.3.2.)

Major Community Commercial Center A shopping center intended to serve large planned communities which are not located near an Urban Center. These centers offer similar shopping and service opportunities as Community Commercial Centers at greater variety and large scale. (See Sec. 3.9.1.1, 3.9.1.4, and 3.9.3.2.)

Regional Shopping Center An urban or urban fringe shopping center with major commercial outlets and a regional or islandwide service area. (See Sec. 3.9.1.1 and 3.9.1.5.)

Regional Town Center An urban fringe town which serve as a center for shopping, civic activity, and municipal services for its region. It offers a wide range of shopping and dining opportunities and professional, business and industrial services.

Industrial

Facilities for light- and service-related industrial uses associated with repair, processing, construction, manufacturing, transportation, wholesaling, distribution, storage and similar economic activities. Industrial areas also include a range of compatible commercial activities, except where otherwise specified within the text of the Development and Sustainable Communities Plans. (Areas intended primarily for more intensive, noxious industrial uses are specified in the text of specific Development and Sustainable Communities Plans.)

Technology Park

Facilities intended for light, technology and service-oriented industrial and business uses, developed in a campus-like setting. Development intensity is low, while open space and landscaping are the predominant visual and physical elements.

Medical Park

Medical diagnostic and treatment, research, and education centers developed in a campus-like setting. Building heights and densities comparable to those allowed for technology park.

Institutional

Facilities for public use or benefit, including schools, churches, hospitals, group living establishments, utilities and infrastructure production or support facilities, civic, public, and social services facilities, and government facilities.

Military

Lands for military and military support purposes.

Transit Node (Medium-Density Residential and Commercial)

Center of medium-density residential and commercial development located along a planned rapid transit corridor connecting Waipahu with the City of Kapolei to the west and to the Primary Urban Center to the east. (See Sections 3.5 and 4.1.3.2.)

PUBLIC FACILITIES MAP

The Public Facilities Map illustrates the major infrastructure needed to implement the vision for Central Oahu. It shows the location of existing facilities and conceptual locations for future facilities. It is not meant to be amended between revisions of the Plan.

Public facilities not listed in the Plan will be shown on a Public Infrastructure Map which is not part of the ***Sustainable* Communities Plan** and is adopted and amended by resolution. (For definitions, information about existing and planned public facilities, and functional planning processes, see Chapter 4 and Sec. 5.3 in Chapter 5.)

For Central Oahu, terms on the Public Facilities Map which have not been previously defined include:

Bike Path

A biking facility (bikeway) which is separate from the roadway network.

Bike Lane

A biking facility (bikeway) which is a four- to six-foot lane exclusively for bike use which is included in a roadway.

HOV (High Occupancy Vehicle) Lane

An exclusive lane on a roadway reserved for transit and vehicles with more than one occupant which is developed to improve transit speed and to provide incentives for commuters to opt for mass transit or carpooling.

Park & Ride Site

Special parking lots where commuters park their cars and continue their commute by mass transit.

Transit Corridor

An area designated for establishment of communities that do not require use of the automobile to go to work, school, shop, or have fun because they have access to high speed mass transit. Areas along the corridor will be supported for medium-density residential and commercial development to permit efficient use of buses and other forms of mass transit on the corridor. Sufficient land will be reserved in the corridor so that an at-grade separated rapid transit system can be developed in the future. (See Sections 2.2.7, 3.8.1.2, and 4.1.3.2.).

In addition, the Public Facilities Map also displays the following types of facilities:

- Highways, Arterial & Major Collector Streets
- Grade Separated Interchange
- Historic Railway/Bikeway Corridor
- Transit Node
- Parks and Golf Courses
- Wetlands
- Intermediate School
- High School

- Hospital
- Civic Center
- Airfield
- Cemetery
- Correctional Facility
- Wastewater Treatment Plant
- U.H. Leeward Community College
- Corporation Yard

PHASING MAP

The Phasing Map shows where urban development has already occurred in Central Oahu, where new development will take place within the Urban Community Boundary, and where the areas are that have Special Area Plans (Waipahu and Wahiawa).

Existing Urban Areas

Areas which already have been developed for residential, commercial, or industrial uses. Growth in such areas can occur through re-development or in-fill.

Urban Expansion Areas

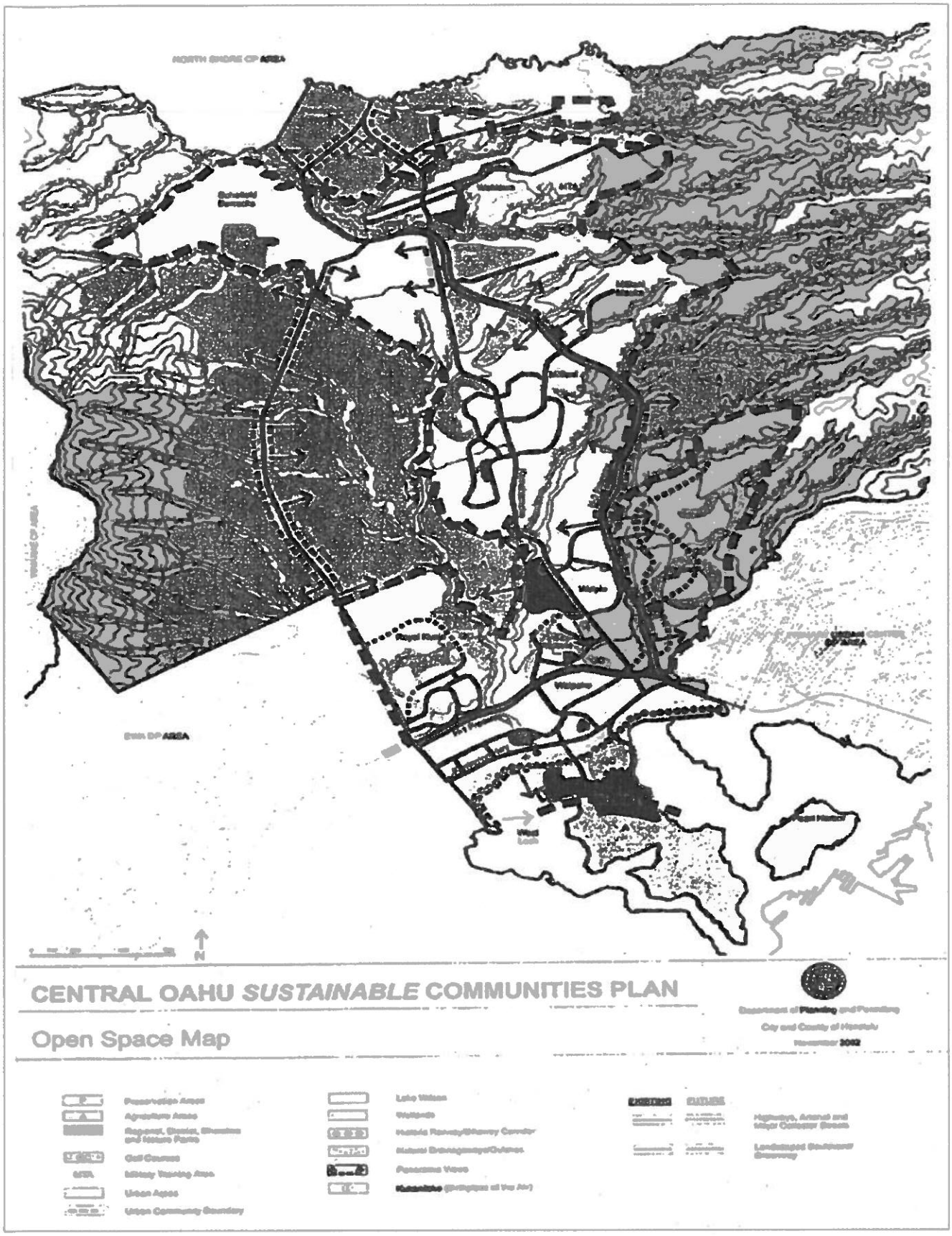
Undeveloped areas formerly in agricultural uses which are either already approved or will be considered for approval for development for residential, commercial or industrial uses. Applications for zone changes and other development approvals needed for new urban development in the Urban Expansion Area will be accepted for processing, and will be supported for approval if the project supports the vision and implementing policies of the Central Oahu Sustainable Communities Plan and if adequate infrastructure can be provided. (See Sections 2.2.10 and 5.1.2.) Total acreage is estimated at almost 3,200 acres with capacity for development of over 24,000 housing units. (See Table 2.2.)

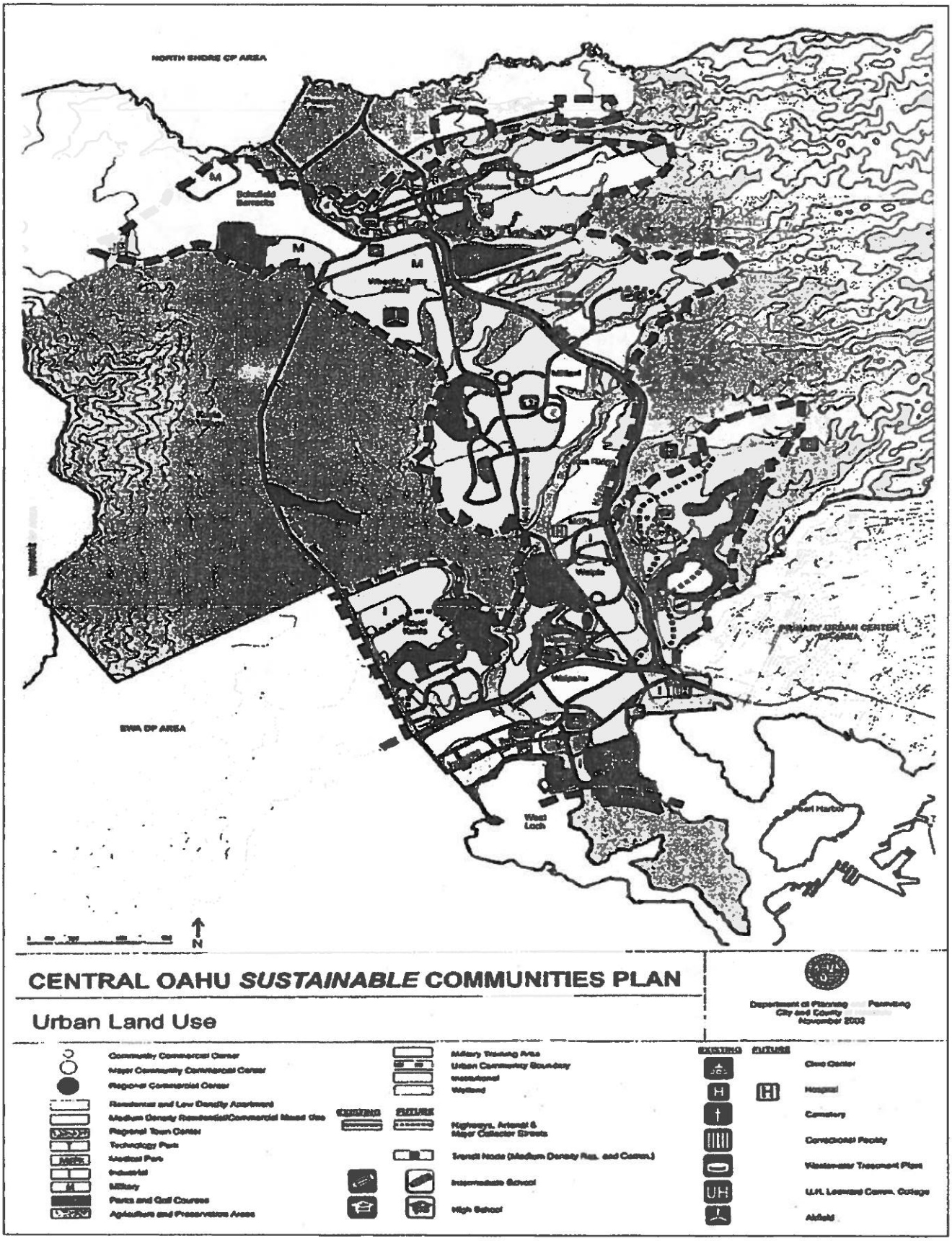
Special Areas

Areas which require more detailed planning than can be provided in the ***Sustainable* Communities Plan** (See Section 5.2). Waipahu and Wahiawa are the only areas in Central Oahu currently designated for a Special Area Plan.

- The **Waipahu Town Plan** was completed in December 1995 and the **Waipahu Livable Communities Initiative** in May 1998 (see Section 3.5).

- The **Wahiawa Urban Design Plan** was prepared and transmitted to the City Council in 1998 (see Section 3.6).


CENTRAL OAHU SUSTAINABLE COMMUNITIES PLAN
Open Space Map


NORTH SHORE DP AREA
PRIMARY URBAN CENTER DP AREA
EWA DP AREA
CENTRAL OAHU SUSTAINABLE COMMUNITIES PLAN
Urban Land Use
Community Commercial Center
Major Community Commercial Center
Regional Commercial Center
Residences and Low Density Apartment
Medium Density Residential/Commercial Mixed Use
Regional Town Center
Technology Park
Medical Park
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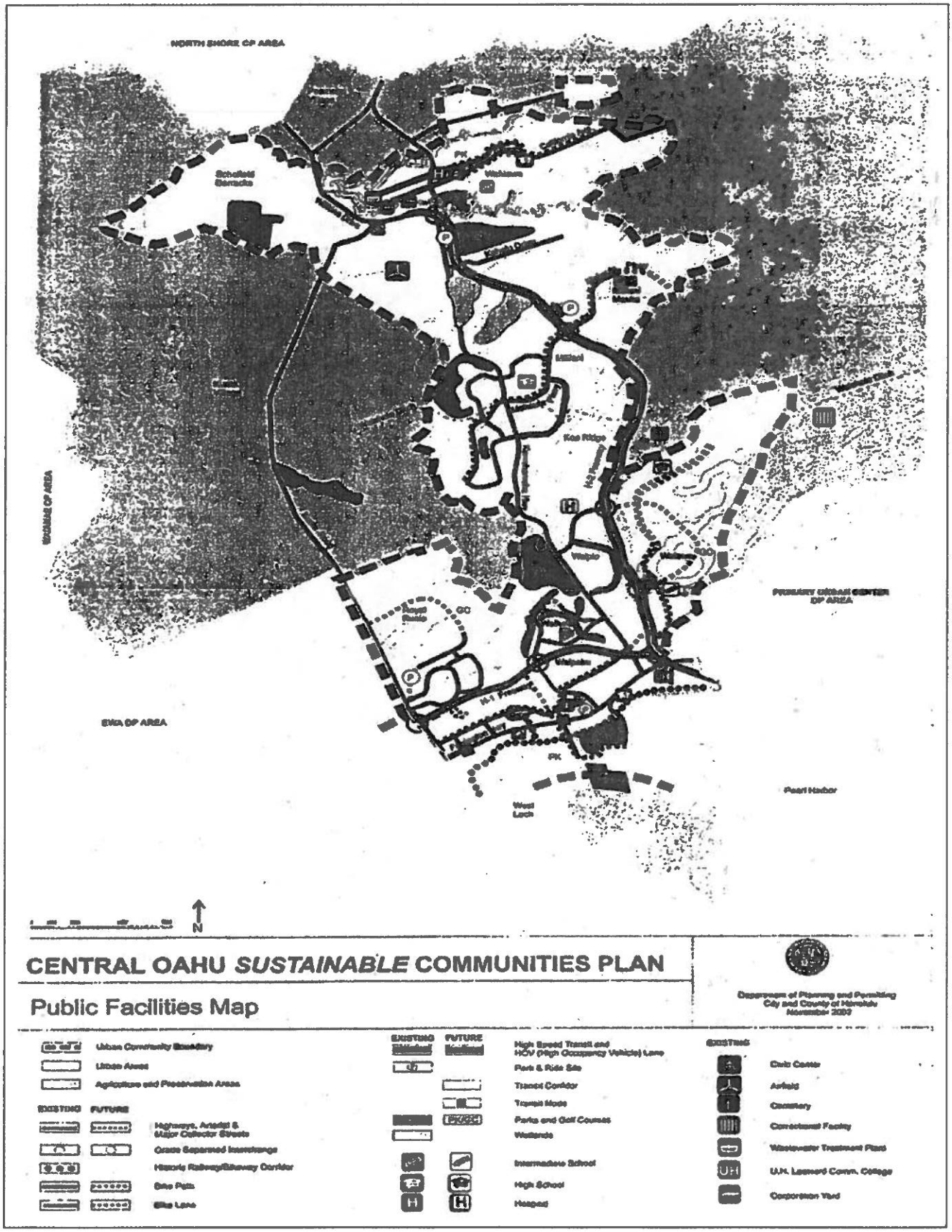
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CENTRAL OAHU SUSTAINABLE COMMUNITIES PLAN
Public Facilities Map
Department of Planning and Permitting
City and County of Honolulu
November 2002
Urban Community Boundary
Urban Areas
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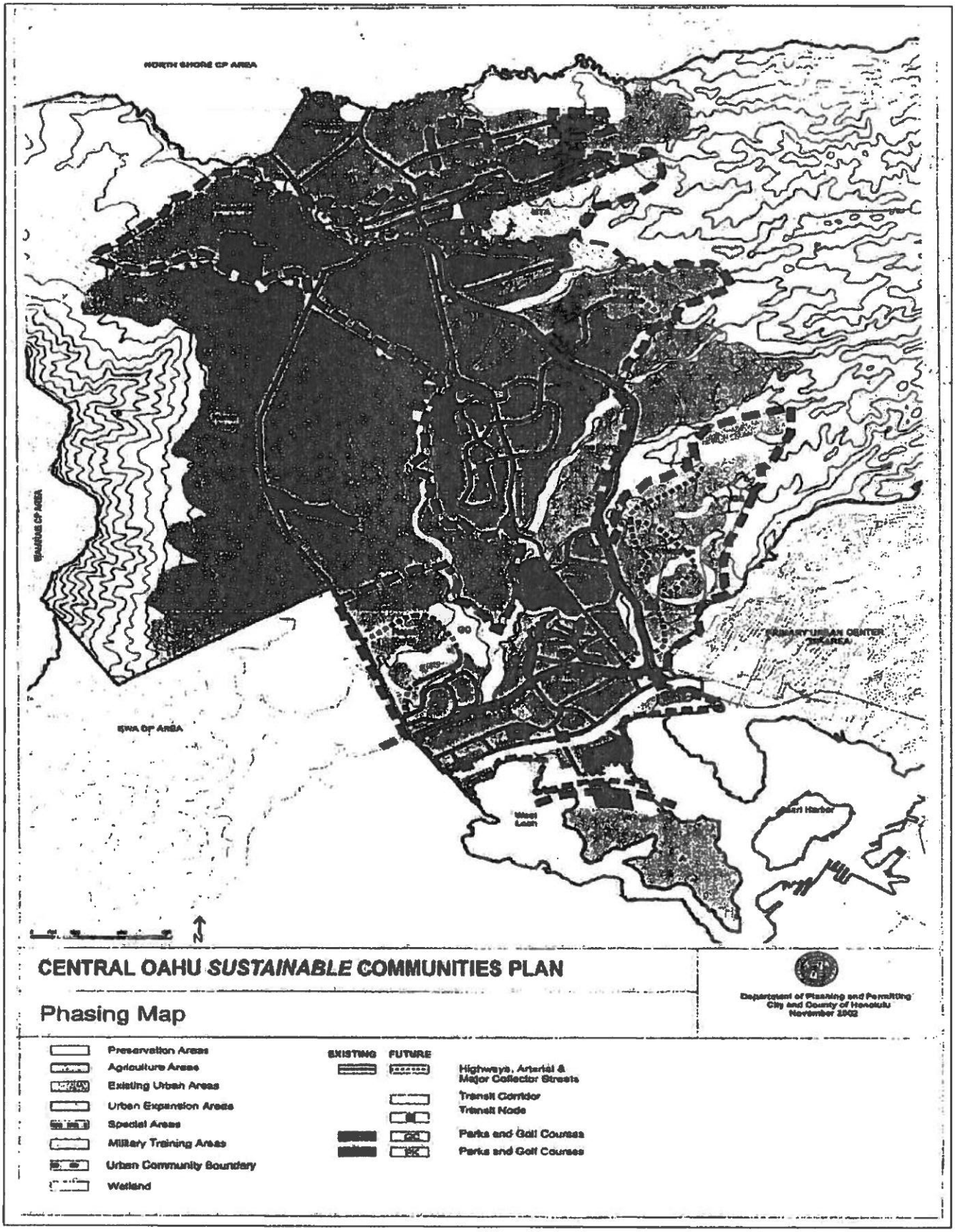
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