

- Mauna Lahilahi Beach Park
- Mākaha Beach Park
- Kea‘au Beach Park
- Mākua Beach Park (state-owned)
- Ka‘ena Natural Area Reserve

There are at least four sections of the Wai‘anae shore zone that are experiencing significant chronic erosion: Mā‘ili Beach, Mauna Lahilahi Beach Park, Mākaha Beach, and Keawa‘ula Bay. The erosion of shores and beaches is a natural process that affects certain coastal areas. Generally, “shore armoring” devices such as seawalls and rock groins are not appropriate solutions to these erosion problems. Shore armoring often results in still more severe shore erosion in areas near the “armored” site.

In addition, these coastal areas may eventually be affected by sea level rise. In response, all planning for these areas should consider both the known and potential effects of sea level rise.

Overall, the coastal lands of the Wai‘anae District are important cultural, scenic, and recreational resources, and must be preserved and protected for the benefit of present and future generations.

3.3.2 Policies Pertaining to Coastal Lands

3.3.2.1 Do Not Allow New Coastal Development

There should be no new residential, commercial, industrial, resort, or other urban or suburban type of development *makai* of Farrington Highway, with the exception of new development or redevelopment of low-rise commercial and public buildings associated with the development of Wai‘anae Country Town and future improvements to the Wai‘anae Boat Harbor.

3.3.2.2 Incrementally Acquire Coastal Properties

The long-range goal for the coastal lands of the Wai‘anae District should be the establishment of a coastal zone that is free of urban or suburban development and that is open to public access and public recreation. In working toward this goal, opportunities to acquire parcels or rights-of-way in coastal areas for public use should be pursued, especially for lands adjacent to public parks. Any such acquired parcels should be restored to open space and made available to public access and/or public recreational use.

The acquisition of land for the expansion and improvement of Pōka'i Bay Beach Park should be a top priority. The U.S. Army Rest Camp should be programmed for eventual return to the general public.

3.3.2.3 Discourage Shore Armoring

Shore armoring along any beaches of the Wai'anae District, including seawalls, groins, and breakwaters, should generally be discouraged.

3.3.2.4 Government Agencies Should Partner with Community-based Organizations in order to Better Manage Wai'anae's Coastal Lands

Government agencies should partner with community-based organizations to better manage coastal lands and their natural and cultural resources, as described in Section 2.3.10. Specific to the management of coastal lands, these groups should educate and monitor the community on using best fishing and gathering practices along the coast, such as the prohibition of laying net and leaving it unattended.

3.3.2.5 Prohibit Projects that Negatively Impact Coastal Lands

Approvals should not be granted for uses or projects that may negatively impact the natural ecology, scenic beauty, or cultural practices on coastal lands, or that may increase user conflicts on the beach or in nearshore waters.

3.3.2.6 Prevent the Introduction of Alien Species

Every effort should be made to prevent the introduction of marine alien species.

3.3.2.7 Maintain Beaches/Sand

All sand that is found along the Wai'anae Coast, whether it is part of a formally recognized beach or not, should be maintained as much as possible. Any proposed projects along the coast should not significantly impact the sand found there naturally.

3.3.3 Relation to Land Use and Open Space Maps

Coastal Preservation lands are shown on the Land Use and Open Space Maps in Appendix A.

3.4 MOUNTAIN FOREST LANDS

3.4.1 Overview of Mountain Forest Lands

The important forest lands of the Wai'anae District include the steep ridges and *pu'u* near the coast and the slopes and peaks of the Wai'anae Mountains that form the backbone and scenic backdrop of the region.

Botanical historians believe that Wai'anae once supported a dryland forest in the lower coastal plain area, grading gradually to wetter forest types in the upper parts of the valleys and the slopes of the mountains, and finally culminating in the wetland forest of the high elevations, with abundant ohia lehua, sandalwood, and associated native plant species.

The natural landscape began to change with the first settlements of Native Hawaiian people here some 800 to 1,000 years ago (Cordy, 1998). Today, little of these natural forest communities remain, except in the highest elevations of the Wai'anae Mountains. The higher elevations of the mountains are still important habitat for rare and endangered plants, as well as for endangered animal species like the Elepaio, a rare forest bird, and the Achatinella tree snail.

Preservation and restoration of these upper mountain forest lands, the lowland forests, the forest resources, and their cultural uses are of great importance to the Native Hawaiian people, to the Wai'anae community, and to the people of O'ahu.

These forests and the resources found there are of great cultural, historical, and medicinal importance to Native Hawaiians. The forests are tied to religious beliefs and are referenced in various *mo'olelo* as places where the *mo'o* (lizard) and other *aumakua* (deified ancestors) live. Numerous herbs and plants have long been gathered from the forests for a variety of uses, including medicinal, as well as for special items used in *hula* (traditional Hawaiian dance) and *lua* (Hawaiian martial art). Those plants used for these purposes should be protected, and in some cases, re-planted. The existence of these forest resources is inextricably connected to the health and wellness of Wai'anae residents, especially the Native Hawaiian population. An issue related to the protection of mountain forest resources is access to these resources. Access should be ensured for such gathering purposes.

Another use of these lands is hiking. There are numerous hiking trails that lead into the mountains, and some along the dramatic ridgelines. This Plan advocates for public access to existing hiking trails, including those that require passage through residential areas, as well as through military and agricultural lands.

Lastly, it should be noted that these forest areas can become extremely dry, especially during the summer months, and hence, are prone to wildfires. Accordingly, a wildfire prevention plan should be developed to prevent future fires.

3.4.2 Policies Pertaining to Mountain Forest Lands

3.4.2.1 Protect Mountain Forest Lands

Preserve and protect the Mountain Forest Lands of the Wai'anae District in their natural state – both the upper and lowland forests.

3.4.2.2 Develop Forest Restoration Program

Coordinate plans and programs towards the restoration of endemic and indigenous forest plants and animals in the Forest Lands of the Wai'anae District. Examples of appropriate native trees to plant include: Kamani, Ulu, Ohi'a'ai, Lama, Kawila, Iliahi, Koae'a, and the Hala bush. Additionally, the herbs and plants used for Native Hawaiian medicinal and cultural practices should be identified, protected, and re-planted where needed.

3.4.2.3 Do Not Grant Permits that Negatively Impact Mountain Forest Lands

Land use permits should not be granted to any uses of the District's forest lands that may degrade the natural ecology, scenic beauty, or restrict access to Native Hawaiian cultural practices carried out on these lands.

3.4.2.4 Government Agencies Should Partner with Community-based Organizations in order to Better Manage Wai'anae's Mountain Forest Lands

Government agencies should partner with community-based organizations to better manage Wai'anae's mountain forest lands and their natural and cultural resources, as described in Section 2.3.10. Specific to the management of forest lands, these groups should develop a list of appropriate native trees, plants, and herbs that should be protected and re-planted, and where. They should also educate the community about the amount and seasonal times that the various resources can be gathered, and monitor the gathering activities. One of the greatest potential challenges for these groups could be dealing with property rights and working with land-owners.

3.4.2.5 Protect Rare and Endangered Species

Avoid or minimize development and human impacts in areas known to provide important habitat for rare species, especially those that are listed as threatened or endangered

species. The Wai'anae SCP Background Report (1999) contains information from the U.S. Fish and Wildlife Service (USFWS) on such species.

3.4.2.6 Prevent the Introduction of Alien Species

Prevent the introduction of alien plant, mammal, bird, and insect species that could compete with, prey upon, or hybridize with native species. Additionally, alien or invasive species should be eradicated, or at least controlled. The current control measures for goats and pigs, including fencing and hunting, should be enhanced.

3.4.2.7 Allow Public Access to Hiking Trails

The public should be allowed to access existing hiking trails, including those that require passage through residential, military, and agricultural lands.

3.4.2.8 Develop Wildfire Management Plan

A wildfire management plan should be developed for the Wai'anae District.

3.4.3 Relation to Land Use and Open Space Maps

Mountain Forest Lands to be preserved are designated as "Preservation" on the Land Use and Open Space Maps.

3.5 STREAMS AND FLOODPLAINS

3.5.1 Overview of Streams, Stream Systems, and Floodplains

The streams of the major valleys of the Wai'anae Coast have always been considered a sacred part of the natural landscape. The streams traditionally provided precious fresh water for drinking, agriculture, production of special marine life, cultural practices, as well as for other daily uses, including bathing and washing.

The major valleys – Nānākuli, Lualualei, Wai'anae, Mākaha, and Mākua – have well-articulated systems of intermittent streams: Nānākuli Stream, Ulehawa Stream and Mā'ili'ili'i Stream in Lualualei Valley, Kaupuni Stream and Kawiwi Stream in Wai'anae Valley, Mākaha Stream and Mākua Stream. In recent years, the *makai* sections of the streams in Lualualei and Wai'anae Valleys have been replaced with concrete drainage channels.

Descriptions of these streams in the source material label them as “perennial” (flowing all year round) in the upper reaches of Wai‘anae Valley and Mākaha Valley, and “intermittent” (flowing only after significant rainfalls) in the lower parts of these two valleys and in the other valleys of the region. Groundwater stored in the high elevation dike-structure of volcanic rocks discharges as seeps and springs that form the “base flow” – the fair weather flow – of the higher level perennial streams. The relative absence of perennial streams here is a reflection of the generally arid climate and the alluvial soils of the valleys, through which the streams become nonvisible “underflow.”

The point at which a particular Wai‘anae stream changes from perennial flow to intermittent flow depends on a number of natural factors, including:

- The season: with flows stronger during the wetter winter months;
- The year: with flows stronger during wetter years.

During the past 1 million+ years, the region’s streams have accomplished the immense job of sculpting the slopes of the Wai‘anae volcano and forming the deep valleys that we see today. Thus we can see that these streams are powerful shapers of the landscape. However, these streams are relatively small water features, and are vulnerable to the negative impacts of human development.

Negative impacts include runoff from agricultural lands, with sometimes high concentrations of silt, herbicides, pesticides, and farm animal wastes; runoff from urban lands, with herbicides, oils, grease, paint products and other harmful and toxic substances; dumping of trash, broken appliances, old cars, etc.; and various acts of grading and filling that result in faster runoff into area streams, with attendant erosion of natural stream banks. Unfortunately, development which results in damage to natural streambeds often eventually requires the construction of concrete channels to “manage” the urban runoff. The net result: the natural stream channel and flood plain are completely obliterated.

Wai‘anae’s streams are important elements of the landscape. They are the natural “arteries” of the valleys, bringing water down into the valleys from the mountains. They are a special environment for fresh water plants and animals, and also provide ribbons of fertile floodplain soils through the predominantly plastic and sticky soils of the alluvial valleys. Healthy streams are an indicator of a healthy landscape; sick streams indicate poor land use practices and uncontrolled agricultural and urban runoff.

3.5.2 Polices Pertaining to Streams and Floodplains

3.5.2.1 Establish Stream Conservation Corridors

Stream Conservation Corridors should be established where feasible as an element of the Wai'anae Sustainable Communities Plan. These Stream Conservation Corridors are illustrated on the "Open Space Map" in Appendix A.

Appropriate City, State, and Federal agencies should work with the community to establish a strong, pro-active program for the detailed delineation of Stream Conservation Corridors and the establishment of appropriate and enforceable rules, regulations, fines, penalties, and community monitoring and oversight programs for the protection of streams and stream floodplains.

Streams where Stream Conservation Corridors should be established include the following:

- Nānākuli Stream
- Ulehawa Stream
- Mā'ili'ilī'ī Stream
- Kaupuni Stream
- Kawiwi Stream
- Mākaha Stream
- Mākua Stream

Existing residential and other development may limit the delineation of Stream Conservation Corridors in some areas. However, these corridors should be established to the fullest extent possible.

3.5.2.2 Restrict Uses Within the Stream Conservation Corridors

Uses and activities within these Stream Conservation Corridors should be restricted to natural resources conservation uses and programs, compatible recreational uses such as walking and gathering of native plants and stream animals, and controlled diversion of stream waters for agricultural purposes. Other compatible uses should be permitted as may be defined by the agency with jurisdiction. There should be no dumping, littering, disposal of toxic or hazardous materials, disposal of animal or human wastes, or other activities that may be deleterious to stream quality and stream ecosystems. There should also be no filling, grading, or other significant changes to the natural contours within a Stream Conservation Corridor unless there is an overriding need for such action that relates to public health, safety, or welfare.

3.5.2.3 Establish Minimum In-Stream Flow Standards

There is a need to develop a cooperative government-community program toward the establishment of minimum in-stream flow standards for the perennial streams of the upper valleys of Wai‘anae, Mākaha, Mākua, Lualualei, and Nānākuli. The overall objective of such a program would be to adequately protect fishery, wildlife, recreational, aesthetic, scenic, and other beneficial in-stream uses. The setting of instream flow standards would weigh the benefits of instream and non-instream uses of water resources, including the economic impact of restrictions of such uses. The establishment of flow standards is a scientifically and culturally complex process that will require a significant amount of time.

3.5.2.4 Government Agencies Should Partner with Community-based Organizations in order to Better Manage Wai‘anae’s Streams and Stream Corridors

Government agencies should partner with community-based organizations to better manage Wai‘anae’s Streams and stream corridors, as described in Section 2.3.10. One of the greatest potential challenges for these groups will be dealing with property rights and working with land-owners.

3.5.3 Relation to Open Space Map

Stream Conservation Corridors are schematically shown on the Open Space Map.

3.6 HISTORIC AND CULTURAL RESOURCES

3.6.1 Overview of Historic and Cultural Resources

The Wai‘anae Coast, from Honouliuli to Ka‘ena, is a geographical area that is known for its religious and spiritual significance. Kuilioloa, Puehu, Keaupuni, Kahoali‘i, Haua, Haena, Malaihakoa, Kamaile, Punanaula, Kaneaki, and Laukinui are just some of the *na heiau* (ancient temples) that were used and designated for war, agriculture, astronomy, navigation, and religious purposes. Numerous places on land and in the ocean have historic and religious significances that are still being handed down from generation to generation, including land areas, rocks (such as Leina A Ka‘uhane – from where spirits leaped into the nether world at Ka‘ena), cliffs, and reefs.

The Wai'anae area was first settled by Hawaiians about 800 to 1,000 years ago. Current models of Hawaiian history have permanent settlement on O'ahu being focused on the wet, windward sides of the island from perhaps A.D. 0 to A.D. 900. During those years, residents of that side of the island often visited the leeward sides to use various resources -- fishing areas, bird colonies, the shellfish of Pearl Harbor, etc. to sustain themselves. Small campsites associated with those visits may be found throughout the leeward area. In the Wai'anae District, such a site appears to have been present in Wai'anae Valley along Pōkai Bay in the Wai'anae Army Recreation Center.

Beginning about A.D. 1000, it appears that the population spread over into the leeward areas of O'ahu, and people settled the lower valleys of leeward O'ahu from the 1000s-1300s. Dates from Pearl Harbor, Kalihi, and Mākaha and Wai'anae Valleys all show people were residing in coastal areas and farming the lower valleys.

In the 1300s, oral histories indicate larger moku formed on O'ahu -- apparently Kona district (Honolulu), Ko'olau Poko/Ko'olau Loa, and 'Ewa (with Wai'anae and Waialua) were the three moku which formed. This marked the start of more complex and more stratified societies. By the 1400s, the entire island was unified. Large *heiau* in the islands started to be built in the 1400s, based on archaeological information, and large fishponds also began to be built by this time -- all evidence of more stratification and countries with larger populations. From the 1400s-1700s, population grew on the island. People spread up into the upper valleys, where scattered houses and fields were established. In the 1700s, oral histories show that O'ahu expanded to control all of Molokai and parts of Kauai. However, the O'ahu kingdom fell to Maui in 1783, and Maui fell to the Hawai'i Kingdom in 1795.

Throughout these years, the Wai'anae District was distant from the ruling centers of the O'ahu and later kingdoms -- which were primarily in Waikiki, the 'Ewa area, and in Kailua. Within the Wai'anae District, Wai'anae Valley was the political and religious center of the area. The high chief controlling much of the area had a residence in Wai'anae Valley (where the ruler resided when passing through) and large sacrificial temples (*luakini*) were present in Wai'anae, with one also in Mākaha. All of the Wai'anae lands filled in during these years, with farms covering the land up into the uppermost valleys, and with houses scattered among these farms.

Almost every valley in Wai'anae District today still contains archaeological sites associated with O'ahu's and Wai'anae's history. Many of these sites are important to local people as traditional and cultural sites. The upper valleys, beyond the limits of contemporary development, are nearly all covered with archaeological sites. The coastal dunes contain sites (including burials), which are hidden under the ground surface. Sometimes these sites survive under existing buildings, and scattered *heiau* also still survive.

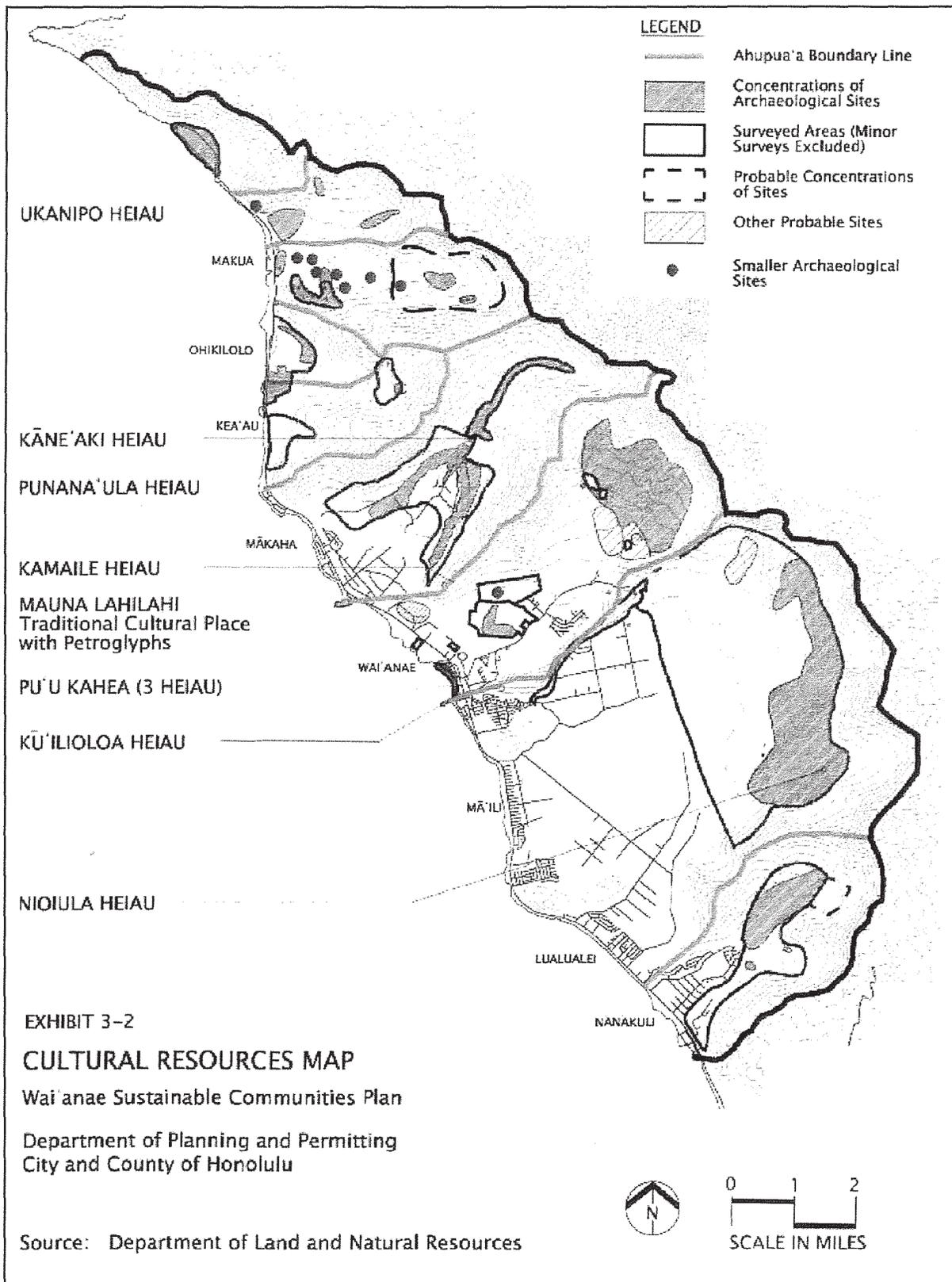
Based on archaeological studies completed to date, the Historic Preservation Division of the State Department of Land and Natural Resources provided a summary of the important cultural sites and resources of the Wai'anae district, as follows:

“Information on archaeological properties in the Wai'anae District varies with survey coverage. Since 1987, most developments have been preceded by an archaeological survey (if needed) as part of the historic preservation laws' review process. Also, the Army and Navy have conducted surveys of their lands. Lands that were developed for housing, schools, businesses, etc., prior to 1987 often were not surveyed, and information on archaeological sites in those areas comes from older 1930 or earlier archaeological studies which usually simply identified *heiau*. Copies of these reports are on file in the library at the State Historic Preservation Division (Department of Land and Natural Resources, State of Hawai'i).”

The only fairly complete large archaeological surveys that have been done are in upper Nānākuli (done by the State Historic Preservation Division), in upper Lualualei (done by the Bishop Museum), in mid to upper Mākaha (done by the Bishop Museum), and on the coastal flats of Kea'au (done by International Archaeological Research Institute, Inc.). Other areas of the district have much smaller areas that have received complete coverage, or areas where only initial reconnaissance information is available. Many areas of the district have yet to undergo archaeological survey.

Many of these historical and cultural sites and concentrations of sites are of great importance to the community, including those that have not yet been officially documented. The community would like to see funds dedicated to archaeological surveys of areas not yet surveyed, and to the creation of a cultural resource map that more thoroughly shows the extensive number of cultural sites located in the area.

The following map shows only a small percentage of the numerous sites located within the District.



3.6.2 Policies Pertaining to Historic and Cultural Sites

3.6.2.1 Preserve Major Concentrations of Cultural Sites and Allow Access for Cultural Practices

The large concentrations of historical and cultural sites found in the upper reaches of the valleys of the Wai‘anae District are included in the Preservation areas. These important cultural landscapes should be preserved and protected for the benefit of the community and of future generations. Careful restoration of important sites should be undertaken by qualified professionals.

3.6.2.2 Do Not Allow Development that Negatively Impacts Important Cultural Sites or Access to such Sites

Other important historical and cultural sites not located within the Preservation areas should also be recognized and protected wherever possible. Urban or agricultural development projects should not be permitted to degrade or destroy important historical or cultural sites. “Important historical and cultural sites” should be determined by the State Historic Preservation Division in collaboration with the community.

3.6.2.3 Government Agencies Should Partner with Community-based Organizations in order to Better Manage Wai‘anae’s Cultural Sites

Government agencies should partner with community-based organizations to better manage Wai‘anae’s cultural sites, as described in Section 2.3.10. Such management will include preservation, restoration, and monitoring of cultural sites. One of the greatest potential challenges for these groups will be dealing with property rights and working with land-owners.

3.6.2.4 Create Signage for Cultural Sites

Many of the cultural sites within the District are in need of signage that displays the proper Hawaiian place name, as well as the *mo‘olelo* associated with it. Such an undertaking should be overseen by the community-based group discussed above. Funding should come from a variety of sources, including City, State, and Federal sources, especially when they are the land-owners of the site.

3.6.2.5 Protect and Allow Access for Cultural Practices at Sites on City-Owned Lands

Plans and programs are needed for the protection of important historical and cultural sites found on City-owned land within the District – which is primarily in Mākaha Valley. These programs should include provisions for community access to important sites for the observance of cultural practices, and involvement of members of the community in the protection and preservation program.

3.6.2.6 Protect and Allow Access for Cultural Practices at Sites on Federal, State, or Private Lands

For lands owned by Federal or State agencies, or owned by private parties, the appropriate public agencies should develop pro-active and cooperative efforts to preserve and protect these important sites and provide for community access. The State Department of Land and Natural Resources is developing a community-based management program to better protect resources of the Wai‘anae Kai Forest Reserve. Similar community access and forest management programs involving the U.S. Navy for sites in Luaualei Valley, the State Department of Land and Natural Resources for sites in Ohikilolo Valley and other state-owned areas, and the Department of Hawaiian Home Lands in Nānākuli need to be developed.

3.6.2.7 Conduct a Thorough Cultural Survey of the Wai‘anae District

Residents recommend that the District be more thoroughly surveyed, and that associated cultural maps be created. It is accepted that these maps will not include every cultural site, due to funding limits, knowledge limits, as well as the fact that often times, cultural practitioners do not want every site to be public knowledge. Thus, the outcome should be maps that show numerous cultural sites and a boundary around areas that should be considered cultural landscapes – or areas with numerous sites that are both important in themselves and in their relation to each other.

It is also possible to create a map that shows cultural uses that should be protected from destruction. Examples of what such a map could demonstrate include:

- a) areas of traditional use by Native Hawaiians, such as for fishing, conducting cultural practices [*uniki* (graduation from cultural practices), *kapu kai* (ceremonial seabath), etc.], recreating, and temporarily residing;
- b) places for observation of historic/cultural significance, such as the resurrection or re-enactment of Makahiki activities; and
- c) accesses to resources for cultural, sustenance, and traditional economic purposes, along with the appropriate protection of the areas where these resources are found, for the use by future generations.

3.6.3 Relation to Open Space Map

Major concentrations of archaeological sites are shown with a “dot screen” texture on the Open Space Map.

3.7 AGRICULTURAL LANDS

3.7.1 Overview of Agricultural Lands in the Wai‘anae District

Although the Wai‘anae District’s climate is very favorable for many types of agriculture, and the district has large acreages of good soils, the amount of agricultural activity is on the decline. A few decades ago, Wai‘anae hosted 12 dairy farms, the last of which (Pacific Dairy) closed in January 2008. In 2004, the Kakazu and Shigeta families closed O‘ahu’s last broiler chicken farms, which were located in Nānākuli.

In 2007, the National Agricultural Statistics Service listed 172 farms in the Wai‘anae zip code, with only 9 farms over 50 acres in size. The farms included a handful of livestock operations (pig, egg layer, and goat), orchid growers, and vegetable growers. Many of these listed farms are small-scale family farms, and not working commercial farms. Increasing costs for land, transportation, feed and fertilizers from the mainland are factors in the feasibility of farm operations. According to local farmers, Wai‘anae lacks large, contiguous open spaces that would allow larger-scale farms. Wai‘anae farmers may need to find ways to combine adjacent parcels. Although there is land available for small farm operations, such farms have a difficult time competing, due to economies of scale. Also, many of the older farms that have gone out of business used to raise livestock, which means the soil may not be good for growing crops.

Lualualei Valley, the largest valley of the *moku*, is particularly well-suited for agriculture, since it is flat, there are a number of wells for irrigation purposes, and the soil type is the unique vertisol series soil. CTAHR’s Soils of Hawai‘i states that,

“Vertisols are fertile soils. Their dark color is often mistakenly attributed to organic matter, but our Vertisols have lower organic matter contents than most other soils in the state. When they occur in large, level tracts of land as in Lualualei Valley on O‘ahu, they make excellent agricultural land.”

If agriculture is to grow and expand here, most local market studies point to sustainable agriculture, indigenous crops, and a diversity of premium quality products that can take advantage of the favorable climate. Organic fruit and vegetable production fits well with both the climate and soil, especially as it relies heavily on feeding the soil to increase organic matter content (through such methods as use of compost and animal manure, cover cropping, and green manures), and because there is high demand for organic products, it could bring in revenue and create jobs in the community.

The preservation of agricultural lands – both lands currently in agricultural use as well as fallow land that has agricultural use potential – is of critical importance to the Wai‘anae community.

Agricultural uses of the land are important in Wai‘anae for both commercial agriculture and part-time family farming. The continued protection and availability of agricultural lands for commercial farms, family farms, part-time farmers, and rural homesteads with backyard gardens are essential if the Wai‘anae community is to preserve its rural lifestyle. The perpetuation of agriculture is also important for providing jobs within the District, as well as for increasing the level of self-sufficiency.

Various issues that present challenges to the long-term protection of agricultural lands and the development of diversified agriculture, along with proposed solutions, are included in the Technical Report (2010).

3.7.2 Policies Pertaining to the Agricultural Lands

3.7.2.1 Maintain the Boundary for Agricultural Lands

The Wai‘anae Sustainable Communities Plan Land Use Map includes “Agriculture” lands. The agricultural lands generally lie between the coastal “Rural Residential” areas and the steep lands of the “Preservation” areas. The intent is to preserve active farms as well as agricultural lands that contribute to the open space and rural character of Wai‘anae and provide areas for the potential expansion of agricultural activity. The Community Growth Boundary should serve to limit urban development and prevent the encroachment of residential and commercial development into agricultural areas.

3.7.2.2 Support Agriculture through Zoning Regulations and Tax Assessments

The City should use its powers of zoning and real property tax assessments in a manner that will support the preservation of agricultural lands and agricultural uses in the Wai‘anae District.

3.7.2.3 Limit the use of “Agriculture” Land to Agriculture and other Compatible Land Uses

Land uses within the Agriculture area shall be limited to agriculture and other uses that are compatible with a rural landscape and country lifestyle. Compatible uses include uses such as farm dwellings, existing small country stores, small-scale facilities for the storage or processing of farm products, and cultural places and preserves. The more detailed Land Use Ordinance (LUO) should govern the detailed determination of compatible and incompatible uses in Agriculture areas. Other potentially appropriate uses include recreational or educational programs or other uses consistent with the character of a rural agricultural area, which provide supplemental income necessary to sustain the primary agricultural activity. There should be a direct connection between

those activities and the maintenance of agricultural uses on the same or nearby properties.

3.7.2.4 Prohibit Incompatible Land Uses of “Agriculture” Land

New residential subdivisions with lot sizes less than two acres, new commercial uses, public and private schools, congregate housing or elderly care homes, golf courses, resorts, theme parks, and other forms of large-scale commercial or industrial development should generally not be permitted in the agricultural area. Large lot subdivisions intended for luxury homes with no bona fide agricultural activities are also not a compatible land use.

3.7.2.5 Coordinate Farmer’s Markets and Other Low-Cost Marketing Outlets

Various public and private entities should coordinate their efforts and resources with community groups to create more opportunities for local family farmers to get their farm products to market at the lowest possible cost. The larger commercial farmers that are active in the Wai’anae District have well established marketing channels for their products. The small farmers and family farmers, however, have fewer opportunities to market their products. Local “Farmers’ Markets,” if well organized and held regularly, could provide low-cost marketing opportunities for small farmers. Other low-cost marketing concepts, including co-operatives, should also be explored.

3.7.3 Relation to Land Use and Open Space Maps

Agricultural land that should be protected and preserved is shown as “Agriculture” on the Land Use and Open Space Maps. Included in this land use category are most of Lualualei, Wai’anae, and ‘Ohikilolo Valleys, and portions of Nānākuli and Mākua Valleys.

3.8 RESIDENTIAL LAND USE

3.8.1 Overview of Existing and Planned Residential Uses

Existing residential land uses in the Wai’anae District consist of about 2,144 acres of land zoned for residential use. These developed lands support a total of an estimated 12,356 dwelling units, mostly clustered along the Farrington Highway coastal corridor. “Medium Density” residential development is found on two sites in Mākaha Valley: Mākaha Valley Towers condominiums and Mākaha Valley Plantation townhouses. The residential acreage of 2,144 acres, computed against the 12,356 dwelling units, yields an average density of 5.76 units per residential acre, which is relatively high for a “rural” district like Wai’anae. As a comparison, the

overall gross density of the Villages of Kapolei planned community in the 'Ewa District, with about 3,500 single-family homes and 1,500 multifamily units, is about 10 units per residential acre.

Year 2000 Census data for housing units in the Wai'anae District showed that the Median Year Built for the District's homes was 1974, the median value was \$158,700, as compared to the O'ahu median value of \$309,000 and the median gross rent was \$680 a month, as compared to O'ahu at \$802/month. About half of the units were owned and half were rented. Since 2000, home prices have continued to increase dramatically. The "2008 Second Quarter Residential Resales Statistics" showed the median sales price for a single family home on the Leeward Coast was \$399,000 (compared to \$636,000 for O'ahu), and \$170,000 for a condominium (compared to \$330,000 for O'ahu) (Hawai'i Real Estate Central, 2008).

Table 3-3: Housing Trends in the Wai'anae District: 1980 to 2000

Housing Data Category	Wai'anae 1980	Wai'anae 1990	Wai'anae 2000
Occupied Units	9,528	10,680	10,562
Owner Units	4,090	4,879	6,098
Renter Units	3,874	4,538	4,464
Median Year Built	1974	1971	1974
Median House Value	\$77,000	\$136,200	\$158,700
Median Gross Monthly Rent	\$264	\$602	\$680
Median Rent as % of Income	20.0	30.1	33.5

Source: U.S. Census

An analysis of housing data from the 1980, 1990, and 2000 Census' shows some alarming trends. Wai'anae's population during this period increased by 4,848 people. However, the number of occupied housing units actually declined during this time, by 118. This disparity between population growth and the decline in the number of occupied units suggests a trend towards larger households – and more overcrowding – and/or more homeless people.

In 2000, Wai'anae had a slightly higher percentage of homeowner units and a slightly lower percentage of renter units when compared with O'ahu overall. Housing units in Wai'anae were slightly "newer" than the O'ahu average, and median rents were slightly lower. However, median rent as a percent of income was somewhat higher for Wai'anae than for O'ahu. The median house value in Wai'anae was much lower than the O'ahu median.

Table 3-4: Housing Data for 2000: O'ahu vs. Wai'anae

Housing Data Category	O'ahu 2000	Wai'anae 2000
Occupied Units	286,450	10,562
Owner Units	156,233	6,098
Renter Units	130,217	4,464
Median Year Built	1972	1974
Median House Value	\$274,600	\$158,700
Median Gross Monthly Rent	\$802	\$680
Median Rent as % of Income	27.5%	33.5%

Source: U.S. Census

The Annual Report on the Status of Land Use on O'ahu (DPP, FY 2007) showed the following planned developments for the Wai'anae District:

Table 3-5: Planned Developments for the Wai'anae District

Project Name	Year Built Out	% Built	Total Units	Units Completed (as of 6/30/07)	Units to be Built
Hale Wai Vista	2010	0%	215	0	215
Kahikulo Ohana Hale O Wai'anae	2008	u.c.	88	0	88
Keola O Pokai Bay	2009	u.c.	125	0	125
Maili Kai, Phase II	2014	51%	838	430	408
Maili III Self-Help	2009	0%	77	0	77
Nanaikeola Senior Apts	2009	u.c.	70	0	70
Nanaikeola Village	2011	0%	142	0	142
Seawinds Apts	2008	0%	50	0	50
TOTAL UNITS PLANNED:					1,175

Source: DPP, 2007

("u.c." = under construction)

Given past owner/renter trends in Wai'anae, it appears that about one-half of any new units should be for owner occupants and about one-half should be for renters. Affordable house prices and affordable rentals will be needed. According to affordability numbers provided by the Hawai'i Housing Finance Development Corporation (HHFDC) and the U.S. Department of Housing and Urban Development (HUD) for 2009, an "affordable home" for a family of 4 persons with an income of 50 percent of the O'ahu median income, assuming financing at 6.0 percent, would be priced at \$194,800. Affordable Rentals, based on 30 percent of income and

including utilities, for a family with an income of 50 percent of the O‘ahu median, would be \$1,236/month for a 3-bedroom unit.

For Wai‘anae, the typical 2008 for-sale house price, including land, was in the range of \$350,000 to \$400,000 and the typical rent for a 3-bedroom unit was in the range of \$1,000 to \$1,200 (Honolulu Board of Realtors). Thus, for Wai‘anae, house prices were higher than HHFDC/HUD’s affordability guidelines, but rents were slightly lower. For many Wai‘anae families, however, these rent levels were still very high.

Housing affordability is a critical issue throughout the State of Hawai‘i, and the need for affordable housing is especially acute in lower income areas like Wai‘anae. The 1980’s were a period of accelerating housing prices throughout the State. By 1990, the median price for a single-family home on O‘ahu was over 300 percent of the national median price. The 1990’s brought a period of economic stagnation for Hawai‘i, and housing prices declined from the peak levels of 1989-1990. However, housing costs have risen dramatically since 2000, and there is little likelihood that these high prices will become significantly lower in the future.

One major factor that could substantially affect the future population growth of the Wai‘anae Sustainable Communities Plan area – and thus affect all aspects of the District’s development, including housing – is the development of the “Second Urban Center” in the ‘Ewa District.

‘Ewa and Kapolei

The neighboring district of ‘Ewa, and the planned development of the City of Kapolei may have a major impact on the Wai‘anae District’s population, housing resources, and land use. The City government is strongly committed to the development of the City of Kapolei, especially in terms of the creation of new jobs at Kapolei, with hopefully an accompanying easing of commuter traffic to downtown Honolulu. However, assuming that the City of Kapolei does develop as planned, housing prices there will probably escalate faster than the O‘ahu average, and more pressure will be brought to bear on nearby, lower cost housing markets like Waipahu to the east and Wai‘anae to the west. It is likely that there will be many more “affordable” housing projects like the Mā‘ili Kai project proposed for development. Wai‘anae could thus become the “low cost” bedroom community for the City of Kapolei.

Mākaha Valley

Lastly, there are approximately 450 acres of undeveloped State “Urban” designated lands in Mākaha. According to one recent conceptual planning study, as many as 1,830 new units could be constructed on these lands. There are about 3,334 housing units in Mākaha. Additional development under the current zoning could thus raise the number of units to 5,000+ units. Existing City zoning would allow for single-family and duplex units, condominium-hotel, club house, ranch/farms, additional golf courses, recreation, grocery stores, and group living facilities.

The Mākaha Special Area Plan (SAP), completed in early 2009, provides guidelines for accommodating future development while preserving the rural character of Mākaha Valley. It presents a “Mākaha Rural Development Plan” that includes:

- Mākaha Vision
- Rural Development Concept
- Rural Development Policy Framework
- Rural Development Guidelines

The “Rural Development Policy Framework” provides the following guidance for future planning and development for Mākaha:

“Guiding Principle:

Land located in the rural development area shall be compatible with, or provide protection for, the natural environment and shall be designed to integrate with the existing rural settlement patterns.

The framework for the Mākaha Rural Development Concept supports the Wai‘anae Sustainable Communities Plan theme of ‘keeping the Country – Country’ through the following policies:

- Future developments, i.e., resort and residential, should promote rural character in terms of scale and physical design, i.e., relatively low density, low building heights, informal landscaping, and lots of open space.
- Energy and water conservation measures should be applied to all future developments in Mākaha Valley.
- Preserve *mauka* and *makai* view planes and open space.
- Preserve natural stream banks and waterways.
- Provide opportunities for small-scale farming.
- A roadway circulation plan should address pedestrian safety and movement, especially in the existing residential areas.
- Private roadway maintenance should be enforced with City oversight.
- Some affordable housing should be provided in all future development proposals that involve residential housing.
- Some local small businesses should be provided for, as well as small-scale farming and possibly retirement residential units.”

3.8.2 Policies Pertaining to Residential Lands

3.8.2.1 Do Not Increase Lands Designated “Residential”

For the foreseeable future, there should be no increase in lands designated for Sustainable Communities Plan “Residential” in the Wai‘anae District. Existing undeveloped lands within the Community Growth Boundary should be sufficient to accommodate infill housing development that may be needed over the next 25+ years (see Land Use Map in Appendix A).

3.8.2.2 Coordinate with the Department of Hawaiian Home Lands (DHHL)

The City and the Department of Hawaiian Home Lands should establish an ongoing dialogue, with the objective of coordinating the City’s General Plan and the Wai‘anae Sustainable Communities Plan with DHHL’s Regional Plans for the District. The City’s focus should be on minimizing adverse impacts on the Wai‘anae District from potential major DHHL housing developments. DHHL should develop agricultural lots and sustainable farming practices that are compatible with the City’s General Plan and the Wai‘anae Sustainable Communities Plan. The City recognizes DHHL’s plans and DHHL’s right to develop residential subdivisions in their lands located in the rural areas of Wai‘anae Valley and Nānākuli Valley. However, DHHL should concentrate home building within the Community Growth Boundary (see Land Use Map in Appendix A).

Overall, the timing and conditions of the development of DHHL’s Wai‘anae lands are not subject to the Policies of the Wai‘anae Sustainable Communities Plan, nor to review and approval by the City Council because DHHL is exempt from City and County zoning and land use regulations.

3.8.2.3 Preserve Agricultural Lands

Future housing development should be limited to undeveloped lands that are designated by the Wai‘anae Sustainable Communities Plan for urban use, and should not be allowed to encroach upon agricultural lands.

3.8.2.4 Support Home-Based Businesses

Many Wai‘anae residents currently work from home, and many more are interested in doing so. However, they are limited in the types of activities they can carry out, and in the number of people they can have working there. While it is recognized that there are some occupations that are not compatible with residential neighborhoods (*i.e.*, vehicle repair), there are others that are. Home-based businesses should be supported in Wai‘anae to help increase the number of local jobs, and decrease people’s commute time to jobs outside of the District.

3.8.2.5 Although Allowed to be Exempt by State Law, 201H Projects Should Meet Wai'anae Sustainable Communities Plan Guidelines

A relatively high proportion of the island's affordable housing projects have been built in the Wai'anae District. Although they are often built with the intention of helping the District's residents, there are significant negative impacts, such as increased population and higher demand on infrastructure and public facilities. Therefore, the Wai'anae community is not opposed to new affordable housing projects, but they would like to see them distributed more equally around the island. In addition, if they are built in Wai'anae, they should follow the guidelines listed in Guideline 3.8.3.1.

3.8.3 Guidelines for Residential Development

3.8.3.1 Follow Wai'anae Sustainable Communities Plan Affordable Housing Guidelines

Proposed new affordable housing projects should meet the following criteria:

- Affordable housing projects should be distributed equally around the island (i.e., Wai'anae should not have a significantly higher proportion of affordable housing units than the other Districts).
- The project needs to address the needs of the community, such as new and/or improved infrastructure and facilities. These needs should be discussed and decided upon through extensive community outreach and collaboration initiated by the proposed developer.
- 201 H projects should conform to the Policies and Guidelines within the Wai'anae Sustainable Communities Plan.

3.8.3.2 Limit the Height of Residential Structures

Residential building heights should generally not exceed two stories or 30 feet, including the roof form, with heights above 30 feet allowed only when necessary due to the required flood elevation, steep slope of the site, or the desire to protect important natural features.

3.8.3.3 Encourage Clustered Housing in Wai'anae Country Town

Encourage the development of clustered housing in the vicinity of the designated Wai'anae Country Town. Public agencies could provide incentives to landowners in the form of infrastructure improvements in the Country Town; the provision of public amenities including parks, gathering places, and main street landscaping; and special abatements for real property taxes. Clustered housing would help to create a people-oriented Country Town, where more residents could easily walk to local shops, stores,

and service businesses. In the context of the Waiʻanae District, “clustered housing” does not mean high-rise or even mid-rise structures. Small lot single-family housing, duplex homes, townhomes, and other types of residential structures can be constructed at densities from 10 to 20 units per acre. The traditional configuration of apartments over first floor commercial spaces should be brought back to the Waiʻanae Country Town. These somewhat higher densities could result in housing for a population of up to several thousand people within a 10-minute walk of the Town Center.

3.8.4 Relation to Land Use Map

Residential lands are part of the Rural Residential lands illustrated on the Land Use Map (Exhibit A-1). These development lands are bounded by the Community Growth Boundary, and include existing residential uses, small-scale commercial and industrial uses, institutional uses, and undeveloped residentially-zoned lands suitable for “infill” development. Also included in this land use designation are as yet undeveloped residentially-zoned lands in Mākaha Valley. The Mākaha Special Area Plan recommends that these parcels be developed at a lower density than their current zoning allows.

3.9 COMMERCIAL AND INDUSTRIAL USES

3.9.1 Overview of Commercial and Industrial Uses

Waiʻanae’s retail commercial and industrial areas generally serve the needs of the resident population: Waiʻanae does not contain “destination retail” centers like the Waikēle Power Center in Central Oʻahu or Ala Moana Center in Honolulu, or “regional industrial” centers like Campbell Industrial Park in ʻEwa. Mākaha Resort is the area’s only significant destination resort area. During the 1970’s and 1980’s, this resort provided as many as 300 jobs, many of them filled by Waiʻanae residents. The Resort closed in 1996 due to low occupancy levels. It has since re-opened, but the number of jobs it provides is significantly lower than at its peak.

In keeping with the overall theme of a “rural Waiʻanae,” the General Plan does not foresee significant growth in commercial or industrial land use for this area. There is general community support for the development of more strongly defined local commercial and service centers (discussed more in Section 3.10), although recent trends indicate a shifting of shopping habits away from local stores to the larger commercial centers in the ʻEwa District.

Regarding industrial uses, the Waiʻanae community agrees that their District needs local jobs, including industrial jobs within a light industrial park with moderately priced lease rents or fee

simple prices for industrial lots. However, there has not been community-wide consensus on the most appropriate size or location for such industrial activities.

Local small businesses and light industrial operations are an important source of jobs for Wai'anae's people. A healthy level of small local businesses is essential for the local economy and also lessens the volume of commuter traffic that causes severe congestion on Farrington Highway during morning peak traffic periods.

3.9.2 Policies Pertaining to Commercial and Industrial Uses

3.9.2.1 Encourage the Continuation of Existing Commercial Establishments

Encourage the continued viability of the District's existing commercial businesses, including the many small neighborhood retail stores and restaurants as well as the larger commercial centers like Wai'anae Mall and Nānākuli Shopping Center. Parcels already zoned for commercial use should continue to be zoned commercial.

3.9.2.2 Encourage Establishment of Commercial Businesses that Serve the Community

Encourage the establishment of appropriate commercial businesses that will provide jobs and goods and services in the Wai'anae District, especially within the designated Country Town and Village Center areas. Public agency actions in this area may include the approval of appropriate commercial zoning, provision of infrastructure, beautification of main streets, tax abatements, technical assistance, training in small business management, grants, and loans. Commercial businesses should be allowed only in the Rural Residential areas, except for those small-scale country businesses that are compatible with agricultural land uses (see Land Use Map in Appendix A).

3.9.2.3 Support the Continued Viability of the Mākaha Resort

The Mākaha Resort has been an important resource for the Wai'anae community – as an employer, a community gathering place, and a resort where visitors can enjoy the beauty of the Wai'anae coast. The continued economic viability of this resort, including the possibility of some expansion of its facilities, is thus very desirable. However, the development of new resorts in Wai'anae may not be economically or environmentally feasible. Therefore, no other land in the district is designated for new resort development.

3.9.2.4 Prohibit “Big Box” Stores

Prohibit the building of any “big box” stores in the Wai‘anae District. In commercial development terminology, “big box” generally refers to a physically large chain store, with more than 50,000 square feet of retail space, as well as to those company names that are commonly known as such. The terms superstore, megastore, and supercenter also refer to these types of retail establishments.

3.9.2.5 Encourage Light Industrial Businesses

Encourage the establishment of light industrial businesses that provide jobs for local people, and that are generally compatible with the predominantly residential uses of the Rural Residential areas along the coast, but not in Mākaha Valley. Light industrial uses should be allowed only in the existing Industrial areas in Wai‘anae and Lualualei Valley, as shown on the Land Use Map (Exhibit A-1).

The Industrial site in Lualualei Valley is intended for light industrial uses that are not noxious or socially objectionable in nature. Light industrial lots at this location should be affordably priced for Wai‘anae businesses, and include vocational training and other facilities that will benefit the Wai‘anae community.

Special areas such as the Wai‘anae Small Boat Harbor may also provide opportunities for ocean-related light industrial and research uses.

3.9.2.6 Do Not Allow Heavy Industry

New heavy industrial uses should not be permitted in the Wai‘anae District. Such uses should be sited in the Campbell Industrial Park in ‘Ewa.

3.9.3 Guidelines for Commercial and Industrial Uses

3.9.3.1 Design Guidelines for Neighborhood Commercial Establishments

Neighborhood commercial establishments in the Wai‘anae District typically consist of one to several buildings that are one or two stories in height, with associated parking areas. The two main shopping centers, Nānākuli Shopping Center and Wai‘anae Mall, are not included in this classification of “Neighborhood Commercial.” The scale of neighborhood commercial buildings is generally compatible with the surrounding residential land uses. Design guidelines for any future new neighborhood commercial buildings thus include the following:

- Buildings should be residential in scale: Height, size, and massing of the building should be compatible with adjacent residential structures.
- Total floor area of any building should not exceed 10,000 square feet.

- Building forms and roof lines should incorporate some design variation in order to avoid large uniform walls or large roof plates.
- Exterior materials and colors should be compatible with those used in adjacent residences.
- Access to parking and loading areas should be from an arterial or collector street.
- Storefronts should be oriented to pedestrian ways, with parking in the rear of the commercial buildings.
- Parking and loading areas should be screened from nearby residential areas and from the street.
- Lighting and signage should be relatively low key so as to avoid conflict with nearby residential areas.

3.9.4 Relation to Land Use Map

Most of the District's existing commercial and industrial uses are small in scale and are included within the Community Growth Boundary. One significant industrial-zoned area is in the vicinity of the Wai'anae Wastewater Treatment Plant. The other is in Lualualei Valley.

3.10 COUNTRY TOWNS, RURAL COMMUNITY COMMERCIAL CENTERS, AND GATHERING PLACES

3.10.1 Overview of Concepts for Country Towns, Rural Community Commercial Centers, and Gathering Places

Within the "Rural Residential" areas for each of the subcommunities of Nānākuli, Lualualei, Wai'anae, and Mākaha, there is the need for the development of more strongly defined **local commercial and service centers**. These Centers should contain a concentration of small retail businesses, restaurants, professional offices, medical clinics, and social services centers. They should also contain some clustered housing units, including second-story housing units above ground-level commercial space. Structures would be one or two stories in height. This more compact development pattern would provide for a stronger local community identity, further reinforce the concept of the *ahupua'a*, encourage more pedestrian traffic and less dependence on cars, support small local businesses, and potentially alleviate the strong "strip mall" development pattern that presently exists along Farrington Highway.

After several years of intensive community-based planning, the Nānākuli Hawaiian Homestead Community Association (NHHCA) has taken the initiative to develop such a village center project. It will include a multi-purpose cultural center (The Agnes K. Cope Cultural Center), an affordable housing rental complex, commercial retail spaces, and the International Surfing Hall of Fame. The project, which has a total estimated development cost of nearly \$70 million, will be located on a 13.57-acre site centrally located within the Nānākuli community (adjacent to the Nānāikapono elementary school). NHHCA was awarded a long-term 65 year lease from the DHHL. The Nānākuli Village Center will be completed in 2 phases over the next 2-3 years.

There is also a need for the development of **Community Gathering Places**. These Gathering Places should be park-like areas of several acres that would be managed and maintained by a community organization. People would gather here informally to visit and talk story; have parties and celebrations; stage festivals and special events; teach and learn traditional crafts, music, and dance; buy, sell, and barter homegrown produce and homemade items; and renew contact and communication with friends and neighbors.

Originally, the community discussed developing these Community Gathering Places *mauka* of Farrington Highway, relatively close to the town centers. More recently, residents discussed the possibility of instead putting the Community Gathering Places on the beaches, one in each of the major *ahupua'a*. The idea was that these gathering places could help bring the community back to the beaches. They also envisioned connecting these areas by a paved walking/jogging/biking path that extends along the entire Wai'anae Coast. The path would be wide enough for Police Cushman's to utilize for patrolling. It could also be lit by photovoltaic-powered lights, and provide safety phones and water fountains.

The major benefits of this concept include: allowing people to utilize the beaches and feel safe doing so, providing a venue for exercise and sporting events, and allowing people to get around the District by bike safely, which could also help to reduce traffic within the District.

The existing commercial center of Wai'anae Town is designated a "Country Town." Smaller "Rural Community Commercial Centers" are designated for the communities of Nānākuli, Lualualei, and Mākaha. Community Gathering Places are also schematically shown on the Land Use Map for all of these communities.

3.10.2 Policies Pertaining to Country Towns, Rural Community Commercial Centers and Gathering Places

3.10.2.1 Establish a Phased Development Program

A program should be established for the phased development and improvement of Community Commercial Centers and Community Gathering Places for Nānākuli, Lualualei, Waiʻanae and Mākaha (note: as of 2010, the Nānākuli Village Center has been planned, but is still under development). The development program should include the coordination of various public planning and financial resources and partnering with local landowners and local businesses. The overall goal of the phased development program should be to establish: (1) physically distinct and economically viable Rural Community Commercial Centers that will serve local commercial needs, provide local jobs, encourage pedestrian and bicycle circulation, and foster a spirit of community identity and community pride, and (2) Community Gathering Places that will provide a setting for cultural, educational, and social activities.

Actions toward the achievement of these objectives should include the appropriate use of zoning, special tax abatements, provision of infrastructure, beautification of main streets, construction of mini-parks and gathering places, technical assistance, training in small business management, clustering of public structures and services, and the provision of grants, loans, and loan guarantees.

3.10.3 Guidelines for Country Towns, Rural Community Commercial Centers and Gathering Places

3.10.3.1 Geographic Size of the Centers

As a general guide, the geographic extent of the commercial and residential land uses that make up the Centers should be relatively small in scale.

Thus, the area to be developed as “Waiʻanae Country Town” could extend from Waiʻanae Mall to Old Government Road, and from Pōkaʻi Bay Beach Park to the vicinity of Waiʻanae Elementary School. This area is about 4/5 mile long by about 1/4 mile wide, or about 100 acres in area. Walking time at a reasonable pace from the farthest edges of Waiʻanae Country Town to the commercial establishments in the middle of the Center would be about 5 minutes.

The focal concept for Waiʻanae Town Center is the improvement and expansion of Pōkaʻi Bay Beach Park, including the development of a Community Gathering Place there, and the revitalization of traditional “town center” commercial properties located on both sides of Farrington Highway. Ideally, improvements to the Park would include bringing park greenery and open space up to the Farrington Highway corridor, such that the Park and Pōkaʻi Bay are visible from the highway. More detailed plans for Waiʻanae Country Town should be developed in the near future.

The Rural Community Commercial Centers would range in size from about three to five acres. Nearby homes would be within a reasonable walking distance of Center commercial establishments.

3.10.3.2 Commercial Establishments in the Centers

Commercial buildings located within the Country Town and Rural Community Commercial Centers should be low-rise one-, two-, or at most three-story buildings. Where possible, existing older buildings that have some architectural interest should be preserved. New buildings should be designed and sited to create a strong building line along the main street. Parking lots should generally be located behind the buildings. The typical configuration for strip commercial development, with a large parking lot fronting the street and the commercial building located at the back of the parking lot, should not be allowed. A limited amount of “fast turnover” parking stalls could be located in front of new commercial buildings. The design of new buildings should incorporate elements and materials from traditional local architectural styles. Where possible, commercial buildings should be designed as multipurpose structures, with retail commercial space on the ground floor, and space for professional offices or residential apartments on the second floor.

3.10.3.3 Residential Structures in the Centers

The proposed Waiʻanae Country Town should be developed incrementally. There are some vacant commercial and residential lots along Farrington Highway between Waiʻanae Mall and the Waiʻanae Community Center. Over time, there will be more opportunities to replace obsolete structures.

New residential development within Waiʻanae Country Town should be built at a higher density than the typical local housing that has been developed along the Farrington Highway corridor, which usually has minimum lot sizes of 5,000 square feet. Although it is recognized that many residents would prefer to have larger lots – 10,000 or 20,000 or more square feet – clustered housing is important for the overall design and commercial success of these Centers. Thus, the suggested housing types are 2-story townhomes, duplex units, and clustered single-family homes that may have average lot sizes of about 4,000 square feet. High-rise and mid-rise apartment and condominium buildings are not

appropriate for the Wai'anae Coast. These kinds of structures are urban in character and are not compatible with the character of the Wai'anae District.

If the redeveloped Wai'anae Country Town eventually has about 40 gross acres of clustered residential use, and the average density is about 10 units per acre, the Country Town would have about 400 homes. This would mean that about 1,600 people would be within a few minutes walk of essential shopping and services.

3.10.3.4 Center Amenities

The Country Town and Rural Community Commercial Centers should be landscaped and contain other amenities to identify them as special places for people to frequent.

These amenities could include:

- Street trees along the main streets of the Center;
- Mini-parks and gathering places;
- Wider sidewalks to accommodate outdoor cafes and sidewalk displays of merchandise;
- Pedestrian-scale street lights;
- Street furniture at appropriate places: benches, trash receptacles, bike racks, planters with flowering plants.

3.10.3.5 Guidelines for Community Gathering Places connected by a walking/jogging/biking path located along the coast

Wai'anae residents would like to create four Community Gathering Places, one in each of the major *ahupua'a* (Nānākuli, Lualualei, Wai'anae, and Mākaha), in their beach parks. The Gathering Places should be connected by a walking/jogging/biking path that would be constructed from Mākaha to Nānākuli. The Gathering Places should reflect the needs and preferences of the community that it serves. As a general guide, the following facilities should be considered:

- One or more acres of park-like space. This open space would be used for informal gatherings, games, parties, and performances
- A hula mound
- A picnic area
- Restrooms
- A multipurpose building that could be used for community meetings, indoor classes, and storage of materials and equipment
- Adequate parking
- Signage, lighting and landscaping

The walking/jogging/biking path should have the following characteristics and amenities:

- ADA compliant
- Wide enough for Police Cushman to utilize for patrolling the area
- Lit by photovoltaic-powered lights
- Safety phones
- Water fountains

Land acquisition and capital funding for the development of the Community Gathering Places will be a challenge. A combination of City, private sector, and community resources will probably be needed. The management and maintenance of a Gathering Place should be the responsibility of the local community. A system of volunteer labor for routine maintenance chores will be needed. Some funds will also be needed for maintenance materials and supplies.

3.10.4 Relation to Land Use and Open Space Maps

Waiʻanae Country Town and Rural Community Commercial Centers for Nānākuli, Māʻili, and Mākaha are schematically shown on the Land Use Map. Community Gathering Places for Nānākuli, Māʻili, Waiʻanae, and Mākaha are schematically located on the Open Space Map.

3.11 PARKS AND RECREATIONAL AREAS

3.11.1 Overview of Existing Parks and Recreational Areas

The Waiʻanae District has a diverse number of parks as shown in Table 3-6, and contains the world-renowned Mākaha Beach for surfing competitions. The District has one (undeveloped) Regional park, eight Beach Parks, one District Park, four Community Parks, one Neighborhood Park, one Cultural Park, and four Beach/Shoreline Access Points. The location of these parks is shown in Exhibit 3-3.

One of the last semi-wilderness areas on Oʻahu, Kaʻena Point State Park, consisting of approximately 2,236 acres, encompasses rugged lava shorelines, large white sand beaches, cliffs, gorges and valleys as well as forested mountain regions that contribute to a wide variety of recreational, educational, and cultural opportunities.

Overall, there are two major issues currently associated with the District's parks. First, there is a significant shortfall in the number of community-based parks and in the total acreage of park lands. This shortfall was pointed out in the original Wai'anae Sustainable Communities Plan, but has still not been addressed. (The details are in the subsequent pages of this chapter.) The second major issue related to Wai'anae's parks is the large number of homeless living on the beaches. Many of these areas are City Beach Parks, which normally offer camping through the Parks Permitting System.

There is no simple solution to this difficult situation. The Wai'anae Sustainable Communities Plan recognizes that this "user conflict" further aggravates the shortfall of parks.

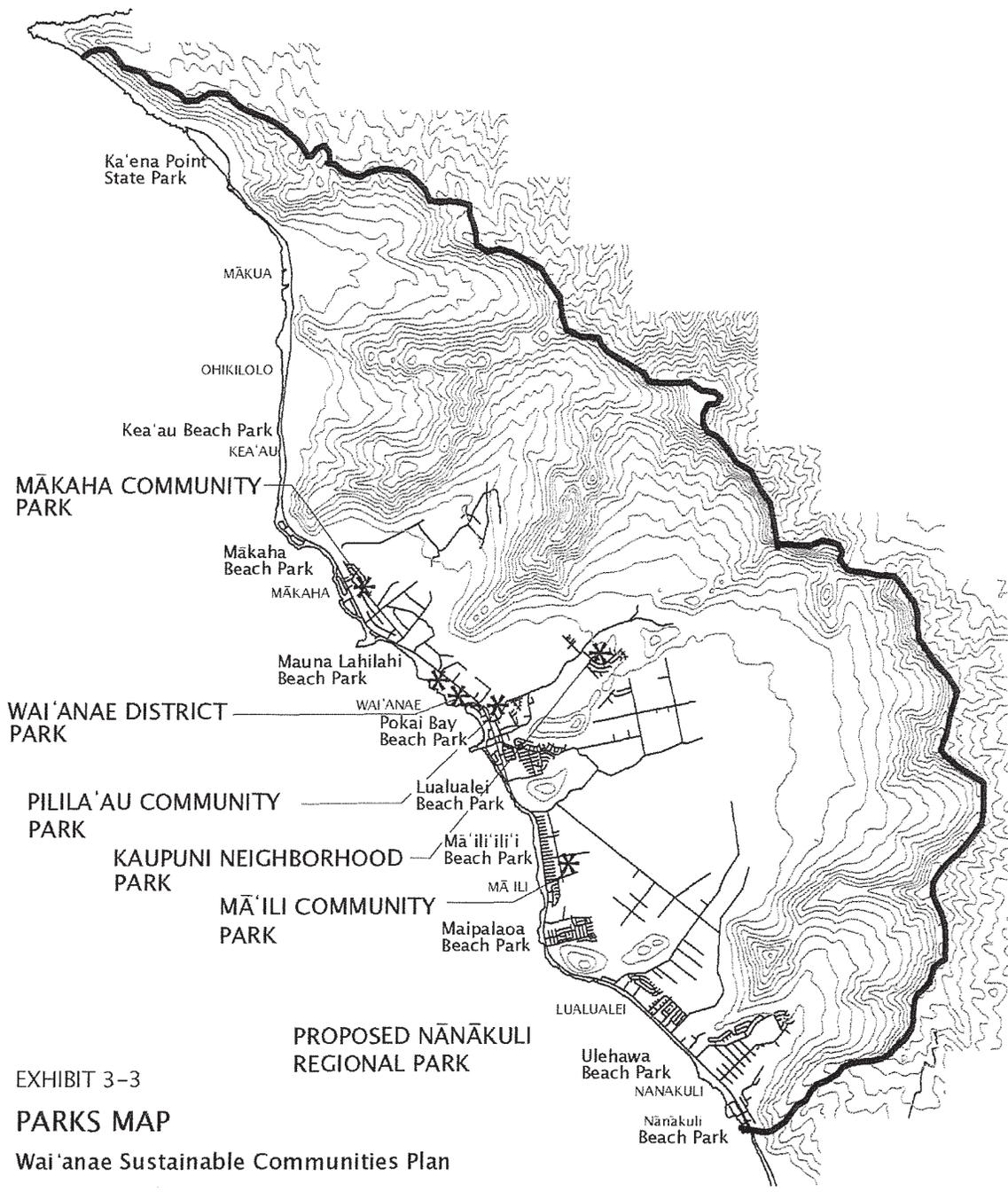


EXHIBIT 3-3

PARKS MAP

Wai'anae Sustainable Communities Plan

Department of Planning and Permitting
City and County of Honolulu

Source: Department of Planning and Permitting
and Department of Parks and Recreation



Table 3-6: City Parks and Park Acreage

Park Name (and type)	Acreage
Regional Park	
Nānākuli Regional Park (proposed)	(50)
Beach Parks	
Kea'au Beach Park	38.05
Lualualei Beach Park	17.75
Mā'ili Beach Park	39.56
Mākaha Beach Park	20.62
Mauna Lahilahi Beach Park	8.74
Nānākuli Beach Park	39.63
Poka'i Bay Beach Park	15.49
Ulehawa Beach Park (1 and 2)	57.65
District Park	
Wai'anae District Park	22.92
Community Parks	
Mā'ili Community Park	3.68
Mākaha Valley Community Park	4.32
Herbert K. Pilila'au Community Park	10.44
Pu'u o Hulu (or Mā'ili Kai) Community Park	11
Neighborhood Park	
Kaupuni Neighborhood Park	7.51
Others:	
Mauna Lahilahi Cultural Garden	14.3
Makau Street A Beach Right-of-Way	0.02
Makau Street B Beach Right-of-Way	0.02
Moua Street Beach Right-of-Way	0.02
Total Acreage:	331.29

Source: DPR, 2008

(Note: the acreage from the proposed Nānākuli Regional Park was not added into the total.)

The City and County of Honolulu Parks Department has plans to expand the Mākaha Beach Park by adding lands *mauka* of Farrington Highway. The plan is to reroute a portion of Farrington Highway *mauka* to allow for this expansion. However, because rerouting of Farrington Highway will be a major undertaking, controlled by the State DOT, the expansion will occur in phases. The Wai'anae community is generally in favor of rerouting the highway *mauka*, to allow people safer access to the restrooms, shower, and paddling *halau wa'a* (canoe storage).

There are two 18-hole golf courses in the Wai'anae District: 1) Mākaha Valley Country Club and 2) Mākaha Golf Club. These courses are privately owned, but open to the public.

The City's community-based park standards for the various types of parks are:

- Neighborhood Parks (4 to 6 acres): one per 5,000 population Service Area ½ Mile
- Community Parks (10 acres): one per 10,000 population Service Area 1 Mile
- District Parks (20 acres): one per 25,000 population Service Area 2 Miles

Table 3-7: City Park Requirement per City Standards for 2009 Wai'anae District Population (+/- 45,000)

Park Type	Current: Number/Acreage	City's Park Standards per 45,000 (approximate 2009 population)	Shortfall: Number/Acreage
Neighborhood	1 / 7.5 acres	9 / 45 acres	8 / 37.5 acres
Community	4 / 29.4 acres	4 / 40 acres	0 / 10.6 acres
District	1 / 22.9 acres	2 / 40 acres	1 / 17.1 acres
TOTAL:	6 / 59.8 acres	15 / 125 acres	9 / 65.2 acres

Source: DPR, 2008

As shown in the table above, the total park acreage requirement for the Wai'anae District is 125 acres based on an estimated population of 45,000 people. In 2009, there were still just under 60 acres of these parks, which is a shortfall of approximately 65 acres of park space. Most notably, the Wai'anae District has a shortfall of **eight** Neighborhood Parks.

It should also be noted that two of the four existing Community Parks are substandard in size: Mā'ili Community Park at 3.68 acres, and Mākaha Community Park at 4.32 acres. The City's creation of Mā'ili Kai Community Park fulfilled the need for a fourth Community Park in the District, however, it is not yet fully developed.

In addition, a Nānākuli Regional Park was proposed in May 2010. It replaces the previously planned Wai'anae Regional Park, and will be the District's first Regional Park, consisting of 50 acres. It will provide facilities for active recreational sports activities such as baseball, softball, football, tennis, basketball, and volleyball.

3.11.2 Policies Pertaining to Parks and Recreational Facilities

3.11.2.1 Develop Adequate Public Parks

Parks and recreational facilities are of great importance to the health and welfare of the Wai'anae community, and are especially important to the health and well-being of Wai'anae's children and young people. At least the minimum number and size of community-based parks should be developed by the Year 2020. According to Table 3-7, in 2009, the District had a shortfall of eight Neighborhood Parks, one District Park, and 10 acres of Community Parks. By 2020, the District will need at least one more

Neighborhood Park (total requirement of 9 parks) and one additional Community Park (total requirement of 1 park and 20.6 acres). The development of the Nānākuli Regional Park should also be a high priority. In addition, at least some of the parks in the District should be “dog-friendly.”

3.11.2.2 Prohibit More Golf Courses That Compete with Agriculture or Open Space Resources

There is no land available within the Rural Residential areas of the Wai‘anae Land Use Map (Exhibit A-1) that would be large enough for a golf course. Golf courses may be incompatible with Agricultural lands or Preservation lands of the Wai‘anae District. Therefore, public agencies should discourage new golf courses within the Wai‘anae District that compete with Agricultural and Preservation land to the detriment of agricultural or open space resources.

3.11.2.3 Plan for a System of Hawaiian Cultural and Educational Parks

The Wai‘anae community would greatly benefit from the development of numerous Hawaiian Cultural and Educational Parks throughout the District.

3.11.3 Guidelines for Parks and Recreational Facilities

3.11.3.1 Increase Neighborhood Parks Based on City’s Park Standards

In the Wai‘anae District, there is a shortfall of 8 Neighborhood Parks based on the City’s park standards. This shortfall should be addressed through an incremental park development program. Generally, there should be two neighborhood parks for each of the main settlement areas of the District: Nānākuli, Mā‘ili/Lualualei, Wai‘anae, and Mākaha. There are some but not many undeveloped lands within these Rural Residential areas. The needed acreage for park development should be secured before infill residential development of vacant/residentially zoned lands precludes the location of neighborhood parks in close proximity to these developed areas.

There is a recognized deficiency in the number and acreage of active, community-based public parks. It is a condition that exists across the entire island and is largely due to the fact that park development standards were only adopted about 30 years ago, although much of the residential development occurred earlier. Also, City park dedication requirements were included in its subdivision ordinance about the same time – in 1976. At locations where the military or other institutions will eventually vacate substantial land areas of six acres or more, these will present opportunities for the City to consider, as funds permit, developing new public parks with active-type recreational facilities.

3.11.3.2 Create Flexible Criteria for Recreational Facilities

In developing neighborhood parks, there is a need for more flexibility within the criteria for “allowed” recreational facilities. For example, current City standards specify the development of a comfort station for a neighborhood park, but a “recreation building” is not included. However, depending on the service population, the location of the neighborhood park, and the distance to a community park that provides a recreation building, a recreation building or multi-purpose building should be provided for a neighborhood park if there is a clear need for one. Since building maintenance and supervision services are always an issue – in terms of both personnel and overall cost – a cooperative program utilizing the Department of Parks and Recreation’s Adopt-a-Park Program could be established at parks where there is community interest whereby a community organization could share in supervision responsibilities and maintenance costs of a recreation building.

3.11.4 Relation to Open Space Map

Existing beach parks and active recreation parks are schematically shown on the Open Space Map.

3.12 MILITARY LAND USE

3.12.1 Overview of Military Land Use in the Wai‘anae District

The U.S. Navy obtained, via Executive Order, 7,498 acres of Lualualei Valley – “Naval Magazine Lualualei Headquarter Branch” – which the Navy uses for the storage of various kinds of ordnance needed for the different branches of the U.S. Military in Hawai‘i. The Navy also obtained, via Executive Order, and controls an additional 1,729 acres of Lualualei – “NCTAMS EASTPAC, RFT Lualualei” – which is used for high and low frequency radio signal transmissions.

The U.S. Army uses a portion of the 4,130 acres of Mākua Valley, although on a limited basis, due to community concerns on environmental issues. The Army’s Mākua lands consist of 170 acres of “fee simple” land, 782 acres of land leased from the State of Hawai‘i, and 3,237 acres of ceded lands, also leased from the State. The leases expire in the year 2029. The Army’s use of Mākua for live fire training dates back to World War II. Prior to that time, Mākua lands had been used for ranching, fishing, and farming. In earlier times, Mākua Valley and its sister valleys, Kahanahāiki and Koiahi were home to a large Native Hawaiian population.

There has been considerable discussion in recent years about the return of some Military controlled lands to public use. About 1,000 acres of the Navy's Radio communications installation at Lualualei was identified by the Federal Government as possibly excess. The Navy has a long range plan for the relocation of its stored ordnance from Lualualei to the Naval Magazine at West Loch. The Wai'anae community looks forward to the return of these lands and has many concerns about the health impacts of the communication towers at Lualualei and the cumulative impacts of storing ordnance upwind of the community.

The Army's use of Mākua Valley is controversial and has been so from the time that the Army took control of the Valley. For many members of the Wai'anae community, Mākua Valley has a special cultural and religious significance. This significance predates the Army's presence and use of Mākua Valley. There are a number of important *heiau* and other significant cultural and religious sites found there. Many in the Wai'anae community advocate for the return of Mākua Valley. The Army's use of Mākua in recent years has been minimal, due to environmental and cultural concerns. Many in Wai'anae believe that the Army has demonstrated its ability to train at alternate locations, thus negating the need for Mākua Valley as a training area.

3.12.2 Policies Pertaining to Military Lands

3.12.2.1 Preserve and Transition Military Lands to Civilian Use

In keeping with the Wai'anae Concept Map, the overall long-range land use policy for the military lands at Lualualei and at Mākua Valley is that these lands should be preserved as agricultural/open space and returned to public use. These lands should also be preserved for cultural uses, and not be used for any other purposes, such as the creation of a new landfill or new private or public development.

The importance of U.S. military uses of lands at Lualualei and in Mākua Valley is controversial and debatable.

Therefore, the continued use of these lands for military purposes should be debated, and transition to public use should be pursued. Access to certain sites for cultural and religious practices should be allowed as per existing Federal Statutes and Rules. Upon such a time that Mākua Valley is released from military use, there should be a community participation process to plan for its re-use.

3.12.2.2 Organize and Implement Cooperative Programs

The City is committed to working with the community and with the Army and Navy to organize and implement programs for the ongoing protection and preservation of important cultural and natural resources found on the military lands of the Waiʻanae District.

3.12.3 Relation to Land Use Map

The two Navy installations at Lualualei and the Army's Mākua Training Area are shown on the Land Use Map by a "dot screen" pattern that allows the overall land use designation colors for "Agriculture" and "Preservation" to be seen.

4. PUBLIC FACILITIES AND INFRASTRUCTURE POLICIES AND GUIDELINES

This chapter of the Wai‘anae Sustainable Communities Plan presents **Policies** and **Guidelines** for the principal infrastructure systems that the Wai‘anae Community would like to see provided for the District.

The infrastructure issues presented here include the standard systems that the various City agencies are in charge of constructing and maintaining. The Wai‘anae Planning Advisory Committee has also discussed the importance of recognizing their community’s “original infrastructure” – the landscape and cultural resources, such as the *pu‘u* and *heiau* that the ancient Hawaiians living here used. They would like to ensure that this cultural infrastructure is recognized and preserved as much as possible.

The following are **General Policies** that are overarching to many of the infrastructure systems included in this chapter:

- The latest technology that allows the Wai‘anae Community to be as sustainable, or “green” as possible, should be implemented, while remaining consistent with other community objectives.
- Rural Infrastructure Standards should be considered and, where possible, developed by the City and State to maintain and reinforce a country feel and character. Standards would consider less impervious surfaces, attention to roadway quality of service – in addition to level of service, preference for bioretention solutions for storm waters, and alternative landscaping requirement for street trees. These standards would need to be such that they would not result in potentially hazardous conditions for vehicular or pedestrian traffic, or negatively impact abutting private property.

This Chapter includes the following sections:

- 4.1 Transportation Systems
- 4.2 Potable and Nonpotable Water Systems
- 4.3 Wastewater Collection and Treatment Systems
- 4.4 Electrical Power and Communications
- 4.5 Drainage Systems
- 4.6 Solid Waste Handling and Disposal
- 4.7 Civic, Public Safety, and Education Facilities
- 4.8 Health Care Facilities

4.1 TRANSPORTATION SYSTEMS

4.1.1 Overview of Transportation Systems in the Wai‘anae District

ROADWAYS

The major roadway in Wai‘anae is Farrington Highway. In the “old days,” Farrington Highway was a narrow, dusty track. Paved roads ended in Waipahu, and the ride out to the Wai‘anae Coast was a long haul. Then as now, Farrington Highway was the only road linking the Wai‘anae District to ‘Ewa and to Honolulu beyond. During the heyday of rail transportation on O‘ahu, a single track ran along the Wai‘anae Coast to Ka‘ena Point, and around to Mokuleia and Waialua on the North Shore. The embankment for this old railroad right-of-way still exists along a portion of the coast.

Today in 2010, Farrington Highway in the Wai‘anae District has four travel lanes as far as Mākaha Valley Road, and thereafter two lanes to its terminus at Keawaula. It serves as both the local coastal road for trips within the District as well as the only commuter highway for trips outside of Wai‘anae. During peak traffic, Farrington Highway is heavily congested, especially between Wai‘anae Town Center and Nānākuli. Important local collector roadways include Nānākuli Avenue, Heleakala Avenue, Lualualei Naval Road, Hakimo Road, Pa‘akea Road, Wai‘anae Valley Road, and Mākaha Valley Road (Exhibit 4-1).

The 2020 O‘ahu Regional Transportation Plan (ORTP) recommended safety and operational improvements for Farrington Highway in the 1995 to 2000 time frame, including sidewalks, pedestrian crosswalks or bridges, additional traffic signals, and continuous left-turn lanes. The O‘ahu Transportation Improvement Program (TIP) for FY 2006 through FY 2008 included bridge replacements and intersection improvements at numerous locations on Farrington Highway. The 2030 ORTP recommends congestion relief projects for Farrington Highway, consisting mostly of highway widening.

In the 2006-2020 time period, the ORTP recommends that Farrington Highway be widened to 6 lanes from Kapolei to Nānākuli. This would improve the highway level of service (LOS) to a projected LOS “C.”

In recent years, with the increase in the Wai‘anae District’s population, and the general trend of more automobile use by most citizens, traffic congestion on Farrington Highway has grown progressively worse. Congestion during the peak traffic period for morning commuters – about 5:00 to 7:00 a.m. – has been aggravated by the addition of unsynchronized traffic signals, which the State Department of Transportation has had some success in remedying. In the 8 miles between Mākaha Valley Road and Nānākuli Valley Road, there are 27 signalized

intersections. That 8-mile drive can take up to 45 minutes during the morning peak period. However, commuters headed for jobs in the downtown Honolulu or Waikiki area are still faced with another 1 to 1-1/2 hour drive, which continues to worsen with increased development in the 'Ewa and Kapolei areas.

As a possible solution to this increasingly severe commuter problem, some area residents have advocated the construction of a Second Access Highway. This is different from the Emergency Bypass Road, which would only be opened in times of emergency. It is also different from the Wai'anae Coast Emergency Access Road. The three projects are described briefly here for clarification/distinction:

- The **Emergency Bypass Road** would go from Farrington Highway, up Lualualei Naval Road, and through the Kolekole Pass to Kunia Road. It would only be opened in times of emergency.
- The **Wai'anae Coast Emergency Access Road** was completed in 2009. This project connects existing roads *mauka* of Farrington Highway to provide an alternate way in and out of the District during those emergency situations when Farrington Highway is closed.
- In contrast, the concept for the **Second Access Highway** is to provide an alternate route to commute into and out of the District – at all times, not just during emergencies. The proposed alignment for a Second Access Highway is from Farrington Highway, up Lualualei Naval Road, through the Wai'anae Mountain Range at Pōhakea Pass, to connect to Kunia Road in the 'Ewa District. In 2001, the City's Department of Transportation Services published the Lualualei Naval Road/Kunia Road Connector Road Concept Study. This report estimated the cost of building the road, which would include a tunnel, to be approximately \$250 million. More recent estimates put the cost closer to \$500 million.

The Second Access Highway concept raises some difficult and fundamental issues concerning regional transportation systems and regional growth management. Traffic congestion on Farrington Highway is severe, and will probably grow worse. However, the construction of a major new commuter roadway that would ease traffic congestion and shorten commuting time to areas outside of the District will facilitate urban growth and development. The fundamental policies of preservation of agricultural lands and support of a rural lifestyle for the Wai'anae community will be more difficult to sustain if major new infrastructure projects like a new highway are implemented.

Overall, most of the community agrees that the first priority is the opening of the Emergency Bypass Road for emergency situations, and continue to discuss options for a Second Access Highway for the future. The Emergency Bypass Road, of course, would not help the issue of lengthy commuting times to downtown Honolulu. Since the Second Access Highway will not be developed in the foreseeable future, public transportation options are encouraged.

PUBLIC TRANSPORTATION

Traffic congestion could be alleviated through an enhanced public transportation system for the Wai'anae District. Recent improvements to TheBus system include the completion of Phase 1 of the Wai'anae Community Transit Center, consisting of a transit station with bus stops and shelters. There is also adjacent land available for a future park-and-ride lot. This would increase residents' ability to utilize TheBus services.

There are currently several bus routes and shuttle services in operation in the Wai'anae community. Routes C, 40, 40A, 93, and 93A offer regional service, while Routes 401, 402, and 403 operate as a neighborhood shuttle service.

In addition, the Honolulu Rail Transit Project has plans to run buses along the Wai'anae Coast to connect with a rail station at Kapolei. TheBus connection to the planned Honolulu Rail Transit Project has the potential to decrease commute time and increase transportation options for residents who commute to Honolulu regularly.

BIKEWAYS, SIDEWALKS, AND REDEVELOPMENT OF TOWN AND VILLAGE CENTERS

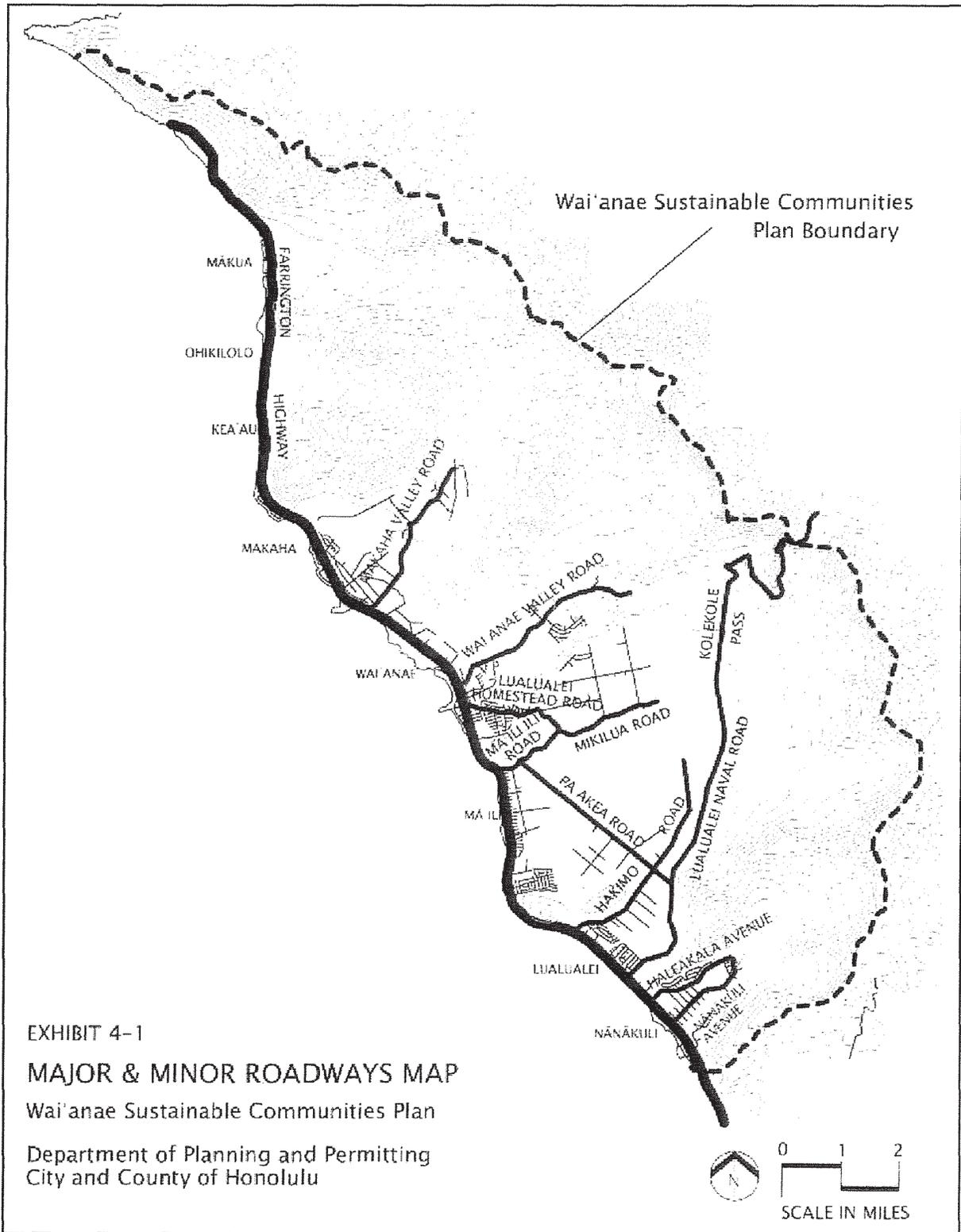
The development of more and safer bikeways and sidewalks, along with the redevelopment of Town and Village Centers, could decrease automobile use within the District. There is a need for a safe bicycle route along the entire Wai'anae Coast, and up some of the major valley roads, at least as far as the concentrations of urban/suburban development. Farrington Highway and the major valley roads also need safe sidewalks for pedestrian use. The provisions for the creation of more local jobs and the clustering of homes near Town Centers and Village Centers, as discussed earlier in this Plan, and thus less dependence on out-of-District commuting, would also be beneficial.

One specific idea is the development of a bike path on the old railroad right-of-way. Part of the right-of-way is under DOT jurisdiction, and part is incorporated within City park areas. The old railroad right-of-way has also been proposed for use by “antique trains” that would bring tourists into Wai’anae to shop. This concept may have some appeal to local business people, but such a use would not alleviate the traffic problem. In contrast, developing a bikeway along this route could help the situation.

In addition, residents are advocating for the creation of a walking/jogging/biking path along the coast (see Section 3.10.3.5).

COMPLETE STREETS

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



4.1.2 Policies Pertaining to Transportation Systems

4.1.2.1 Implement Farrington Highway Safety Improvements for Pedestrians and Motorists

A thorough study of safety improvements should be undertaken for Farrington Highway in Waiʻanae, and needed safety measures should be implemented in a timely manner. Safety improvements to be considered should include:

- Sidewalks, dedicated bike lanes, improved lighting, relocating utility poles and fire hydrants that are too close to the edge of the travelway, left turn lanes, deceleration and acceleration lands, bus pull-outs, traffic signals, traffic islands, median strip, pedestrian overpasses, and signalized pedestrian crosswalks.
- Use of a contra-flow system during the A.M. peak period and synchronization of traffic signals would also improve traffic flow and traffic safety.

To the extent possible, these safety measures should not impede the movement of vehicles on Farrington Highway, but where there is a conflict between pedestrian safety and vehicular flow, pedestrian safety should be the primary concern.

4.1.2.2 Beautify Farrington Highway

A comprehensive program for the incremental beautification of Farrington Highway in Waiʻanae should be established by the State DOT with community involvement. The program should consider undergrounding of overhead wires and elimination of utility poles, the planting of shade trees and other landscaping, with an emphasis on native, drought-tolerant plants; attractive signage announcing the entrance to the Waiʻanae District and the entrance into the subcommunities of Nānākuli, Māʻili, Lualualei, Waiʻanae, and Mākaha; and special design elements within the Country Town and Village Centers, including planting, lighting, signage, paving, and street furniture. Curb to curb pavement width could also be reduced. The overall objective should be to return at least parts of Farrington Highway to a more human and pedestrian-friendly scale.

Action should be taken to screen visually unattractive industrial facilities such as the Waiʻanae Wastewater Treatment Plant and the Department of Transportation's Base Yard. Eventual relocation of the Base Yard should also be considered.

4.1.2.3 Establish an Emergency Bypass Road

There is a need to establish an Emergency Bypass Road that can be used as an alternate to Farrington Highway for those times when one or more sections of Farrington Highway may be impassable due to storm damage, a severe vehicular accident, or some other cause. The recommended alignment is from Farrington Highway up the Lualualei Naval Road through the Kolekole Pass to Kunia Road. This should begin with an analysis of upgrading the Kolekole Pass.

4.1.2.4 Enhance Public Transportation

TheBus has made recent improvements within the District, including the completion of Phase 1 of the Wai'anae Community Transit Center, consisting of a transit station with bus stops and shelters. There is also adjacent land available for a future park-and-ride lot. The construction of the park-and-ride is recommended, since it would increase residents' ability to utilize TheBus services.

In addition, the Honolulu Rail Transit Project has plans to run buses along the Wai'anae Coast to connect with a rail station at Kapolei. This SCP supports TheBus connections to the planned Honolulu Rail Transit Project, since it has the potential to decrease commute time and increase transportation options for residents who commute to Honolulu.

4.1.2.5 Encourage Other Modes of Transportation

Encourage plans and programs for other modes of transportation, including bikeways, pedestrian walkways and paths, and creative use of existing unutilized transportation corridors such as the old OR&L railroad right-of-way (ROW). This ROW could be used for a multiuse path for bikers, roller bladers, skateboarders, personal transportation vehicles, and pedestrians that would be safe from vehicular traffic. The community also supports the development of a walking/jogging/biking path along the coast.

4.2 POTABLE AND NON POTABLE WATER SYSTEMS

4.2.1 Overview of Potable Water Systems

The potable water system currently servicing the area consists of seven source wells in Mākaha, the Mākaha shaft, three wells in Wai'anae Valley, the Wai'anae Tunnel, and the Plantation Tunnel.

The sustainable yield of the Wai'anae and Mākaha Aquifer System Areas, where active BWS sources are allocated, is only about 3 mgd each, as adopted by the State Commission on Water Resource Management (CWRM) in the August 2008 [Water Resource Protection Plan](#). In the year 2005, the City produced about 4.9 mgd from these sources. This volume of water was less than the 2005 District demand of approximately 11.1 mgd. The balance of about 6.2 mgd is currently imported into the District from the much larger Pearl Harbor Aquifer Sector Area. Additionally, Wai'anae is supplied by small, in-district Federal, State, and private sources.

The Wai'anae Watershed Management Plan (BWS, 2010), described in Section 3.1.7, indicates that the District will need to diversify its water supply sources in the future, since there will be competing demands for currently undeveloped water from the Pearl Harbor Aquifer Sector Area, and Wai'anae's ground water withdrawals are already maximized.

BWS projections for the year 2030 indicate that the Wai'anae District will consume 13.37 mgd of potable water. These projections are based on a BWS-served population of 50,616, and DPP estimated growth in jobs. It is projected that the Wai'anae District will have to import approximately 7.21 mgd to provide for this projected 2030 scenario.

Potable water is conveyed to users through a system of water mains that follow the major roads in the District: Farrington Highway, Nānākuli Avenue, Heleakala Avenue, Hakimo Road, Kaukama Road, Pa'akea Road, Mā'ili'ilī'i Road, Lualualei Homestead Road, Wai'anae Valley Road, and most of the major roads in Mākaha Valley. The water distribution system along Farrington Highway ends at the last 1-acre lot just past Kepuhi Point.

The cost of installing water service, especially for irrigation of crops on a small family farm, is an issue in Wai'anae. These charges are large capital outlays for the small family farms of the Wai'anae Coast. Federal and State assistance could help farmers offset infrastructure costs.

4.2.2 Overview of Nonpotable Water Systems

Regarding the use of non-potable water in Wai'anae, there is some potential, but it is limited. As of 2009, BWS only provided non-potable water from Glover Tunnel in Mākaha, with water from this system directed into the Mauna Olu Non-Potable Open Reservoir, which stores irrigation water for the Mākaha Resort's West Golf Course. Additionally, there are two existing unused brackish water sources that, in the past, supplied drinking water to the old suburban water supply company, which served the Nānākuli and Lualualei area. The two sources that could possibly be rehabilitated for brackish water irrigation are the Nānākuli Shaft, State Well No. 2308-01, and the Lualualei Shaft, State Well No. 2508-02.

In addition, the BWS conducted a feasibility study on water re-use. It found that the water is too brackish for re-use due to seawater intrusion into the District's sewer lines. In order to re-use Wai'anae's wastewater, the sewer lines would need to be upgraded to reduce/eliminate seawater intrusion. One possible alternative would be the use of Membrane Bioreactor units (MBRs). MBRs provide an alternative method of producing recycled water adjacent to the areas of use for irrigating golf courses and landscaped areas (R-1 quality). More details on this technology and other alternatives can be found in the Wai'anae Watershed Management Plan (BWS, 2010).

4.2.3 Water Conservation in the Wai‘anae District

The O‘ahu Watershed Management Plan encourages water conservation. In Wai‘anae, water conservation is especially important, since the community has expressed the desire to be as self-sufficient as possible. Thus, the Wai‘anae Watershed Management Plan (WWMP) includes numerous strategies to reduce water use and extend existing supplies. Those strategies are incorporated into the following Policies regarding both potable and nonpotable water systems.

4.2.4 Policies Pertaining to Potable and Nonpotable Water Systems

4.2.4.1 Implement Watershed Protection Strategies to Improve Forest Health & Perennial Stream Flows

Watershed protection is essential, since healthy forests sustain streams and groundwater aquifers. They provide a buffer for drought mitigation, as well as educational and vocational opportunities. Two critical watershed protection strategies include: (1) Restoration of natural watershed structure and functions, and (2) Preservation of species and habitat biodiversity by assessing and restoring critical water-related habitats. Details of these strategies are included in the WWMP.

4.2.4.2 Encourage Water Conservation

Public education and coordination to develop conservation programs to efficiently utilize potable water are needed to reduce the District’s reliance on imported Pearl Harbor aquifer water. Some conservation measures include: leak detection/repair, low-flow fixtures, and use of rain catchments.

4.2.4.3 Diversify Water Supply, Matching Quality with Use

The Wai‘anae water supply should be diversified, so nonpotable water use can be maximized, and potable water can be reserved for potable uses. Brackish sources should be developed and innovative new technologies like Membrane Bioreactors should be utilized to produce recycled water. In addition, The Wai‘anae water system infrastructure should be expanded to allow this diversification, as well as to improve adequacy and dependability of the supply, transmission, and storage.

4.2.4.4 Support the Goals and Objectives of the Adopted Wai‘anae Watershed Management Plan

The five major objectives are: (1) Promote sustainable watersheds; (2) Protect and enhance water quality and quantity; (3) Respect Native Hawaiian rights and traditional and customary practices; (4) Facilitate public participation, education, and project

implementation; and (5) Meet future water demands at reasonable costs. The specific details of how to implement those objectives are included in that Plan.

4.3 WASTEWATER COLLECTION AND TREATMENT SYSTEMS

4.3.1 Overview of Wastewater Collection and Treatment Systems

Wastewater for the Waiʻanae District is collected at the Waiʻanae Wastewater Treatment Plant (WWTP) located north of Puʻu Māʻiliʻiliʻi and south of Waiʻanae Mall. The treatment plant has been designed for average dry weather flows of 5.2 mgd with a peak flow of 13.8 mgd. 2007 average flows to the treatment plant were approximately 3.5 mgd, an increase of 0.3 mgd since 1997. Thus, the plant still has excess capacity to handle additional flows.

Based on 80 gallons per capita per day, the current design capacity of the wastewater treatment plant could handle an additional 18,750 people, or an additional 4,688 households (based on an average of 4 persons per household) tied into the system.

The location of the WWTP – fronting on Farrington Highway and next to Waiʻanae Mall, the largest shopping center in the Waiʻanae District – is less than ideal. A community landscaping project has helped to screen the WWTP.

The major sewer lines generally follow Farrington Highway and the major valley roads, with the exception of Lualualei Valley, where the sewer lines do not extend beyond the more densely developed coastal zone.

Although the treatment plant has excess capacity to handle new flows, many of the existing residences that were initially developed with cesspools have not yet connected to the wastewater system. The Waiʻanae Sustainable Communities Plan (2000) estimated that approximately 1,180 residences that are near existing sewer lines were not yet connected.

Based on City records from the 1990s, approximately 20 percent of the residences in the Waiʻanae District were not hooked up to the wastewater collection system. Many of these residences are on property that was developed by the Department of Hawaiian Home Lands. The responsibility for tying into the wastewater collection system lies with the residents. The sewer lines have been sized to handle these house lots. However, since many people have not connected to the system, low flows in the lines cause septic conditions in the sewer lines, which often result in odors.