A. **INTRODUCTION**

Maui, voted Best Island in the World by readers of Conde Nast Traveler magazine for 10 consecutive years, is one of the most popular global destinations for a beach vacation. According to the *Maui County Data Book 2004*, Maui received a total of 2,125,421 visitors by air in 2003 who stayed an average of 7.33 days, translating into an average daily census count of 42,710 visitors per day. Total spending (US$) in Maui County for all visitors in 2003 was $172.64 per person per day (*Maui County Data Book 2004*).

The Maui coastline is approximately 120 miles long and boasts over 30 miles of beaches, some of which are made up of black sand, some red sand, but most consist of white or yellow calcareous sand deposits. This 30 mile stretch of coastline contains 81 accessible beaches, 39 of which have public facilities (*Maui Visitors Bureau, 2005*). Many of these beaches front County-owned parks, providing both local residents and tourists with easy access to the ocean, as well as regularly maintained facilities such as picnic tables, BBQ grills, showers and restrooms.

County beach parks offer a diverse range of recreational opportunities to the general public and, therefore, represent a valuable resource to local communities around Maui. Land-based recreational opportunities available at most beach parks include sunbathing, beach/park games, jogging, walking, dog-walking, picnicking and barbecuing. A wealth of ocean-based recreational opportunities are also made possible by the ocean and meteorological conditions present along the Maui coastline, including but not limited to bodyboarding, surfing, scuba diving, windsurfing, kayaking, canoeing, snorkeling, snuba, kiteboarding, swimming and spearfishing. As illustrated in Table III-1 below, the
majority of most nationalities of visitors to Maui engage in some kind of recreational activity during their stay. The findings in Table III-1 also suggest that ocean recreational activity is generally preferred over land-based alternatives by visitors with between 21.80 and 77.90 percent of U.S. visitors to Maui County engaging in some form of beach-related activity, such as swimming, sunbathing, snorkeling, scuba diving, jet skiing, parasailing or windsurfing.
### Table III-1

**MAUI COUNTY ACTIVITY PARTICIPATION BY VISITOR ORIGIN**

<table>
<thead>
<tr>
<th>Activity</th>
<th>U.S. Total</th>
<th>U.S. West</th>
<th>U.S. East</th>
<th>Japan</th>
<th>Canada</th>
<th>Europe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swimming, Sunbathing, Beach (O)</td>
<td>77.90%</td>
<td>81.70%</td>
<td>74.60%</td>
<td>36.50%</td>
<td>73.50%</td>
<td>78.10%</td>
</tr>
<tr>
<td>Snorkeling, Scuba Diving (O)</td>
<td>21.80%</td>
<td>28.60%</td>
<td>15.90%</td>
<td>5.00%</td>
<td>20.90%</td>
<td>13.40%</td>
</tr>
<tr>
<td>Jet Skiing, Parasailing, Windsurfing (O)</td>
<td>53.10%</td>
<td>61.90%</td>
<td>45.40%</td>
<td>12.60%</td>
<td>40.60%</td>
<td>34.00%</td>
</tr>
<tr>
<td>Golf (L)</td>
<td>7.10%</td>
<td>8.60%</td>
<td>5.70%</td>
<td>2.60%</td>
<td>11.90%</td>
<td>3.70%</td>
</tr>
<tr>
<td>Running, Jogging, Fitness Walking (L)</td>
<td>14.80%</td>
<td>13.80%</td>
<td>15.70%</td>
<td>12.60%</td>
<td>34.10%</td>
<td>6.30%</td>
</tr>
<tr>
<td>Gym, Health Spa (L)</td>
<td>36.70%</td>
<td>40.30%</td>
<td>33.50%</td>
<td>8.40%</td>
<td>34.10%</td>
<td>18.20%</td>
</tr>
<tr>
<td>Backpacking, Hiking, Camping (L)</td>
<td>17.10%</td>
<td>18.70%</td>
<td>15.70%</td>
<td>2.40%</td>
<td>9.40%</td>
<td>5.50%</td>
</tr>
<tr>
<td>Sports Event or Tournament (L)</td>
<td>16.70%</td>
<td>18.50%</td>
<td>15.00%</td>
<td>2.90%</td>
<td>15.00%</td>
<td>16.90%</td>
</tr>
<tr>
<td>Recreation Activity in General</td>
<td>86.20%</td>
<td>90.30%</td>
<td>82.60%</td>
<td>52.20%</td>
<td>80.30%</td>
<td>81.30%</td>
</tr>
</tbody>
</table>

*O = Ocean-based activities

*L = Land-based activities

Beach parks often play host to a variety of user groups, such as tourists, local families, and sports enthusiasts engaging in ocean recreational activities, as well as CORA operations and their customers. It is this interaction between user groups that can occasionally place pressure on recreational experience parameters at County beach parks, especially during peak use periods such as weekends and holidays.

Beach park management on Maui, therefore, represents a considerable challenge to County authorities. Effective management of County beach parks along the Maui coastline is necessary to ensure that facilities and resources are maintained in such a way so as to secure optimal and sustained recreational experiences for both local residents and tourists alike.

This chapter seeks to specifically address and assess current conditions present at each of the 17 County beach parks that were selected for inclusion within the CORA study. The presentation of an overview for each park in combination with an analysis of facilities, popular activities and key environmental parameters provide the basis for the beach park assessment component of the overall methodological framework. Pertinent management considerations are also highlighted as a final element of the assessment process for each beach park addressed in the CORA study.

A recognized limitation associated with the environmental analysis of beach parks is that observations noted during site visits reflect a point-in-time set of visitor and environmental/meteorological conditions. To ensure the minimization of this important study limitation, the following elements were integrated into the methodological framework for the beach park assessments:
• To ensure the visitor use characteristics were representative, site visits to beach parks were completed during favorable meteorological conditions.

• Multiple site visits were conducted to those beach parks where seasonal fluctuations in environmental or meteorological conditions were apparent. For example, site visits to Kanaha Beach Park were conducted during both winter and summer seasons due to varying use characteristics associated with tradewind conditions and north swells.

• Input was received from County of Maui Ocean Safety Officers (OSOs) and as well as Department representatives familiar with field conditions in order to provide a longer-term perspective on beach park conditions.

• Feedback on site-specific conditions at the 17 beach parks addressed in the CORA study was also received from CORA operators during various comment and focus group meetings held during the first half of 2005.

Analysis and discussion of the findings of each of the following beach park assessments will allow the Department to effectively address issues of carrying capacities at County-owned beach parks and to make informed decisions regarding permitting procedures and the formulation of Administrative Rules under Ordinance No. 3143.

B. BEACH PARK ASSESSMENTS

A written assessment for each of the 17 beach parks included within the scope of the CORA study is presented herein. As outlined previously in Chapter I, eight (8) of the 17 beach parks selected for the study sample are located in the Kihei-Makena Community Plan region, six (6) in the West Maui region, two (2) in the Wailuku-Kahului region and one (1) in the Hana region. Refer to Figure I-1. For purposes of report structure, the beach park assessments have been regionally organized according to the Community Plan region to which they belong. Table III-2 highlights
the parks belonging to each respective Community Plan area and the order in which they have been addressed in this chapter.

Table III-2

<table>
<thead>
<tr>
<th>Community Plan Region</th>
<th>Beach Park</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kihei-Makena</td>
<td>Memorial (Maipoina Oe Iau)</td>
</tr>
<tr>
<td></td>
<td>Waipuilani</td>
</tr>
<tr>
<td></td>
<td>Kalama</td>
</tr>
<tr>
<td></td>
<td>Keawakapu (I &amp; II)</td>
</tr>
<tr>
<td></td>
<td>Ulua/Mokapu</td>
</tr>
<tr>
<td></td>
<td>Palauea</td>
</tr>
<tr>
<td></td>
<td>Makena Landing</td>
</tr>
<tr>
<td></td>
<td>Maluaka</td>
</tr>
<tr>
<td>West Maui</td>
<td>Papalaua</td>
</tr>
<tr>
<td></td>
<td>Ukumehame</td>
</tr>
<tr>
<td></td>
<td>Kamehameha Iki</td>
</tr>
<tr>
<td></td>
<td>Wahikuli Wayside</td>
</tr>
<tr>
<td></td>
<td>Hanakaoo</td>
</tr>
<tr>
<td></td>
<td>D.T. Fleming</td>
</tr>
<tr>
<td>Wailuku-Kahului</td>
<td>Kanaha</td>
</tr>
<tr>
<td></td>
<td>Waihee</td>
</tr>
<tr>
<td>Hana</td>
<td>Hana Bay</td>
</tr>
</tbody>
</table>

For reporting purposes, each of the four (4) community plan regions has been divided into three (3) integral elements:

1. A general socio-economic description of the community plan region.
2. An assessment of general environmental conditions at County beach parks within the community plan region.
3. Detailed assessments for each individual county beach park within the community plan region. Each beach park assessment provides a park overview, facility/activity assessments and an environmental analysis of pertinent site-specific park management considerations.
Following the presentation of findings for each of the four (4) community plan sections, a beach park assessment summary section is presented to highlight the pertinent characteristics and management challenges inherent to each of the seventeen (17) County beach parks within the CORA study.

1. **Kihei-Makena Community Plan Region**

Eight (8) of the 17 beach parks included in this study fall within the limits of the Kihei-Makena Community Plan region. See Figure III-1. The eight (8) beach parks are Memorial/Maipoina Oelau (hereafter referred to as "Memorial"), Waipuilani, Kalama, Keawakapu (I and II), Ulua/Mokapu, Palauea, Makena Landing, and Maluaka.

As outlined previously, the section (a) which follows provides a general socio-economic summary of the Kihei-Makena Community Plan region. An assessment of general beach park conditions within the region follows in the second section (b). Individual assessments for each of the eight (8) beach parks in the Kihei-Makena region are then presented in the final section (c), encompassing a park overview, facility/activity assessments and pertinent site-specific environmental management considerations.

a. **Regional Overview**

The Kihei-Makena Community Plan region is located in South Maui, beginning approximately at the Maalaea Small Boat Harbor and extending southeast along the coastline to Makena and La Perouse. The region includes the towns and associated residential areas of Maalaea, Kihei, Wailea, and Makena.
Figure III-1: Commercial Ocean Recreational Activity (CORA) Study
Kihei-Makena Community Plan Map

Source: County of Maui, Dept. of Planning
Prepared for: County of Maui, Dept. of Parks and Recreation

NOT TO SCALE
The Kihei-Makena region has experienced considerable population growth over the years. In 2000, 22,870 (19 percent) of Maui’s 117,644 residents lived in the region. Population has grown by 49 percent since 1990 when 15,365 people resided in the region. Growth is expected to continue, with the projected population for the Kihei-Makena Community Plan in 2010 standing at 27,181 (SMS, 2002).

State designated "Agricultural", "Conservation", "Rural", and "Urban" lands are found in the Kihei-Makena region. "Agricultural" and "Conservation" lands occupy the inland areas of the Community Plan region along the lower slopes of Haleakala and the southern central plain.

"Urban" lands are concentrated along the coast in the towns of Kihei and Wailea. The Kihei coastline is home to visitor-oriented condominiums, restaurants, and shops, while single- and multi-family residential subdivisions are located north of the shoreline areas. The resort communities of Wailea and Makena include a mixture of hotels and condominiums, golf courses, restaurants, and shops. Major hotels in the region include Diamond Resort, Fairmont Kea Lani Maui, Grand Wailea Resort, Marriott Wailea Resort, Four Seasons Maui, Maui Prince Resort, and Renaissance Wailea Beach Resort.

The Kihei-Makena Community Plan region represents the second largest tourist destination on Maui. In 2000, the average daily visitor population of the region was 16,669, with 39.9 percent of Maui visitors staying overnight (SMS, 2002).
b. **General Beach Park Conditions**

The Kihei-Makena Community Plan region contains approximately 28 County parks, of which 18 are beach parks or access points situated along Maui's southern coastline. While specific environmental conditions vary between individual locations, the eight (8) beach parks in the region also exhibit a number of similar character traits. A discussion of the general environmental conditions at the eight (8) beach parks selected for inclusion within the study is presented herein. This section will be followed by assessments for each individual beach park in which specific environmental considerations relevant to the CORA study will be addressed.

(1) **Surrounding Land Uses**

Surrounding land uses vary according to the precise location of each particular beach park. Palauea, Makena Landing, and Maluaka Beach Parks are surrounded by a combination of State designated "Urban", "Agricultural", and "Rural" lands, while the remaining five (5) beach parks studied in the Kihei-Makena region are situated within State designated "Urban" lands.

The beach parks surrounded by "Urban" lands are located in or around major tourist areas, such as Kihei and Wailea. Memorial, Waipuilani, Kalama, and Keawakapu Beach Parks are accessible from South Kihei Road, the main road running through the town of Kihei along the coastline. The beach parks located
along South Kihei Road are all in close proximity to visitor-oriented condominiums, single-family homes, shops, and restaurants.

Ulua/Mokapu Beach Park is located in the heart of Wailea Resort, adjacent to the Renaissance Wailea Beach Resort and Wailea Elua Village, while Maluaka Beach Park borders the Maui Prince Resort.

Kiawe trees occupy much of the "Rural" lands surrounding Makena Landing Beach Park. Scattered high-end single-family homes line the coastline near this beach park.

Table III-3 provides a brief summary of the State Land Use designations and surrounding land uses for each of the CORA study parks within the Kihei-Makena Community Plan region.
### Table III-3

<table>
<thead>
<tr>
<th>Beach Park</th>
<th>State Land Use Designation of Beach Park</th>
<th>State Land Use Designations of Surrounding Areas</th>
<th>Surrounding Land Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memorial</td>
<td>Urban</td>
<td>Urban</td>
<td>Single-family and multi-family residential units, condominiums, vacant lands</td>
</tr>
<tr>
<td>Waipuilani</td>
<td>Urban</td>
<td>Urban</td>
<td>Maui Sunset, single-family and multi-family residential units, vacant lands</td>
</tr>
<tr>
<td>Kalama</td>
<td>Urban</td>
<td>Urban</td>
<td>Single-family and multi-family residential units, 76 gas station, Kihei-Kalama Village, Kihei Town Center, roadside activity kiosks, Kihei Fire Station, Maui Open Market</td>
</tr>
<tr>
<td>Keawakapu (I&amp;II)</td>
<td>Urban</td>
<td>Urban</td>
<td>Single-family residential units, Mana Kai Maui Resort</td>
</tr>
<tr>
<td>Ulua/Mokapu</td>
<td>Urban</td>
<td>Urban</td>
<td>Renaissance Wailea Beach Resort, Wailea Elua Village, Wailea Fairway Estates, Wailea Marriott Resort, Wailea Blue Golf Course</td>
</tr>
<tr>
<td>Palauea</td>
<td>Urban, Agricultural</td>
<td>Urban, Agricultural</td>
<td>Single-family residential units, vacant lands, Fairmont Kea Lani Maui</td>
</tr>
<tr>
<td>Makena Landing</td>
<td>Urban</td>
<td>Urban, Rural, Agricultural</td>
<td>Single-family residential units, vacant lands</td>
</tr>
<tr>
<td>Maluaka</td>
<td>Urban</td>
<td>Urban, Rural, Agricultural</td>
<td>Keawalai Church, Maui Prince Resort, single-family residential units, vacant lands</td>
</tr>
</tbody>
</table>

(2) **Flora and Fauna**

Species of flora observed during assessment of the eight (8) Kihei-Makena Community Plan beach parks
include Palm trees, Coconut trees, Naupaka, Kiawe, Ironwood, Monkey Pod, and Morning Glory. Naupaka and Morning Glory are most common along the shoreline while other species are frequently found within park areas.

Fauna at Kihei-Makena beach parks vary according to surrounding land use. Beach parks surrounded by developed land, such as Kalama, Keawakapu, Maluaka, and Ulua/Mokapu Beach Parks, were identified as lacking a diverse fauna presence. Fauna at beaches adjacent to relatively undeveloped lands such as Memorial, Waipuilani, Palauea, and Makena Landing, are generally limited to cats, dogs, mongoose, rats and mice, and other stray animals commonly associated with coastal areas. Avifauna present tends to be more diverse and is directly related to the degree of vegetation/landscaping and natural dune structure existing at each individual beach park.

(3) **Topography and Soils**

The United States Department of Agriculture's *Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lana'i* (1972), classifies land with soil associations, which each include different soil types. Most of the beach parks within the Kihei-Makena Community Plan region are situated on Beach Sand (BS) and Dune Lands (DL). Memorial, Waipuilani and Kalama Beach Parks are located within the
Pulehu-Ewa-Jaucas Association, which consists of deep, nearly level to moderately sloping, well-drained and excessively drained soils that have a moderately fine textured to coarse-textured subsoil (U.S. Department of Agriculture, 1972). The remaining beach parks fall within the Keawakapu-Makena Association, which is characterized by gently sloping to moderately steep, well-drained soils that have a fine textured to medium textured subsoil and are shallow to deep over fragmental land. This association is found on low uplands and is developed from material weathered by volcanic ash (U.S. Department of Agriculture, 1972).

Table III-4 provides a brief summary of the soil associations and specific soil types for each of the beach parks studied in the Kihei-Makena Community Plan region.
### Table III-4

<table>
<thead>
<tr>
<th>Beach Park</th>
<th>General Soil Association</th>
<th>Association Characteristics</th>
<th>Specific Soil Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memorial</td>
<td>Pulehu-Ewa-Jaucas</td>
<td>Deep, nearly level to moderately sloping, well-drained and excessively drained soils that have a moderately fine textured subsoil or underlying material</td>
<td>BS, DL</td>
</tr>
<tr>
<td>Waipuilani</td>
<td></td>
<td></td>
<td>BS, DL</td>
</tr>
<tr>
<td>Kalama</td>
<td></td>
<td></td>
<td>BS, DL</td>
</tr>
<tr>
<td>Keawakapu (I&amp;II)</td>
<td>Keawakapu-Makena</td>
<td>Found on low uplands, characterized by gently sloping to moderately steep, well-drained soils that have fine textured to medium textured subsoil and are shallow to deep over fragmental land</td>
<td>BS, DL</td>
</tr>
<tr>
<td>Ulua/Mokapu</td>
<td></td>
<td></td>
<td>BS, DL, MXC</td>
</tr>
<tr>
<td>Palaeua</td>
<td></td>
<td></td>
<td>BS, MXC</td>
</tr>
<tr>
<td>Makena Landing</td>
<td></td>
<td></td>
<td>MXC</td>
</tr>
<tr>
<td>Maluaka</td>
<td></td>
<td></td>
<td>BS, MXC</td>
</tr>
</tbody>
</table>

BS - Beach Sand - Sand, gravelly, or cobbly areas, washed and rewashed by ocean waves.
DL - Dune Land - Consists of hills and ridges of sand-size particles drifted and piled by wind. Hills and ridges are actively shifting or are so recently fixed or stabilized that no soil horizons have developed. The sand is predominantly from coral and seashells.
MXC - Makena Loam, Stony Complex 3 to 15 percent slopes - Consists of stony land on low ridges and Makena loam on gently sloping areas between low ridges of stony land. Makena loam has moderately rapid permeability and slow to medium runoff with a slight to moderate erosion hazard.


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(4) **Shoreline Geology and Physiographical Features**

Beach Parks in the Kihei-Makena Community Plan region are found along the coast of South Maui. All eight (8) of the selected beach parks' shorelines are characterized by sand of predominantly calcareous (reef rock) material (AECOS, 1981).

The Kalama Beach Park shoreline is also characterized by a boulder revetment constructed in
the 1970s to manage coastal erosion. Since its construction, nearly all beach sand fronting the revetment has eroded away (University of Hawaii, SOEST, 2003).

Varying degrees of coastal erosion and degradation of dune systems were noted at the beach parks in the Kihei-Makena region. Damage to dune systems was most severe at beach parks which lacked designated pathways and dune walkways between park facilities and oceanfront areas. In some cases where designated pathways do exist, park visitor traffic continues to result in the proliferation of pathways between grassy areas within the park and the ocean front, cutting across sand dunes and accelerating erosion. At Memorial Beach Park, posted signs requesting visitors to use the two (2) designated paths have not prevented visitor-created paths and associated dune damage.

Beach parks fronting resort areas with shoreline access points generally display less damage to dune systems because pathways and vegetation separating the beach front and hotels limit opportunities for self-made paths. Designated access points are the most convenient way for visitors to reach the ocean. Coastal walkways associated with adjacent hotels at Ulua/Mokapu and Maluaka Beach Parks seek to prevent visitors from creating their own paths to the ocean.
Beaches along Maui's southern shore have experienced moderate erosion over time. Data from the *Maui Shoreline Atlas*, University of Hawaii, SOEST (2003) was used to assess coastal erosion patterns at the eight (8) beach parks in the Kihei-Makena Community Plan region. The study breaks Maui's coastline into 30 different study areas, measuring erosion rates at 20 meter transects in these areas. An Annual Erosion Hazard Rate (AEHR) is produced for each study area by taking a spatially smoothed center weighted average of these erosion measurements. An average AEHR for the shorelines fronting the selected beach parks was obtained by taking an arithmetic mean of the AEHRs of transects in the designated area. Change in average beach width, the horizontal distance from the vegetation line to the low water mark, was also used to analyze the influence of coastal erosion at selected beach parks.

Table III-5 summarizes the shoreline characteristics and erosion statistics at the eight (8) beach parks in the Kihei-Makena Community Plan Region.
### Table III-5

**SHORELINE GEOLOGY AND COASTAL EROSION RATES FOR KIHEI-MAKENA COMMUNITY PLAN BEACH PARKS**

<table>
<thead>
<tr>
<th>Beach Park</th>
<th>Shoreline Characteristics</th>
<th>Study Area Description</th>
<th>Average AEHR for Study Area</th>
<th>Average AEHR for Shoreline Fronting Beach Park</th>
<th>Average Beach Width Change for Study Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memorial</td>
<td>Sand beach of predominantly calcareous (reef rock) material</td>
<td>North Kihei (Kealia Pond to Kalepolepo Beach Park, 199 transects)</td>
<td>-0.9 ft./yr.</td>
<td>-0.38 ft./yr. (transects 41-85)</td>
<td>-28%</td>
</tr>
<tr>
<td>Waipuulanii</td>
<td>Sand beach of predominantly calcareous (reef rock) material</td>
<td>Kawaiilipoa (Koieie Fishpond to Halama Street, 120 transects)</td>
<td>-1.0 ft./yr.</td>
<td>-0.88 ft./yr. (transects 40-65)</td>
<td>-21%</td>
</tr>
<tr>
<td>Kalama</td>
<td>Sand beach of predominantly calcareous (reef rock) material, Boulder revetment, usually basalt “blue rock”</td>
<td>Halama Street (Fishpond ruins to Kaluahakoko Boat Ramp, 114 transects)</td>
<td>-1.5 ft./yr.</td>
<td>-1.95 ft./yr. (transects 4-48)</td>
<td>-34%</td>
</tr>
<tr>
<td>Keawakapu (III)</td>
<td>Sand beach of predominantly calcareous (reef rock) material, rocky outcrops</td>
<td>North Wailea (Keawakapu I to Wailea Beach Park, 121 transects)</td>
<td>-1.1 ft./yr.</td>
<td>-0.96 ft./yr. (transects 10-30)</td>
<td>-30%</td>
</tr>
<tr>
<td>Ulua/Mokapu</td>
<td>Sand beach of predominantly calcareous (reef rock) material, rocky outcrops</td>
<td>North Wailea (Keawakapu I to Wailea Beach Park, 121 transects)</td>
<td>-1.1 ft./yr.</td>
<td>-1.22 ft./yr. (transects 59-93)</td>
<td>-30%</td>
</tr>
<tr>
<td>Palauea</td>
<td>Sand beach of predominantly calcareous (reef rock) material, rocky outcrops</td>
<td>South Wailea (from Polo Beach to Aawa Beach, 119 transects)</td>
<td>-1.0 ft./yr.</td>
<td>-0.80 ft./yr. (transects 75-89)</td>
<td>-17%</td>
</tr>
<tr>
<td>Makena Landing</td>
<td>Sand beach of predominantly calcareous (reef rock) material, rocky outcrops</td>
<td>Big Beach and Makena (Makena Bay to Oneloa Beach, 157 transects)</td>
<td>-0.7 ft./yr.</td>
<td>-0.12 ft./yr. (transects 1-6)</td>
<td>-10%</td>
</tr>
<tr>
<td>Makena</td>
<td>Sand beach of predominantly calcareous (reef rock) material</td>
<td>Big Beach and Makena (Makena Bay to Oneloa Beach, 157 transects)</td>
<td>-0.7 ft./yr²</td>
<td>-1.11 ft./yr. (transects 28-46)</td>
<td>-10%</td>
</tr>
</tbody>
</table>

1. Based on data collected between 1900 and 1997.
2. Based on data collected between 1912 and 1997.

(5) **Offshore Bottom Type**

The shoreline of South Maui is characterized by a mixture of complex reef, hard rock bottom, limestone cobble/boulders, and sand pockets (AECOS, 1981). Of the eight (8) beach parks selected in the Kihei-Makena Community Plan region, Memorial, Waipuilani, and Kalama have patches of complex reef bottom types consisting of a mixture of limestone boulders, outcrops, and sand. Areas of hard rock bottom are found at varying distances from the shore at Keawakapu (I and II), Ulua/Mokapu, Palauea, Makena Landing, and Maluaka Beach Parks (AECOS, 1981). Table III-6 summarizes the off-shore bottom types for the eight (8) beach parks studied in the Kihei-Makena Community Plan region.
### Table III-6

<table>
<thead>
<tr>
<th>Beach Park</th>
<th>Offshore Bottom Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memorial</td>
<td>rc, rcl</td>
</tr>
<tr>
<td>Waipuilani</td>
<td>sc, rcs, rc</td>
</tr>
<tr>
<td>Kalama</td>
<td>rc, sc, rcs</td>
</tr>
<tr>
<td>Keawakapu (I&amp;II)</td>
<td>sc, rb, rs</td>
</tr>
<tr>
<td>Ulua/Mokapu</td>
<td>sc, rb, rs</td>
</tr>
<tr>
<td>Palauea</td>
<td>sc, sr, rb</td>
</tr>
<tr>
<td>Makena Landing</td>
<td>rs, rb, sc</td>
</tr>
<tr>
<td>Maluaka</td>
<td>sc, rb, rbs</td>
</tr>
</tbody>
</table>

rb - sand or hard bottom; a massive rock surface
rbs - hard bottom with sand pockets (less than 50% of the area)
rc - complex reef bottom type consisting of a mixture of limestone boulders, and outcrops, and sand; hard bottom rubble, or boulders predominate
rcl - predominantly consolidated limestone surface
rcs - complex reef bottom type consisting of a mixture of limestone rubble and (mostly) sand
rs - sand pocket with scattered outcrops of limestone and/or limestone boulders
sc - areas of sand bottom without significant proportions of limestone rock

Source: AECOS, Maui Coastal Zone Atlas, produced for Harbors Division, Department of Transportation, 1981.

### (6) Stream Hydrology and Surface Drainage Characteristics

Drainage channels and streams commonly flow near or through County Beach Parks along Maui's coastline. Of the eight (8) beach parks studied in South Maui, Waipuilani, Kalama and Keawakapu (II), were identified as containing or being located near gulches or streams. Waipuilani has two (2) gulches/channels that flow through the central and northern portions of the beach park. At Kalama Beach Park, an unnamed gulch runs down the slopes...
of Haleakala, flowing through the park's central area between the picnic pavilion and the skate park. There is a break in the boulder revetment fronting the beach park to allow for drainage into the ocean. Under low flow conditions, water in the gulch does not flow into the ocean. During storm events, however, the water may breach the sand plug and contribute to water quality degradation. There is also a small drainage gulch that discharges at the south end of Keawakapu II.

All eight (8) of the beach parks studied in the Kihei-Makena Community Plan region are located within both V designated Flood Zones, areas of the 100-year flood with velocity wave action and A designated Flood Zones, which are areas within the 100-year flood. The easternmost areas, furthest from the shoreline, of Kalama, Keawakapu (I and II), Palauea, Ulua/Mokapu, Makena Landing and Maluaka Beach Parks fall within Flood Zone C, which designates areas of minimal flood hazard. All eight (8) beach parks in the Kihei-Makena Community Plan region are located within designated tsunami-evacuation zones.

While surface drainage within the selected beach parks in the Kihei-Makena region varied, most parks with shower facilities appeared to have adequate drainage systems in place to prevent excessive water-logging. Shower facilities at Memorial, Makena
Landing and Maluaka Beach Parks were, however, identified as showing signs of poor drainage during high use conditions.

Table III-7 provides a summary of the flood zoning and drainage characteristics of each of the beach parks in the Kihei-Makena Community Plan region.

### Table III-7

<table>
<thead>
<tr>
<th>Beach Park</th>
<th>Flood Zone</th>
<th>Major Gulches/Streams</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memorial</td>
<td>V18, A4</td>
<td>None</td>
</tr>
<tr>
<td>Waipuilani</td>
<td>V14, A3, A4</td>
<td>Waipuilani Gulch and Unnamed Gulch</td>
</tr>
<tr>
<td>Kalama</td>
<td>V10, A4, C</td>
<td>Unnamed Gulch</td>
</tr>
<tr>
<td>Keawakapu (I&amp;II)</td>
<td>V10, A4, C</td>
<td>Unnamed Gulch</td>
</tr>
<tr>
<td>Ulua/Mokapu</td>
<td>V14, A4, C</td>
<td>None</td>
</tr>
<tr>
<td>Palauea</td>
<td>V14, A4, C</td>
<td>None</td>
</tr>
<tr>
<td>Makena Landing</td>
<td>V14, A4, C</td>
<td>None</td>
</tr>
<tr>
<td>Maluaka</td>
<td>V14, A4, C</td>
<td>None</td>
</tr>
</tbody>
</table>

V - Areas of 100-year coastal flood with velocity (wave action)
A - Areas of 100-year flooding
C - Areas of minimal flooding


(7) **Marine Biology**

Marine life in waters along the Kihei-Makena Community Plan coastline varies due to the range of offshore bottom types found. The presence of coral
reef ecosystems off of many of the beach parks, particularly Memorial, Keawakapu (I and II), Ulua/Mokapu, Palauea, Makena Landing and Maluaka, suggest the presence of common reef species, including but not limited to wrasse, coris, parrotfish, butterflyfish, surgeonfish, damselfish, triggerfish, moray eel, and octopus (CZM Hawaii, et al., 2003).

Larger marine life, such as eagle/manta rays, turtles, sharks and humpback whales, can also be observed in deeper waters along the Kihei-Makena coastline.

(8) Water Quality
All eight (8) of the beach parks in the Kihei-Makena Community Plan region are classified under the State of Hawaii Water Quality Standards Classification as Class A. Class A waters are designated for recreational purposes and aesthetic enjoyment so long as it is compatible with the protection and propagation of fish, shellfish, and wildlife. Discharge which has not received the best degree of treatment and met State criteria may not be disposed of in Class A waters (State of Hawaii, Department of Health, 2004).

Water quality at beach parks is affected by drainage characteristics and surrounding land uses. As mentioned previously, Waipuilani and Kalama are the only two (2) beach parks of the eight (8) studied
which contain drainage channels to the ocean. During times of low flow, impact on water quality appears minimal as runoff from the gulches does not enter the ocean. A potential for water quality deterioration is anticipated, however, during high storm conditions when rainfall increases the flow of these gulches.

(9) **Archaeological/Cultural Resources and Practices**

An archaeological assessment of South Kihei classified lands into four (4) categories—low, moderate, high, and very high potential for subsurface deposits. Assessments are based on historic and archaeological data, soil survey data, and Land Commission Award (LCA) parcels. LCAs or kuleana awards were distributed during the Great Mahele—the division of Hawaiian lands—which introduced private property into Hawaiian society in the latter half of the 1840s. LCAs were presented to tenants who could prove occupancy of the parcels before 1845. Tax maps and historic maps indicate that a cluster of LCAs exist near Maluaka Beach Park (Hammatt, 2001).

Kalama Beach Park has been identified as an area with very high potential for subsurface deposits. Burials have been documented at the beach park in the past but because of extensive development in the area, it is probable that all subsurface issues have already been addressed. Memorial Beach Park is
also located in a region classified as high potential for archaeological resources due to the possible presence of human burials in dune sand deposits in the area. Waipuilani, Keawakapu, Makena Landing, and Maluaka Beach Parks were classified as moderate potential for subsurface deposits. At Keawakapu, no burials or cultural layers have been discovered in archaeological studies to date. Ulua/Mokapu and Palauea Beach Parks have low potential for subsurface deposits because of the significant construction and ground disturbance that has been conducted in Wailea and along Wailea Alanui Drive (Hammatt, 2001).

(10) Air Quality
Air quality at the beach parks is largely influenced by surrounding land uses. There are no direct sources of air pollution in the immediate vicinity of any of the eight (8) beach parks studied in the Kihei-Makena Community Plan region. Traffic on South Kihei Road, which provides access to Memorial, Waipuilani, Kalama, and Keawakapu Beach Parks, is the primary source of pollution at these beach parks. Ulua/Mokapu, Palauea, Makena Landing, and Maluaka Beach Parks are not located near major roadways, limiting impacts from traffic-related air pollution. Other possible sources of pollution include fugitive dust emissions from neighboring construction projects and vacant lands surrounding the beach park.
(11) **Noise**

Noise pollution at the eight (8) selected beach parks varies according to surrounding land uses. The primary noise generator at Memorial, Waipuilani, Kalama, and Keawakapu Beach Parks is traffic along South Kihei Road. Traffic noise is less significant at the other beach parks studied because of their location away from major roadways. Other possible noise generators include park visitors, nearby hotel and condominium guests and events, maintenance crews, and natural sources such as the wind and waves.

(12) **Scenic and Open Space Resources**

Scenic resources from South Maui’s Beach Parks include views of Haleakala, the West Maui Mountains and the Pacific Ocean, as well as the neighboring islands of Molokini and Kaho‘olawe.

c. **Study-Specific Beach Park Conditions**

As previously outlined, eight (8) beach parks in the CORA study sample fall within the boundary of the Kihei-Makena Community Plan region. Those eight (8) beach parks are Memorial, Waipuilani, Kalama, Keawakapu (I and II), Ulua/Mokapu, Palauea, Makena Landing and Maluaka. Refer to Figure III-1. Assessment summaries for each of these eight (8) Kihei-Makena parks follow:
Memorial Beach Park

Park Overview

Memorial Beach Park, also known as Mai Poina Oe Iau Beach Park, is a 5.3-acre County-owned facility that stretches along Maui's south shore between Kenolio Park and the Kihei Youth Center to the north and the Maui Lu to the south. See Figure III-2. The boundaries of the beach park are identified by Tax Map Key No. (hereafter referred to as TMK) (2) 3-9-01:25. See Figure III-3.

The lands belonging to Memorial Beach Park are State designated "Urban" lands, while lands surrounding the beach park are also State designated "Urban" lands. A mixture of single- and multi-family residential developments and undeveloped sites line the eastern or mauka side of South Kihei Road. The largest development in the area is the Maui Lu Resort, located to the south of Memorial Beach Park.

The analysis of Memorial Beach Park has been divided into two (2) parts. The first part pertains to the developed central area of the park with the second part relating to the ancillary portion consisting of the narrow, linear land segments that extend from both sides of the main beach park area. See Figure III-4. The developed central portion (hereafter referred to as Memorial Beach Park) encompasses all of the park facilities, supports nearly all current recreational activity at the beach park, and represents the portion of the park in which CORA operations are deemed feasible based on reasonable spatial and accessibility requirements. The ancillary undeveloped portion of the beach park, in contrast, possesses no facilities, and its use potential is decidedly low on account of its limited width. Consequently, from this point onwards, all references to Memorial Beach Park concern only the developed central area, unless otherwise specified. Refer to Figure III-4.

Vehicular access to Memorial Beach Park is provided directly by South Kihei Road, which runs parallel
Figure III-2 Commercial Ocean Recreational Activity (CORA) Study

Memorial Beach Park Regional Location Map

Prepared for: County of Maui, Dept. of Parks and Recreation
Figure III-3
Commercial Ocean Recreational Activity (CORA) Study
Memorial Beach Park Boundary Map


Prepared for: County of Maui, Dept. of Parks and Recreation

NOT TO SCALE
Figure III-4
Commercial Ocean Recreational Activity (CORA) Study
Memorial Beach Park Aerial Site Photo

Prepared for: County of Maui, Dept. of Parks and Recreation
along the entire length of the beach park. The speed limit along this segment of South Kihei Road is 30 mph. There is a single paved parking lot and roadside parking available near a recreational pavilion in the center of the main portion of the beach park. Visitors also park along the unpaved shoulder of South Kihei Road, some segments of which have been covered with gravel. Refer to Figure III-4.

Onsite facilities available to park users within the main portion of Memorial Beach Park include the aforementioned parking areas, picnic tables, a recreational pavilion with a comfort station, a portable toilet, shower facilities, and a grassy recreational area. Posted park hours of operation are from 7:00 a.m. until 7:00 p.m. There are no OSOs currently assigned to Memorial Beach Park by the County of Maui.

**Facility Assessment**

As stated above, parking facilities at Memorial Beach Park include improved (paved) and unimproved (dirt) areas. The paved parking lot near the central recreational pavilion provides ten (10) marked stalls for visitors, while graveled parking areas along the southern stretch of the beach park provide additional capacity for approximately 25 cars. See Figure III-5. Additionally, various segments of the unimproved shoulder of South Kihei Road between the central grassy recreational area and the Maui Lu Resort to the north are also utilized by visitors for parking. A small lockable access gate near the main grassy recreational area in the center of the park allows maintenance vehicles to enter the beach park's interior.

A dune restoration project initiated at Memorial Beach Park in 1987 has led to the construction of a fence between the main grassy recreational area and the shoreline. Signs in this area request park visitors to use designated walkways to access the ocean from the recreational area and parking lots. Numerous undesignated access points in the form of pedestrian paths worn through the dunes exist in all areas
Figure III-5 Commercial Ocean Recreational Activity (CORA) Study
Memorial Beach Park
Facilities and Resources
Prepared for: County of Maui, Dept. of Parks and Recreation
MUNEKIYO & HIRAGA, INC.
except around the dune restoration project.

Other facilities at Memorial Beach Park include small grassy recreational areas, a recreational pavilion, four (4) picnic tables, a shower facility, restroom facilities in the recreational pavilion, one (1) portable toilet in the unimproved south end of the beach park, trash receptacles and one (1) water tap. Refer to Figure III-5. A lack of BBQ facilities was noted during the completion of the assessment at Memorial Beach Park. All trash facilities and picnic tables, as well as the water tap, are located in the main grassy recreational area. A single public telephone is also available at the park and is located between the pavilion and South Kihei Road.

**Activities Assessment**

Memorial Beach Park is located at the "gateway" to central Kihei along a busy stretch of South Kihei Road. It is close to the large residential areas and condominiums of North Kihei and relatively well-connected to the tourist hub of Wailea-Makena and destinations in West and Central Maui. For those who commute to or from Kihei, Memorial Beach Park is a convenient stopping point along South Kihei Road. The beach park is thus utilized by a combination of tourists, Kihei residents, and people living elsewhere on the island. Peak usage times generally occur on weekends and holidays, although the park can also encounter heavy usage from windsurfers and kiteboarders during weekdays, especially during strong south (Kona) wind conditions.

The main grassy recreational area is located between the sand dunes and the road, thus sheltering it from the sometimes windy shoreline and making it appropriate for a variety of land-based activities such as sunbathing and park games. Refer to Figure III-5. Additionally, the length of the beach along the Kihei coastline presents suitable opportunities for walking and jogging, although high winds can sometimes detract from the overall experience. Refer to Figure III-5.
The suitability of beach parks for particular ocean-based activities varies depending on the prevailing conditions and features of the specific beach. Memorial Beach Park can offer suitable windsurfing and kiteboarding conditions during the occurrence of south (Kona) wind conditions. Parking facilities during such conditions can often approach or reach capacity. Fishing and canoeing along the coastline fronting Memorial Beach Park are also popular activities with local residents. The Kihei Canoe Club is located approximately 0.5 mile north of the beach park near the intersection of South Kihei Road at Mokulele Highway. Excellent swimming and snorkeling opportunities are also available at Memorial Beach Park due to the presence of expansive fringing coral reef ecosystems.

According to 2005/2006 permit data, there are currently four (4) CORA operators permitted to conduct a total of eight (8) activities at Memorial Beach Park. It is noted that CORA operators may possess permits for more than one (1) activity. CORA permits have been issued for surfing (2 permits), windsurfing (2 permits), and kiteboarding (4 permits). Table III-8 summarizes the names of the permitted CORA operators at Memorial Beach Park.

<table>
<thead>
<tr>
<th>MEMORIAL BEACH PARK CORA OPERATORS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CORA Operator</strong></td>
</tr>
<tr>
<td>Action Sports Maui</td>
</tr>
<tr>
<td>Hawaii Sailboarding Techniques</td>
</tr>
<tr>
<td>Kiteboarding School of Maui</td>
</tr>
<tr>
<td>My Splash LLC</td>
</tr>
</tbody>
</table>

Source: Based on 2005/2006 Permit Data from the Department of Parks and Recreation.
Environmental Analysis

Upon completion of the environmental analysis for Memorial Beach Park, the following considerations were deemed especially noteworthy.

• Coastal Erosion Considerations

The coast of Memorial Beach Park has experienced moderate erosion over time. The average Annual Erosion Hazard Rate (AEHR) for the shoreline fronting the park from 1900 to 1997 was 0.38 ft./yr. Additionally, the average beach width for the study area has decreased by 28 percent between 1960 and 2002 (University of Hawaii, SOEST, 2003).

It is noted that coastal erosion can be aggravated by visitor activities, and visitor-led erosion is a prominent issue at Memorial Beach Park. As mentioned previously, footpaths have been worn through the dunes at numerous locations along the coastline of the park, some of them cutting deep into the dune system. It is not uncommon to observe a new path no more than ten (10) feet from the last one encountered. The proportion of dunes fenced off by the dune restoration project is small in comparison with the total length of the park. Furthermore, worn paths and fresh footprints were observed even in dune areas that were fenced off, suggesting that some people ignore posted signs requesting visitors to use designated paths. The fence lining the dune restoration project area was noted as being insufficient to prevent visitor intrusion.

In addition to eroded paths created by those seeking the quickest route from parking areas to the shoreline, numerous paths were also observed running through dune systems parallel to the shoreline and the roads, as well as large circular areas in the middle of some dunes that have been eroded and are devoid of vegetation. Vehicle intrusion onto the beach
does not seem to be a problem at Memorial Beach Park as there are numerous boulders and concrete barricades to prevent access. It is, however, noted that certain dune systems lining South Kihei Road are showing signs of vehicle-led erosion and appear to be the direct result of visitors backing their vehicles up onto the dunes.

Coastal armoring projects located in the vicinity of Memorial Beach Park may also be contributing to an increased rate of erosion along the shoreline fronting the beach park. Parts of the shoreline immediately south of the beach park have been hardened with boulders, and a seawall structure currently exists along the old Kihei Wharf north of the beach park.

The effects of both natural erosion and visitor foot traffic are omnipresent at Memorial Beach Park. A significant portion of the vegetation that lines the dunes facing the shore was observed to be dead or in the process of dying. Exposed root systems were noted as a common sight along the beach park and appear to be associated with high waves and tidal surges. One (1) particularly eroded portion on the south side of the beach park appears to have already been hardened by a boulder revetment, possibly due to erosion threatening the course of South Kihei Road.

**Internal Drainage Considerations**

The vast majority of Memorial Beach Park is located within FEMA designated Flood Zone V18, an area of 100-year coastal flood with velocity wave action. The southernmost end of the beach park, adjacent to the intersection of South Kihei Road and Wailana Place, is located within FEMA designated Flood Zone A4, an area of 100-year flood.

Internal drainage appears to represent a significant challenge for Memorial Beach Park.
The shower facility lacks drainage improvements, which creates a potential for ponding during heavy use periods. Unimproved dirt and gravel parking facilities located along the beach park show evidence of heavy erosion through frequent use, suggesting ponding and waterlogging conditions during severe rain events.

Additionally, although the recreational area as a whole benefits from a thick layer of grass, ground cover is notably absent in some areas, particularly where tree overgrowth blocks sunlight. Consequently, ponding potential exists in certain portions of the main recreational area as well. Relatively level surfaces in the parking and recreational areas compound the problem, preventing drainage through overland runoff. It is thus expected that use of these areas at Memorial Beach Park would be less likely both during and following high rainfall.

- Coral Reef and Marine Life Considerations

Volunteers with the Reef Environmental Education Foundation have identified 90 aquatic species in waters off Memorial Beach Park, including wrasse, surgeonfish, toby and triggerfish. Both green sea and leatherback turtles have also been sighted in nearshore areas (Reef Environmental Education Foundation, 2001).

The majority of nearshore waters fronting Memorial Beach Park are shallow and characterized by the presence of fringing coral reef formations. This shallowness indicates an elevated sensitivity of coral reef ecosystems to impacts from beach park recreational users. Damage to reef systems from trampling is, therefore, a significant consideration at Memorial Beach Park.
Public Safety Considerations

The existence of fringing coral reefs in shallow waters, in combination with the presence of ocean-based activities, also represents a safety consideration for beach park users. In particular, Memorial Beach Park's popularity with both windsurfers and kiteboarders implies a potential for coral-related injuries.

Furthermore, because the beach park comprises a relatively thin strip of land, it does not provide an especially wide buffer between ocean-based activities and neighboring developments. The narrowness of Memorial Beach Park was noted as representing a possible safety concern for both kiteboarders and other user groups within the park's immediate vicinity. For example, overhead powerlines along South Kihei Road may pose a risk for kiteboarders utilizing long lines whose kites happen to stray over land. See Figure III-6.

Additionally, the fencing separating the road and grassy recreational areas is punctuated by frequent gaps, while the design does not prevent one from simply going over or under the fence. Children using park facilities could thus gain access from the recreational area to the road. Speeding traffic exceeding the posted speed limit of 30 mph is not uncommon on the particular segment of South Kihei Road fronting the park.

Vehicular traffic ingress and egress at the park is also a notable safety item. Separate left-turn lanes off of South Kihei Road are not available. Visitors were observed to encounter both difficulties and delays when entering or exiting South Kihei Road from the left, and it is expected that vehicle ingress and egress during peak traffic hours is difficult. Furthermore, given the presence of a grade differential, vehicles must slow considerably to
Figure III-6 Commercial Ocean Recreational Activity (CORA) Study
Memorial Beach Park
Site-Specific Considerations

Prepared for: County of Maui, Dept. of Parks and Recreation
negotiate the transition that exists from the asphalt surface of South Kihei Road to the unimproved parking surfaces or risk skidding. Undercutting of the roadside can be considerable along unimproved parking areas. Vehicle maneuvering is made more difficult by both wet conditions and the speed of traffic along South Kihei Road.

**Facility and Aesthetic Quality Considerations**

While it was noted in the Facility Assessment section that Memorial Beach Park is not lacking in facilities, the relatively poor condition of these facilities, is noteworthy. The utility of picnic table facilities, for example, was observed to be reduced by the advance of sand deposits blown by winds into the park area, especially surrounding the pavilion. Some of the dune walkways and designated pathways associated with the dune restoration project were rendered inaccessible or even unidentifiable due to the amount of sand covering them. A picnic table and water tap located on the makai side of the pavilion were observed to be almost completely buried by sand. Refer to Figure III-6.

Exposed tree roots and vegetative overgrowth in certain areas of the park near the pavilion also limit useability of facilities at Memorial Beach Park. Refer to Figure III-6.

While the comfort station in the pavilion and portable toilet at the south end of the beach park are welcome features, they were noted to be in need of maintenance and repair.

Trash at Memorial Beach Park is common in the areas to the north and south of the recreational area, where the absence of trash cans has led users to simply throw empty bottles, food containers and other waste into vegetation lining the dune areas. Particularly
high concentrations of rubbish were noted at the north end of the park where the large clearings seem to facilitate social gatherings.

- **Future Development Considerations**

  Developers of a new multi-family residential complex (Kai Makani Beach Villas) located directly opposite the south segment of the beach park have recently been required to pay a park improvement contribution specifically designated for the upgrading of park facilities at Memorial Beach Park. Future planned improvements at the park, including renovation to existing restroom and shower facilities, are, therefore, expected to occur in association with the construction of this multi-family residential development.

(2) **Waipuilani Beach Park**

**Park Overview**

Waipuilani Beach Park is a 20.2-acre County-owned park on Maui’s south shore situated adjacent to the Maui Sunset Condominium. See Figure III-7. The boundary of Waipuilani Beach Park is identified by TMK (2) 3-9-01:01. See Figure III-8. The narrow shoreline is characterized by a sand beach of predominantly calcareous (reef rock) material.

The beach park is accessible from Waipuilani Road via South Kihei Road. Waipuilani Road intersects South Kihei Road south of the Maui Sunset. A small paved parking lot exists within the beach park, which is located adjacent to Waipuilani Road. See Figure III-9.

Lands surrounding the beach park are State designated “Urban” lands. The Maui Sunset is directly adjacent to Waipuilani Beach Park, located between South Kihei Road and the park. A mixture of single-family and multi-family residential housing occupies the majority of lands around Waipuilani Beach Park. Undeveloped parcels of land are also
Figure III-7  Commercial Ocean Recreational Activity (CORA) Study
Waipuilani Beach Park
Regional Location Map

Prepared for: County of Maui, Dept. of Parks and Recreation

[Map showing Waipuilani Beach Park location]
Waipuilani Beach Park Boundary

Pacific Ocean

Figure III-8

Commercial Ocean Recreational Activity (CORA) Study
Waipuilani Beach Park Boundary Map

Prepared for: County of Maui, Dept. of Parks and Recreation

Figure III-9

Commercial Ocean Recreational Activity (CORA) Study
Waipuilani Beach Park Aerial Site Photo

Prepared for: County of Maui, Dept. of Parks and Recreation
found to the north and south of the developed portion of the park. Refer to Figure III-9.

Onsite facilities available to park users include a small paved parking lot, restrooms, six (6) tennis courts, one (1) volleyball court, a large grassy recreational area and trash receptacles. Park hours of operation are posted and are from 7:00 a.m. to 7:00 p.m. There are no OSOs currently assigned to Waipuilani Beach Park by the County of Maui due to relatively low visitor volumes.

**Facility Assessment**

The paved parking lot adjacent to Waipuilani Road provides 19 marked stalls for visitors. See Figure III-10. In addition, paved and unpaved roadside parking immediately outside the parking lot is utilized as overflow parking by visitors during peak use periods. A lockable internal access gate within the paved parking area allows maintenance staff to gain vehicular access to the interior recreational areas of the beach park.

A building containing restroom facilities is adjacent to the parking lot and is located on the south side of the beach park. Refer to Figure III-10. A paved pathway from the parking lot provides ADA access to the restroom, while a ramp allows wheelchair users to utilize the restroom facilities. The restroom facilities appear to be functioning adequately, but require interior renovations to rectify problems such as missing and broken doors for stalls. There are no showers or public telephones available for use at Waipuilani Beach Park.

As mentioned previously, there are six (6) tennis courts available for visitor use at Waipuilani Beach Park. Refer to Figure III-9. Two (2) tennis courts are located in the southern portion of the park fronting the Maui Sunset Condominium, while the remaining four (4) are located in the central segment of the beach park. A volleyball net adjacent to the two (2) south tennis courts is also available for visitor use. Refer to Figure III-10.
Figure III-10  Commercial Ocean Recreational Activity (CORA) Study
Waipuilani Beach Park Facilities and Resources

Prepared for: County of Maui, Dept. of Parks and Recreation
MUNEKIYO & MIRAGA, INC.
Although there are no picnic tables, water taps, or BBQ facilities at Waipuilani Beach Park, the park's large grassy recreational area provides an ideal location for picnics, games, walking and other land-based activities. Refer to Figure III-10.

**Activity Assessment**

The majority of visitors to Waipuilani Beach Park are local residents or tourists staying at the Maui Sunset and other transient vacation rentals within walking distance of the beach park. Many visitors to the park were observed gaining access to the beach park from the beach while walking along the shoreline. The beach park also hosts local community activities such as a Croquet Club, when a concession stand may also be open.

Land-based activities at Waipuilani Beach Park consist mainly of tennis and volleyball at the aforementioned courts. Local residents also use the park for walking, gathering native seaweeds (Ogo) along the beach, or fishing along the rocks off the southern end of the beach park. Furthermore, while it is noted that camping is not permitted at Waipuilani Beach Park, short-term camping was observed during site visits.

An ocean safety website operated by the Ocean Safety and Lifeguard Services Division of the City and County of Honolulu has assigned Waipuilani Beach Park a Beach Shore Hazard Rating of 2 on a scale of 1 to 10, or “least hazardous”. Waves at Waipuilani are generally small, making it appropriate for relatively inexperienced swimmers. However, reefs and seawalls offshore may be slippery and sharp, and strong currents and high surf are possible although rare.

Popular ocean-based activities at Waipuilani include swimming, snorkeling, surfing and kiteboarding. It is noted that kiteboarders are particularly attracted to the park during south (Kona) winds.

According to 2005/2006 permit data, there are no
CORA operators currently holding permits for Waipuilani Beach Park.

**Environmental Analysis**

Upon completion of the environmental analysis for Waipuilani Beach Park, the following considerations were deemed particularly noteworthy.

- **Coastal Erosion Considerations**

  Waipuilani Beach Park is located in an area of the South Maui coastline which, according to historical data contained within the *Maui Shoreline Atlas*, is sensitive to coastal erosion. The Annual Erosion Hazard Rate (AEHR) between 1900 and 1997 for the shoreline fronting the beach park was -0.88 ft./yr. Additionally, the average beach width for the region has decreased by 21 percent between 1960 and 2002 (University of Hawaii, SOEST, 2003).

  The dune systems also appear to be prone to aggravated rates of erosion in areas where visitors cut across the dunes to gain access from the park to the beach front. Well-treaded access paths exist along the entire extent of the park, generally following the shortest distance between condominiums and the shore. See Figure III-11. The lack of designated pathways between the park and beach has contributed to the proliferation of these visitor-induced pathways.

  In addition, tire tracks were noted along the entire length of the beach shore and were particularly prominent on those areas of the beach that were suffering the worst from erosion. While initially presumed to be the result of maintenance vehicles, the tracks were traced back to a dirt road leading from South Kihei Road across an undeveloped private lot, suggesting that unauthorized use of vehicles on the shore may be further contributing to
Figure III-11 Commercial Ocean Recreational Activity (CORA) Study
Waipuilani Beach Park
Site-Specific Considerations

Prepared for: County of Maui, Dept. of Parks and Recreation
MUNEKIYO & HIRAGA, INC.
coastal erosion at Waipuilani Beach Park. Refer to Figure III-11.

Moderate vegetation loss was also identified at Waipuilani Beach Park, with certain stretches of the beach containing deadwood from kiawe trees affected by coastal retreat.

• **Internal Drainage Considerations**

The shoreline portion of Waipuilani Beach Park is located within FEMA designated Flood Zone V-14, an area of the 100-year coastal flood with wave action. The mauka side of the park is located within Flood Zones A-3 and A-4, areas of the 100-year flood.

Waipuilani Beach Park is located on a relatively level segment of Maui's south shore. The south and central portions of the beach park feature a thick layer of well-maintained grass, while the less-developed northern side features thick brush and wild grasses interspersed with kiawe trees. While it is doubtful that ponding or waterlogging is an issue within the southern and central portions of the beach park, the northern portion is expected to be more sensitive to drainage problems during periods of high rainfall.

In addition, the presence of two (2) gulches within the central and northern portions of the park suggests that certain areas of Waipuilani Beach Park may be sensitive to impacts from flash flooding during storm conditions. Refer to Figure III-9. It is noted that the streams and gulches within the Kihei area are particularly sensitive to flash flooding.

• **Ocean Water Quality Considerations**

Ocean water quality at Waipuilani Beach Park is considered excellent during dry conditions. As outlined above, however, coastal terraces along the south shore of Maui are prone to
flash flooding. An increased potential for water quality deterioration at Waipuilani Beach Park is, therefore, expected in times of heavy rainfall due to the presence of Waipuilani and another unnamed gulch, both of which traverse through the boundary of the park in order to reach the ocean. Refer to Figure III-11.

Furthermore, the process of pollutant dispersal in waters at Waipuilani Beach Park is expected to be relatively slow due to a combination of prevailing on-shore wind conditions and shallow waters contained within remnants of old Hawaiian fishponds in the area. Refer to Figure III-9.

- **Coral Reef Considerations**

A combination of natural and artificial coral reef formations exist within the shallow waters fronting Waipuilani Beach Park. Refer to Figure III-9. Artificial reef formations have developed in the area primarily as a result of an ancient submerged fishpond, which encompasses the nearshore waters along the coast of the beach park. An increased sensitivity of these coral reef areas to impacts from ocean recreational users is, therefore, anticipated due to the shallowness of the coastal waters.

- **Invasive Species Considerations**

The shoreline fronting Waipuilani Beach Park has undergone serious alteration over the years. The accumulation of significant amounts of invasive non-native seaweed has resulted in the development of aesthetic problems and pungent odors at the beach park and surrounding community, detracting from the beach's full recreational potential. Refer to Figure III-11. In an effort to deal with such problems, the County is utilizing a modified potato digger to clear the beach front of accumulated seaweed. The cleared seaweed
is deposited along the sand dunes at the edge of the shoreline prior to eventual removal and disposal. Mounds of seaweed at various stages of decay were observed during site visits lining the beach fronting Waipuilani Beach Park. Refer to Figure III-11. While the potato digger (or "beach master") is effective in consolidating and removing seaweed from the beach, both the digger and the piles of plowed seaweed appear to detract somewhat from the aesthetic surroundings of the beach and dune systems.

- **Cultural/Historic Considerations**

As mentioned previously, the localized coastline along the North Kihei area is characterized by the presence of submerged remains of ancient Hawaiian fishponds. The waters fronting Waipuilani Beach Park contain one of the largest of these submerged fishponds. Though restoration work has yet to take place, these fishponds represent important historic and cultural resources to native Hawaiians. At present, impacts from ocean recreational users on the aforementioned fishpond at Waipuilani Beach Park appear to be minimal. However, should elevated levels of park visitors be anticipated in the future, impacts on the submerged fishpond would require consideration.

Moreover, the nearshore waters and beach area fronting Waipuilani Beach Park are used for gathering of seaweed for consumption purposes. This use is considered culturally important as well.

(3) **Kalama Beach Park**

**Park Overview**

Kalama Beach Park is a 36.4-acre County-owned facility located in the central Kihei area on Maui's south shore between the Kihei Fire Station and Cove
Park. It represents the largest of the 17 beach parks included within this CORA study. See Figure III-12. The boundary of the beach park is identified by TMK (2) 3-9-05:52. See Figure III-13. Despite its size, there is only one small beach area at Kalama Beach Park due to extensive armoring work that has occurred in recent years along the localized coastline.

The surrounding lands and the lands of Kalama Beach Park itself are State designated "Urban" lands. The beach park is bordered on the north side by the Kihei Public Library and the Kihei Fire Station, while Cove Park lies directly to the south. Vehicular access to Kalama Beach Park is provided directly from South Kihei Road, which forms the park's mauka boundary, while the Kihei Town Center, Kihei-Kalama Village, Maui Open Market and Kukui Mall are situated across the street. See Figure III-14.

Vehicular access to the park is provided via several designated ingress/egress points that link South Kihei Road to several paved parking lots within the boundary of Kalama Beach Park.

A diverse range of onsite facilities are available to park users at Kalama Beach Park including multiple paved parking lots, restroom and shower facilities, trash receptacles, recreational pavilions, an adventure playground, a gazebo, expansive grassy recreational areas, volleyball courts, picnic tables and BBQ grills, water taps, and public telephones. Park hours of operation are posted and are from 7:00 a.m. to 10:00 p.m. There are no OSOs currently assigned to Kalama Beach Park by the County of Maui.

It is noted that Kalama Beach Park covers a large area of land and contains many recreational facilities not directly related to ocean or beach activities, such as a Little League baseball field and a skateboarding park. In order to keep the discussion relevant, all facilities at Kalama Beach Park will be mentioned in the facility assessment, but only those aspects pertinent to CORA- and non-CORA ocean activities will be addressed in further detail during later sections.
Figure III-12 Commercial Ocean Recreational Activity (CORA) Study
 Kalama Beach Park
 Regional Location Map

Prepared for: County of Maui, Dept. of Parks and Recreation

Source: 2002 DeLorme, 3D Topo Quads
Figure III-13

Commercial Ocean Recreational Activity (CORA) Study
Kalama Beach Park Boundary Map

Prepared for: County of Maui, Dept. of Parks and Recreation


NOT TO SCALE
Figure III-14

Commercial Ocean Recreational Activity (CORA) Study
Kalama Beach Park Aerial Site Photo

Prepared for: County of Maui, Dept. of Parks and Recreation
Facility Assessment

Kalama Beach Park is a large and highly urbanized recreational facility, possessing more developed resources than any other beach park in the present study. It has a total of four (4) paved parking lots, three (3) of which contain marked stalls. The north parking lot (hereafter referred to as the "north" parking lot) immediately adjacent to South Kihei Road near the Kihei Fire Station contains approximately 30 marked stalls. The parking lot between the Kihei Public Library and the tennis courts provides approximately 60 marked parking stalls, including four (4) designated handicapped spaces. The main parking lot, entered through an access point further along South Kihei Road near the large whale statue between the softball fields and drainage channel, consists of an unmarked paved surface that is estimated to accommodate approximately 100 vehicles and includes four (4) marked handicapped stalls. The south parking lot is located adjacent to South Kihei Road across from the Kihei Kalama Village and provides approximately 100 marked stalls for park visitors of which five (5) are designated handicapped stalls. Lockable access gates at various points around the park allow County maintenance staff access to the large grassy recreational areas and facilities within the park’s interior.

As indicated previously, Kalama Beach Park includes an array of land-based recreational facilities, encompassing four (4) tennis and two (2) basketball courts, two (2) volleyball courts, softball and baseball fields, an in-line skating rink, a skate boarding park, a playground, and grassy recreational fields. A total of five (5) restroom buildings are located at various points within the park’s boundaries. Shower facilities are located outside two (2) of the restroom buildings, with a third shower located at the extreme south end of the beach park near Cove Park. Water is available from several fountains and taps at various locations around the park. Aside from the bathroom facilities, other permanent structures include two (2) covered pavilions and one (1) gazebo, each of which contain numerous picnic tables and BBQ grills. Trash
receptacles are scattered throughout the beach park, though they were noted to be more concentrated around the pavilions. See Figure III-15. Three (3) public telephones are also available at various locations in the beach park.

**Activity Assessment**

Occupying a relatively large amount of urban coastal land in the heart of Kihei Town, Kalama Beach Park is utilized for a wide range of land- and ocean-based activities primarily by residents, although some tourists were also observed during site visits. The large quantity of open recreational space and amenities present ideal opportunities for picnics and BBQs, while onsite facilities support a variety of land-based recreational activities such as tennis, volleyball, skating, skateboarding, basketball, softball and baseball.

With regard to ocean-based activities, Kalama Beach Park's moderate winds and relatively small waves, especially along the southern portion of the beach where there is still some sand, provide suitable conditions for swimmers and beginner surfers. Surfers tend to concentrate at the south end of the beach park between Kalama and Cove Park. In addition, the southernmost portion of the beach park, near Cove Park, is utilized by the Wailea Canoe Club as a storage and launch site for traditional outrigger canoes. Refer to Figure III-15.

According to 2005/2006 permit data, there are currently ten (10) CORA operators permitted to conduct a total of 27 activities at Kalama Beach Park. It is noted that CORA operators may hold permits for more than one (1) activity. CORA permits have been issued for surfing (10 permits), scuba diving (3 permits), snorkeling (2 permits), windsurfing (3 permits), kiteboarding (2 permits), and kayaking (7 permits). Table III-9 summarizes the names of the permitted CORA operator at Kalama Beach Park.
Figure III-15  Commercial Ocean Recreational Activity (CORA) Study
Kalama Beach Park Facilities and Resources

Prepared for: County of Maui, Dept. of Parks and Recreation
MUNEKIYO & HIRAGA, INC.
Table III-9

<table>
<thead>
<tr>
<th>KALAMA BEACH PARK CORA OPERATORS</th>
</tr>
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<tbody>
<tr>
<td><strong>CORA Operator</strong></td>
</tr>
<tr>
<td>Big Kahuna Adventures</td>
</tr>
<tr>
<td>Club Maui Beach Service, Inc.</td>
</tr>
<tr>
<td>Kelii's Enterprises, Inc.</td>
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<tr>
<td>Maui Beach Boys</td>
</tr>
<tr>
<td>Maui Sports Unlimited</td>
</tr>
<tr>
<td>Maui Waveriders, Inc.</td>
</tr>
<tr>
<td>Private Kayak Tours</td>
</tr>
<tr>
<td>South Pacific Kayaks</td>
</tr>
<tr>
<td>Ultra Dive, Inc.</td>
</tr>
<tr>
<td>Wailea Watersports</td>
</tr>
</tbody>
</table>

Source: Based on 2005/2006 Permit Data from the Department of Parks and Recreation.

It is noted that CORA operators are prohibited by County Ordinance 13.04.256 from conducting operations in the southern portion of Kalama Beach Park, south of the gazebo. Signs posted along the shoreline stating “No Commercial Activities South of This Sign” direct commercial operators to stay within the northern portion of the park and not to stray down the coastline to Cove Park where all CORA operations have been banned by ordinance. Refer to Figure III-15.

**Environmental Analysis**

Upon completion of the environmental analysis for Kalama Beach Park, the following considerations were deemed especially noteworthy.

- **Coastal Erosion Considerations**

  Data from the Maui Shoreline Atlas shows that the coast of Kalama Beach Park has
experienced severe erosion over time. The average Annual Erosion Hazard Rate (AEHR) for the shoreline fronting the park between 1912 and 1997 was -1.95 ft./yr. Additionally, the average beach width for the entire Kalama coastline decreased by 34 percent between 1960 and 2002 (University of Hawaii, SOEST, 2003).

A boulder revetment was constructed along the shoreline of Kalama Beach Park in the 1970s to manage the severe coastal erosion that was occurring in the area. See Figure III-16. Since its construction, nearly all beach sand fronting the revetment has eroded away (University of Hawaii SOEST, 2003). A small beach area now remains at the outlet of the drainage channel, and some sand deposits persist at the head of the coastal armoring south of this discharge point. Refer to Figure III-15.

- **Internal Drainage Considerations**

  The shoreline fronting Kalama Beach Park is located within FEMA designated Flood Zone V10, an area of 100-year coastal flood with velocity wave action. Most of the remainder of the beach park is within FEMA Flood Zone A4, an area of 100-year flood, but portions also occupy FEMA Flood Zone C, an area of minimal flooding.

  Kalama Beach Park occupies relatively level terrain, with a fairly constant elevation from the roadside to the boulder revetment at the shoreline. Although most of the park is vegetated with a grass groundcover, heavy visitor foot traffic has worn through this cover in several locations, particularly along the strip of land lining the shoreline revetment. Given the lack of vegetation and level terrain, this exposed area would be particularly susceptible to ponding and waterlogging both during and following high rain events. Moreover, parking lots and certain areas surrounding water taps
Figure III-16 Commercial Ocean Recreational Activity (CORA) Study
Kalama Beach Park
Site-Specific Considerations

Prepared for: County of Maui, Dept. of Parks and Recreation
and drinking fountains were found to lack drainage improvements. The potential for localized ponding around these areas is thus highlighted as a park management consideration that may affect park utility when these facilities are undergoing heavy use. Refer to Figure III-16.

• **Ocean Water Quality Considerations**

As previously outlined, an unnamed gulch runs down the slopes of Haleakala, flowing through Kalama Beach Park between the picnic pavilion and the Skate Boarding Park. Refer to Figure III-14 and Figure III-16. There is a break in the boulder revetment fronting the beach park to allow for drainage into the ocean. Refer to Figure III-15. During times of low flow, water does not discharge into the ocean. However, during storm events, the water may breach the sand plug and contribute to localized water quality degradation, leading to a temporary decrease in the beach park's desirability for ocean recreational use. It is noted, however, that pollutants present in local waters tend to be dispersed by prevailing currents and tidal flows following the cessation of wet conditions.

• **Public Safety Considerations**

It is noted that Kalama Beach Park has experienced issues relating to crime and disorder in recent years, earning it a negative reputation. Although access to all parking lots, except the "north" parking lot, can be restricted by locking access gates, pedestrian access to the park is more difficult to limit. In addition, poor maintenance of certain areas contributes to vegetation overgrowth and the buildup of debris, creating refuges for illicit activity. Efforts by local County Prosecutor Jerrie Sheppard, the "Kalama Park Action Team", and the Department of Parks and Recreation have resulted in the improvement of park facilities
and the establishment of a citizen patrol, alleviating some of the crime-related safety concerns of Kihei residents.

Observations gathered during site visits also suggest that some facilities reflect deferred maintenance conditions, thus contributing to added public safety concerns. In particular, it is noted that the ramps traversing the boulder revetment to provide entry into the ocean are slippery and lack railings, making entry difficult and potentially hazardous, especially for those who might be transporting equipment to the water. Refer to Figure III-16.

Another safety concern is posed by the lack of either designated turning lanes for vehicular access points or signs prohibiting turns into the park from South Kihei Road. Refer to Figure III-14. Consequently, cars attempting to enter and exit the park from South Kihei Road were observed to experience difficulty during heavy traffic conditions. In addition to the heavy traffic volume along this stretch of the road, the south parking lot’s ingress and egress points are located very close to the intersections of South Kihei Road with Auhana Road and Alahele Place. Refer to Figure III-16. The design of the access points, in combination with the nature of South Kihei Road, thus raises some concerns about vehicle safety and efficiency, although it is noted that traffic speed near Kalama Beach Park is generally moderate in comparison with some of the other beach parks included in the study, such as Ukumehame, Papalaua and Wahikulii Wayside Beach Parks.

(4) Keawakapu (I and II) Beach Park

Park Overview

Keawakapu (I and II) Beach Park is a County-owned beach access located on Maui’s south shore approximately two (2) miles from the center of Kihei and south of the Kihei Boat Ramp. See Figure III-17. It is noted that parking facilities at the beach park are maintained by the Wailea Community Association.
Figure III-17  Commercial Ocean Recreational Activity (CORA) Study
Keawakapu (I & II) Beach Park
Regional Location Map

Prepared for: County of Maui, Dept. of Parks and Recreation
The boundary of Keawakapu Beach Park is identified by the TMK (2) 2-1-021:001 and (2) 2-1-10:999. See Figure III-18.

The lands belonging to Keawakapu Beach Park are designated "Urban" by the State Land Use Commission. The lands surrounding the beach park are also designated "Urban". The Mana Kai Resort borders the park's north end, while high-end single-family homes and condominiums such as the Wailea Ekahi are located at the park's south end. Single-family homes are also located nearby on the mauka side of South Kihei Road. See Figure III-19.

Public access to the shoreline is provided at two (2) separate points. The first is a pedestrian walkway located near the intersection of South Kihei Road and Kilohana Drive. Visitors can park their vehicles at a County-owned parking lot at the southeast corner of the Kilohana Drive-South Kihei Road intersection. Park users must cross South Kihei Road to reach the walkway, which runs between private lots adjacent to the beach shore. The second access point consists of a stairway that joins the beach to a second County-owned parking lot located at the end of South Kihei Road just south of its intersection with Okolani Drive. Refer to Figure III-19. In addition, numerous private access paths and stairways are located along the entire length of the beach, leading from adjacent condominiums and single-family homes to the shore.

Before continuing, it is important to note that the actual County-owned portions of Keawakapu Beach Park encompass only the aforementioned two (2) parking areas and access paths, while the strip of land between the low-water mark and adjacent private lots is State-owned. However, because some issues immediately located on State-owned land may nonetheless have wider impacts with significant consequences for management of the County-owned sections of Keawakapu Beach Park, the present beach park assessment does include references to these State-owned portions of the park where relevant.
Figure III-18
Commercial Ocean Recreational Activity (CORA) Study
Keawakapu (I & II) Beach Park Boundary Map


Prepared for: County of Maui, Dept. of Parks and Recreation
Figure III-19

Commercial Ocean Recreational Activity (CORA) Study
Keawekapu (I & II) Beach Park Aerial Site Photo

Prepared for: County of Maui, Dept. of Parks and Recreation
Onsite facilities consist of the two (2) aforementioned parking lots, shower facilities, a portable toilet, and trash receptacles. Beach park hours of operation are posted and are from 7:00 a.m. to 7:00 p.m. There are no OSOs currently assigned to Keawakapu Beach Park by the County of Maui.

It is noted that Keawakapu Beach Park is sometimes referred to in two (2) portions: Keawakapu I and Keawakapu II. Keawakapu I comprises the northern half of the beach park from the Mana Kai Resort to a small rocky outcrop, while Keawakapu II encompasses the southern half of the beach park from the outcrop to the south parking lot. Refer to Figure III-19. In assessing this beach park, the discussion will occasionally make use of these terms where convenient and appropriate.

**Facility Assessment**

Parking facilities at Keawakapu Beach Park include both improved and unimproved areas. The first paved parking lot ("north" parking lot) located at the intersection of Kilohana Drive and South Kihei Road accommodates 65 vehicles, including two (2) handicapped stalls, while the second paved parking lot ("south" parking lot) near the southern terminus of South Kihei Road provides 23 marked stalls for visitors, including one (1) handicapped parking stall. See Figure III-20. Additional roadside parking is available along the unimproved shoulder near the southern terminus of South Kihei Road and is estimated to provide approximately 15 additional spaces when improved parking facilities are at capacity. A roundabout between the parking lot and the park access road near the southern terminus of South Kihei Road facilitates the efficient flow of vehicle ingress/egress. Refer to Figure III-20.

The first of two (2) shower facilities at Keawakapu Beach Park is located midway on the north access path across from Kilohana Drive. The second shower facility is located in a small recessed area on the designated stairway that provides public access between the south parking lot and the beach shore.
Figure III-20  Commercial Ocean Recreational Activity (CORA) Study
Keawakapu (I & II) Beach Park
Facilities and Resources

Prepared for: County of Maui, Dept. of Parks and Recreation
Refer to Figure III-20. One (1) trash can and one (1) dumpster are located at the end of the south parking lot nearest the stairway. Posted signs in both parking lots inform visitors of park hours. Hedges, walls and fences separate the beach park from adjacent private lots.

No permanent bathroom facilities or other structures currently exist at Keawakapu Beach Park, and the park also lacks water taps, telephones, BBQ facilities and grassy recreational areas.

**Activities Assessment**

Condominiums and single-family homes line the makai side of South Kihei Road, concealing most of the Keawakapu shoreline, while roadside signage indicating the two (2) shoreline access points is limited. The main users of the beach park thus consist of a combination of local residents, CORA participants, residents from neighboring single-family units and condominiums, and tourists from the neighboring Mana Kai Resort.

The shoreline fronting the beach park access points is characterized by a wide sandy beach area and shallow waters with a generally mild shore break, although high surf and wind conditions may occur from time to time. Refer to Figure III-19. Small rocky outcrops are located at both ends of the Keawakapu shoreline, with the outcrop at the beach’s south end forming several tidal pools. Aside from refuge provided by these outcrops, there has historically been little natural protection in the form of coral reefs. However, an artificial reef was constructed in 1962 to protect the shoreline from high waves and tidal surges and has since been added to and modified (Department of Land and Natural Resources, 1998).

Since the construction of this reef, the fish population has climbed considerably and the waters off of Keawakapu Beach Park host a variety of aquatic species (Department of Land and Natural Resources, 1998). Volunteers with the Reef Environmental Education Foundation have identified 128 species
near Keawakapu I, including wrasse, goatfish, triggerfish, toby, hawkfish and butterflyfish. Moray eels and turtles (green and leatherback) have also been sighted (Reef Environmental Education Foundation, 2001). No independent data was reported for Keawakapu II, but given the proximity of the two (2) beaches to each other, it is assumed that aquatic life would be similar for both sections (I and II) of the beach park.

Given prevailing ocean conditions and marine life, Keawakapu Beach Park is suitable for a number of ocean-related activities including swimming, snorkeling, scuba diving, fishing, and spearfishing. With its shallow waters and occasional surf, Keawakapu is also appropriate for boogieboarding, an activity that was also observed during site visits. In addition, two (2) hobycats and one (1) canoe were observed lying "dry-docked" on the beach just below private lot boundaries, suggesting that boating activities are also being conducted at the beach park.

Because Keawakapu Beach Park lacks designated recreational areas, land-based activities are limited to sunbathing and beach walking.

According to 2005/2006 permit data, there are currently eight (8) CORA operators permitted to conduct a total of 15 activities at Keawakapu Beach Park. It is noted that CORA operators may hold permits for more than one (1) activity. CORA permits have been issued for surfing (1 permit), scuba diving (8 permits), snorkeling (4 permits), and kayaking (2 permits). Table III-10 summarizes the names of the permitted CORA operators at Keawakapu Beach Park.
### Environmental Analysis

Upon completion of the environmental analysis for Keawakapu Beach Park, the following considerations were deemed particularly noteworthy.

- **Coastal Erosion Considerations**

  The coastline at Keawakapu Beach Park has experienced moderate erosion over time. The Annual Erosion Hazard Rate (AEHR) for the shoreline fronting the park between 1912 and 1997 was -0.96 ft./yr. Additionally, the average beach width for the study area has decreased by 30 percent between 1960 and 2002 (University of Hawaii, SOEST, 2003). Erosion along the coastline of Keawakapu (I and II) Beach Park was deemed to be minimal during the completion of the beach park assessments. The development of a pronounced step of sand along the high water vegetation mark, possibly attributable to high wave conditions was, however, noted a worthy consideration. See Figure III-21.
Figure III-21  Commercial Ocean Recreational Activity (CORA) Study
Keawakapu (I & II) Beach Park
Site-Specific Considerations

Prepared for: County of Maui, Dept. of Parks and Recreation
• **Internal Drainage Considerations**

The portions of Keawakapu Beach Park nearest the ocean are located within FEMA designated Flood Zone V10, an area of the 100-year coastal flood with velocity wave action. Other portions of the beach park occupy Flood Zones A4, an area of the 100-year flood, and C, an area of minimal flooding.

Keawakapu Beach Park is characterized by a somewhat sharp drop from the south parking lot and adjacent private lots to the relatively level beach shore. Refer to Figure III-21. Dense vegetation separates much of the boundary between the private lots and shore. The shower facilities are equipped with a drainage system and a pipe that empties out on the beach immediately below the stairway at the south end where the water quickly drains through and across the sand. Consequently, the risk of water logging or ponding at Keawakapu Beach Park is deemed minimal.

• **Ocean Water Quality Considerations**

A potential for water quality degradation in coastal waters, particularly for the southern portion of the beach park (Keawakapu II), is noted on account of a small drainage gulch just south of Keawakapu Beach Park. Refer to Figure III-21. The gulch winds its way down from Haleakala and through Wailea Ekahi Village before discharging at the south end of Keawakapu II. Given the State classification of surrounding lands as “Urban”, ocean water quality could be negatively impacted during high rain events, although the absence of water and presence of thick vegetation, including manicured bushes, in the portion of the gulch near shore suggest that storm discharge through the aforementioned gulch is rare.
• **Public Safety Considerations**

With its wide sandy beach and limited number of concerns related to erosion, internal drainage and ocean water quality, Keawakapu Beach Park seems ideal for a range of CORA and private uses. However, beach access from the south parking lot was observed to be strained by the particular design of the combined stairway and shower facility, especially during high use periods such as weekends and holidays. Refer to Figure III-21. The stairway is not very wide, and the presence of the shower area halfway between the parking lot and beach shore adds congestion and renders the bottom half of the stairs slippery (as a sign posted on the stairs indicates). Consequently, this access point seems unable to accommodate equipment or a large number of people, and also represents a safety concern to park visitors. Refer to Figure III-21.

At the north access point, another safety concern is presented by the design and location of the parking lot and designated walkway. Although a crosswalk exists to provide safe passage to pedestrians between the parking lot and designated walkway, it is noted that traffic originating from Wailea Alanui Drive (via Okolani Drive) and Piilani Highway (via Kilohana Drive) sometimes approaches the crosswalk at high speed. The path from the parking lot to the shoreline thus presents some risk to park users, particularly those with small children who may inadvertently run across the crosswalk. Refer to Figure III-21.

• **Park Facility Considerations**

While the total capacity of parking stalls is deemed adequate in general, it is noted that the parking lot at the southern terminus of South Kihei Road may be filled to capacity during periods of heavy visitor use associated
with weekends and holidays. Parking problems at this lot might be alleviated by improving the signage associated with the north parking lot, which possesses more stalls and frequently operates below capacity even during peak use. Refer to Figure III-20.

A more acute lack of capacity at Keawakapu Beach Park was noted in relation to restroom facilities. As mentioned in the facility overview section, there are no bathroom facilities at the north or south access points. The only other accessible bathroom in the immediate vicinity of the beach park is in the Mana Kai Resort. For park visitors engaged in activities at the south end (Keawakapu II), this represents a considerable distance to walk. In general, the lack of a public restroom facility seems inadequate for a relatively popular beach park, particularly when other publicly accessible bathrooms in the near vicinity are somewhat scarce.

(5) Ulua/Mokapu Beach Park

Park Overview

Ulua/Mokapu Beach Park is a 2.16-acre County-owned beach access on Maui's south shore adjacent to the Wailea Elua Village and the Renaissance Wailea Beach Resort. See Figure III-22. It is noted that the parking and restroom facilities at the beach park are maintained by the Wailea Community Association. The park boundary for Ulua/Mokapu Beach Park is identified by TMK (2) 2-1-08:88. See Figure III-23. It is noted that the beach park is composed of portions of two (2) beaches; Mokapu Beach on the north side and Ulua Beach on the south, both of which are separated by a rocky outcrop. The shoreline of both beaches consists of sand beach of predominantly calcareous (reef rock) material and lava rock outcrops. See Figure III-24. Access to the park is provided from Wailea Alanui Drive via a park access road opposite Hale Alii Place that leads down to two (2) designated parking areas.
Figure III-22  Commercial Ocean Recreational Activity (CORA) Study
Ulua/Mokapu Beach Parks
Regional Location Map

Prepared for: County of Maui, Dept. of Parks and Recreation
Ulua/Mokapu Beach Park Boundary

Figure III-23 Commercial Ocean Recreational Activity (CORA) Study
Ulua/Mokapu Beach Park Boundary Map


Prepared for: County of Maui, Dept. of Parks and Recreation
Figure III-24

Commercial Ocean Recreational Activity (CORA) Study

Ulula/Mokapu Beach Park Aerial Site Photo

Prepared for: County of Maui, Dept. of Parks and Recreation
Lands surrounding the beach park are State designated “Urban” lands. Ulua/Mokapu Beach Park is surrounded by the Renaissance Wailea Beach Resort to the north and Wailea Elua Village condominium to the south. The entrance to the beach park access road lies across the Wailea Fairway Estates development located mauka of Wailea Alanui Drive. The beach park itself occupies an elongated strip of land stretching from the access point at Wailea Alanui Drive more than 70 feet east of the shoreline down to the shoreline. Refer to Figure III-24.

Onsite facilities available to park users include two (2) designated parking areas, restrooms, showers, and trash receptacles. Park hours and applicable rules are posted at the park entrance. Ulua/Mokapu Beach Park is open to the public from 7:00 a.m. to 7:00 p.m. daily. There are no OSOs currently assigned to Ulua/Mokapu Beach Park by the County of Maui.

**Facility Assessment**

The two (2) paved parking lots accessed from Wailea Alanui Drive provide approximately 53 marked stalls for visitors, including two (2) handicapped parking stalls. The parking areas are reached by way of an access road that extends from the intersection with Wailea Alanui Drive down to the restroom facilities near the shoreline. Refer to Figure III-24. The access road forms a circular loop near the shoreline to facilitate the efficient ingress/egress of visitor traffic. A designated loading/unloading zone is available for vehicles using this circular loop. See Figure III-25. The park lacks an internal access gate, but a lockable post allows maintenance staff to gain access to the interior areas of the park while restricting access by unauthorized vehicles.

The restroom pavilion is located on the makai side of the access loop between the parking area and the shoreline. Shower facilities are located on the makai side of this restroom pavilion. A small trash
Figure III-25  Commercial Ocean Recreational Activity (CORA) Study
Ulua/Mokapu Beach Park Facilities and Resources

Prepared for: County of Maui, Dept. of Parks and Recreation
receptacle is also located between the male and female entrances to the restrooms. Refer to Figure III-25. Signs posted along Wailea Alanui Drive clearly indicate the park’s presence. Beach and ocean safety warning signs inform visitors of possible hazardous ocean conditions, while other signs mark the boundaries between the public beach park and walkways and a shoreline lateral access path to neighboring hotel and condominium developments.

In summary, therefore, users access the beach park in one (1) of two (2) ways: either from the parking lot, or from neighboring resorts by way of the aforementioned private walkways and access paths.

It is also noted that Mokapu Beach is not directly accessible from Ulua/Mokapu Beach Park. Visitors are currently required to walk through the Renaissance Wailea Beach Resort by way of the shoreline lateral walkway.

A grassy knoll situated immediately west of the shower and bathroom facilities is a popular picnic spot with visitors, although BBQ facilities are lacking. The beach park also presently lacks public telephones. It is noted that the public telephone that used to be available was removed due to underuse by the general public and an increase in the popularity of cell phones.

Direct access to Ulua Beach is provided via designated pathways from the grassy knoll and restroom area of the beach park. A paved walkway with handrails provides visitors with an access route onto Ulua Beach. Refer to Figure III-25. Several other designated beach access points outside of the beach park boundary are also available to visitors wishing to access the shoreline from the designated walkway that runs along the Wailea coastline.
Activities Assessment

With its sandy bottom, Ulua/Mokapu Beach Park is deemed ideal for swimming, and the rocky outcrops at both ends of Ulua Bay provide good snorkeling and scuba diving under calm conditions. Fringing coral reefs located around these rocky outcrops support considerable marine life and are popular spots with scuba enthusiasts.

Periodic surf conditions occasionally place some limitations on snorkeling, scuba diving and swimming activities, but in doing so, also provide suitable opportunities for those visitors wishing to engage in surfing and bodysurfing activities.

Ulua/Mokapu Beach Park is classified as a high-use beach park for CORA operations due to its popularity with snorkelers and scuba enthusiasts, as well as its location in the center of the Wailea tourist hub. According to 2005/2006 permit data, there are currently twenty (20) CORA operators permitted to conduct 38 activities at Ulua/Mokapu Beach Park. It is noted that CORA operators may hold permits for more than one (1) activity. CORA permits have been issued for surfing (4 permits), scuba diving (17 permits), snorkeling (9 permits), windsurfing (1 permit), kiteboarding (1 permit) and kayaking (6 permits). Table III-11 summarizes the names of the permitted CORA operators at Ulua/Mokapu Beach Park.
Table III-11

<table>
<thead>
<tr>
<th>ULUA/MOKAPU BEACH PARK CORA OPERATORS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CORA Operator</strong></td>
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<tr>
<td>Action Adventure Travel</td>
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<tr>
<td>B&amp;B Scuba</td>
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<tr>
<td>Bob's Maui Dive Shop</td>
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<tr>
<td>Evans, John E.</td>
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<tr>
<td>Extended Horizons, Inc.</td>
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<tr>
<td>Fielding, Ann</td>
</tr>
<tr>
<td>Kihei Scuba Services, Inc. (Susan Robinson)</td>
</tr>
<tr>
<td>Kihei Scuba Services, Inc. (Edward Robinson)</td>
</tr>
<tr>
<td>Lahaina Divers, Inc.</td>
</tr>
<tr>
<td>Makena Kayak &amp; Tours, Inc.</td>
</tr>
<tr>
<td>Maui Dreams Dive Co.</td>
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<tr>
<td>Maui Sun Divers</td>
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<td>Molokini Divers, Inc.</td>
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<tr>
<td>Octopus Garden Diver, Inc.</td>
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<tr>
<td>Premier Scuba and Activities of Maui</td>
</tr>
<tr>
<td>Private Kayak Tours</td>
</tr>
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<td>Reef Encounters, Inc.</td>
</tr>
<tr>
<td>Shaka Divers</td>
</tr>
<tr>
<td>South Pacific Kayaks &amp; Outfitters</td>
</tr>
<tr>
<td>Ultra Dive, Inc.</td>
</tr>
</tbody>
</table>

Source: Based on 2005/2006 Permit Data from the Department of Parks and Recreation.

Environmental Analysis

Upon completion of the environmental analysis for Ulua/Mokapu Beach Park, the following considerations were deemed particularly noteworthy.
Coastal Erosion Considerations

The shoreline areas of Ulua/Mokapu Beach Park are currently experiencing moderate levels of coastal erosion. The average Annual Erosion Hazard Rate (AEHR) between 1912 and 1997 for the area of shoreline fronting the beach park was -1.22 ft./yr. Additionally, the average beach width for the region decreased by 28 percent between 1960 and 2002 (University of Hawaii, SOEST, 2003). Evidence of shoreline erosion was noted at various points along the vegetation mark of beach areas. In certain areas, coastal erosion and impacts from high waves appear to be undercutting the shoreline lateral walkway that runs along the coastline of both beach areas. See Figure III-26.

Despite high visitor volumes, the contribution of visitor traffic to erosion along the coastline is deemed minimal at Ulua/Mokapu Beach Park. Dune systems were, however, noted as being vulnerable to visitor traffic erosion in certain places where pedestrians diverge from designated walkways. While paved paths and relatively thick ground cover limit user-related wear to a relatively minimal level, evidence of moderate pedestrian-related erosion was observed in several specific locations during site visits. In particular, certain portions of the grassy knoll area immediately makai of the restroom facilities have been eroded by visitor traffic exposing the sand beneath, especially where kiawe tree formations have created natural "benches" suited to sitting. Refer to Figure III-26. Exposure of underlying soils was also observed adjacent to the loading zone and immediately south of the lockable post. Undesignated pedestrian tracks across steep slopes between the grassy knoll and the main Ulua Beach area were also noted. The proliferation of paths by visitor traffic appears to have occurred by users seeking the most direct route to the toilets from the beach.
Figure III-26 Commercial Ocean Recreational Activity (CORA) Study
Ulua/Mokapu Beach Park
Site-Specific Considerations

Prepared for: County of Maui, Dept. of Parks and Recreation

MUNEKIYO & HIRAGA, INC.
fronting the grassy knoll area. Refer to Figure III-26.

- **Ocean Water Quality Considerations**

The portions of Ulua/Mokapu Beach Park closest to the shoreline are located within FEMA designated Flood Zones V14, an area of the 100-year coastal flood with wave action, and A4, an area of 100-year flood. The mauka side of the beach park, which encompasses the upper section of the parking lot and access to the main road, is located within FEMA designated Flood Zone C, an area of minimal flooding.

As outlined previously, Ulua/Mokapu Beach Park occupies an elongated rectilinear section of land sloping down from Wailea Alanui Drive to the shoreline. The incline from the parking lot to the shoreline is moderate and is interrupted by the grassy knoll, which takes a rather sharp drop to the shore. The relatively thick ground cover and grade of the land suggest that the risk of waterlogging and ponding within the park boundary is minimal. In addition, shower facilities appeared to be adequately equipped with drainage improvements, and are therefore considered unlikely to contribute to internal drainage problems.

Ocean water quality at Ulua/Mokapu Beach Park is anticipated to be generally good despite the high level of development in the surrounding area and promotion of overland runoff by the sloping grade of the land. Although drainage channels running through developments to the south and immediate north of the beach park were noted during site visits, both of these channels were completely dry and covered by manicured lawn, thus seeming to indicate that beach runoff and associated degradation of water quality around Ulua/Mokapu Beach Park are infrequent.
events. Refer to Figure III-26.

• **Coral Reef and Marine Life Considerations**

Volunteers with the Reef Environmental Education Foundation have identified 184 aquatic species in waters off of Ulua/Mokapu Beach Park, the most common of which were reef triggerfish, saddle wrasse, butterflyfish, stripebelly puffer, peacock grouper and goatfish. Other types of marine life present at the beach park include turtles, rays, and several species of moray eel (Reef Environmental Education Foundation, 2001).

The combination of large coral reefs and heavy beach park usage presents important environmental challenges at Ulua/Mokapu Beach Park. Snorkeling and scuba diving are particularly popular activities among CORA and non-CORA users of the beach park, and both activities place visitors in close contact with fringing coral reef ecosystems. The long-term use of Ulua/Mokapu Beach Park and the relationship between ecosystem health and ocean recreational activity is, therefore, noted as an important park management consideration.

• **Public Safety Considerations**

A potential for injuries resulting from frequent contact between park users and reef formations presents an important public safety consideration at Ulua/Mokapu Beach Park. The shoreline around the main beach areas at Ulua/Mokapu Beach Park is rocky in comparison with other beach parks in the Kihei-Makena region, and signs warning beach users of slippery and sharp rocks are posted at regular intervals around the park. Additional public safety considerations also noted by signs include occasional jellyfish and high surf conditions, which tend to occur when westerly winds prevail.
Parking Considerations

Ulua/Mokapu Beach Park is characterized by heavy tourist use and consistently high visitor volumes, particularly during peak holiday periods such as school vacations, Christmas and New Year. The number of parking stalls at Ulua/Mokapu is deemed sufficient during low to moderate use periods. The capacity of these parking areas is, however, frequently exceeded during peak use periods when visitors are often required to wait in their cars until a parking stall becomes available.

Palauea Beach Park

Park Overview

Palauea Beach Park is a 0.97-acre County-owned, undeveloped park on Maui's south shore situated adjacent to newly developed single-family residential units, near the Fairmont Kea Lani Maui Hotel. See Figure III-27. The boundary of Palauea Beach Park is identified by TMK (2) 2-1-11:18 and 19. See Figure III-28. The shoreline is characterized by a sand beach consisting of predominantly calcareous (reef rock) material with rocky outcrops to both sides. See Figure III-29.

Access to the park is provided by Makena-Keoneoio Road via Kaukahi Street and Wailea Alanui Drive. Makena-Keoneoio Road begins at the intersection with Kaukahi Street and extends south along the coast before intersecting Makena Alanui Road. Refer to Figure III-29.

Lands surrounding the beach park are State designated “Urban” and “Agricultural” lands. The Fairmont Kea Lani Maui Hotel, located north of Palauea Beach Park, is the largest development in the surrounding area. Recently constructed single-family residences are located on the makai side of Makena-Keoneoio Road, although many lots remain vacant and undeveloped. It is noted that the lands between Palauea Beach Park and the Wailea Blue
Figure III-27 Commercial Ocean Recreational Activity (CORA) Study
Palauea Beach Park
Regional Location Map

Prepared for: County of Maui, Dept. of Parks and Recreation
Figure III-28

Commercial Ocean Recreational Activity (CORA) Study
Palauea Beach Park Boundary Map

Prepared for: County of Maui, Dept. of Parks and Recreation


NOT TO SCALE
Figure III-29
Commercial Ocean Recreational Activity (CORA) Study
Palauea Beach Park Aerial Site Photo

Prepared for: County of Maui, Dept. of Parks and Recreation
Golf Course on the mauka side of Makena-Keoneoio Road (shown as vacant lands on Figure III-29) are currently being developed as part of the One Palaua Bay subdivision.

There are currently no on-site facilities available for use by park visitors. The park remains completely undeveloped and lacks designated parking areas, restroom and shower facilities, picnic tables, BBQ facilities and trash receptacles. Park hours of operation are not posted at the beach park. Signage prohibiting camping is, however, present along the roadside of the beach park. There are no OSOs currently assigned to Palaua Beach Park by the County of Maui due to relatively low volumes of park visitors.

**Facility Assessment**

Palaua Beach Park is characterized by relatively low visitor volumes in part due to a lack of signage from Wailea/Makena Alanui Drive, as well as the unavailability of both designated parking and basic land-based facilities. Visitors to the beach park are currently only able to park their vehicles on the unpaved and partially paved shoulders that exist along Makena-Keoneoio Road. While most vehicles park on the makai side of the road, some vehicles were also observed parked on the mauka side of Makena-Keoneoio Road adjacent to the One Palaua Bay subdivision. The roadside is estimated to accommodate a maximum of approximately 40 parked vehicles in this fashion. See Figure III-30.

Roadside parking does not appear to be associated with any significant concerns as traffic flows along Makena-Keoneoio Road are generally low. Makena-Keoneoio Road is primarily used by park visitors and residents of the area. Additional paved parking areas are available at Polo Beach Park which is located approximately 0.5 miles north of Palaua Beach Park. Although there are no gates preventing vehicle access to the beach, a number of pedestrian pathways through the kiawe trees have been blocked with large boulders. Refer to Figure III-30.
Figure III-30  Commercial Ocean Recreational Activity (CORA) Study
Palauea Beach Park
Facilities and Resources

Prepared for: County of Maui, Dept. of Parks and Recreation
MUNEKIYO & HIRAGA, INC.
Kiawe trees cover the vast majority of the 0.97-acre park, limiting space available for recreation as well as accessibility to the sandy beach which fronts the beach park. The extent of vegetation coverage between the road and the beach front varies in density throughout the beach park. Kiawe trees grow most densely in the central portion of the park, making beach access from the road difficult in those areas. Beach access is easier on the northern and southern portions of the beach park, where visitor foot traffic has resulted in the gradual proliferation of footpaths over time. Refer to Figure III-30.

Although it is noted that camping is not permitted at Palauea Beach Park, its dense vegetation and relatively undeveloped surroundings create conditions attractive to campers. Both vacation and long-term campers were observed during site visits among the kiawe trees at Palauea Beach Park. Widespread evidence of campfires in the form of charcoal and ashes were also identified within the park's boundaries.

As mentioned previously, there are no temporary or permanent structures or facilities at Palauea Beach Park. The nearest public restroom facility is located at Polo Beach, an inconvenient walk from Palauea Beach Park. Due to a lack of facilities and paved pathways linking Makena-Keoneio Road to the beach, Palauea Beach Park is not ADA accessible.

**Activity Assessment**

Palauea Beach Park is located on a relatively quiet segment of Maui's south shore. Furthermore, it is located beyond the major tourist hub of the Wailea Resort area, in a relatively isolated and undeveloped area of Makena.

The majority of beach park users at Palauea Beach Park are tourists staying in nearby accommodations and local residents. Park usage is generally higher on weekends when more local residents tend to visit the park.
Waves at Palauea Beach Park are generally small to medium in size while winds are moderate, making it an appropriate setting for a wide range of ocean-based activities. Stronger trade winds tend to arrive in the afternoon, but conditions generally remain safe enough for ocean recreational activity. High surf conditions during the winter season can, however, occasionally pose a danger to visitors and limit suitability for ocean recreational activities at the beach park.

Popular activities at Palauea Beach Park include swimming, scuba diving, snorkeling and kayaking. The sandy, sloping bottom fronting most of the beach park is an ideal location for swimming and bodysurfing. The offshore coral reef and rocky points at the north and south ends of the beach park create excellent scuba diving and snorkeling opportunities under calm conditions. Volunteers with the Reef Environmental Education Foundation have identified 178 aquatic species in waters off Palauea Beach Park, including Surgeonfish, Triggerfish, Damselfish, Hawkfish, Goatfish and Wrasse. Turtles (green sea, leatherback), whitetip reef sharks and even an occasional Eagle Ray have also been reported in the waters fronting the beach park (Reef Environmental Education Foundation, 2001).

While the wide sandy beach supports a variety of ocean activities, opportunities for land-based recreation are limited by the lack of grassy areas, open space, and park facilities. The most common land-based activity observed was sunbathing. Refer to Figure III-30.

According to 2005/2006 permit data, there are currently six (6) CORA operators permitted to conduct a total of nine (9) activities at Palauea Beach Park. It is noted that CORA operators may hold permits for more than one (1) activity. CORA permits have been issued for scuba diving (4 permits), snorkeling (4 permits), and kayaking (1 permit). Table III-12 summarizes the names of the CORA permittees at Palauea Beach Park.
Table III-12

<table>
<thead>
<tr>
<th>PALAUEA BEACH PARK CORA OPERATORS</th>
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<tbody>
<tr>
<td>CORA Operator</td>
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<tr>
<td>Bob’s Maui Dive Shop</td>
</tr>
<tr>
<td>Fielding, Ann</td>
</tr>
<tr>
<td>Lahaina Divers, Inc.</td>
</tr>
<tr>
<td>Lomas Enterprises LLC</td>
</tr>
<tr>
<td>Maui Dreams Dive Co.</td>
</tr>
<tr>
<td>Shaka Divers</td>
</tr>
</tbody>
</table>

Source: Based on 2005/2006 Permit Data from the Department of Parks and Recreation.

Environmental Analysis

Upon completion of the environmental analysis for Palauea Beach Park, the following considerations were deemed particularly noteworthy.

- Coastal Erosion Considerations

  Coastal erosion at Palauea Beach Park has been moderate over time. The Average Erosion Hazard Rate (AEHR) at Palauea between 1931 and 1997 was -0.80 ft./yr. Average beach width in the area decreased by 13 percent between 1949 and 2002 (University of Hawaii, SOEST, 2003).

  Erosion of the dune systems was noted along the north and south portions of the beach park where most visitors gain access to the shoreline. Visitor foot traffic appears to have resulted in the proliferation of numerous interconnected footpaths through the kiawe trees to the ocean front. Minimal damage to the dune systems was observed in the densely vegetated, central portion of the beach park. However, it is noted that several kiawe trees in the central portion appear to have been cut.
down in an attempt to thin out the canopy and increase accessibility to the beach areas. While this has rendered a greater area of the park accessible to human traffic, the removal of vegetation could potentially result in accelerated rates of erosion, particularly if park usage increases in the future. See Figure III-31.

Although not deemed severe, evidence of vehicle-led erosion and undercutting between the paved roadside surface and the unimproved shoulder areas, was noted during site visits. Refer to Figure III-31. The currently low levels of visitor usage at Palauea Beach Park do not present any major concerns with respect to erosion. Visitor-led erosion, however, may become a potential management concern if visitor volumes increased at Palauea Beach Park in the future.

**Internal Drainage Considerations**

The portion of the beach park nearest to the ocean is located within FEMA designated Flood Zone V-14, an area of coastal flood with wave action. The remaining portion of the beach park falls within Flood Zone A-4, an area of 100-year flood, and Flood Zone C, an area of minimal flooding.

Palauea Beach Park is located on a relatively level segment of Maui's south shore. The terrain rises slightly from Makena-Keoneoio Road in the wooded portion before sloping back down to the low water mark. No internal surface or subsurface drainage improvements currently exist at the beach park, but ponding and waterlogging are deemed unlikely during times of high rainfall due to both the incline of slopes and the dense vegetation present within the beach park boundaries. Further removal of Kiawe trees within the park may, however, increase the potential for internal drainage problems in the future.
Evidence of Visitor-Led Erosion Makai of Densely Wooded Central Area

Evidence of Kiawe Clearing in Densely Wooded Central Area of Park

Erosion and Undercutting Along Unimproved Shoulder of Makena-Keoneoio Road

Remains of Bon Fire or Large Camp Fire

The One Palauea Bay Subdivision Across Makena Road

Rubbish in Densely Wooded Central Area of Park

Figure III-31 Commercial Ocean Recreational Activity (CORA) Study
Palauea Beach Park
Site-Specific Considerations

Prepared for: County of Maui, Dept. of Parks and Recreation
A potential for ponding and associated vehicle-led erosion during high rainfall conditions was noted around the aforementioned unimproved dirt roadside parking areas.

- **Public Safety Considerations**

Due to the relatively undeveloped state of the surrounding lands, visitors may enjoy a feeling of solitude and seclusion at Palauea Beach Park. Palauea Beach Park, however, is reportedly a favored location for car break-ins, a fact possibly attributable to the park's relative isolation from development and major traffic flows.

- **Future Development Considerations**

In consideration of emerging housing developments in the vicinity, such as the One Palauea Bay subdivision, it is anticipated that visitor use of Palauea Beach Park will increase in the future. If usage at the park increases, issues that are presently marginal, such as erosion from cars parking on unimproved surfaces, visitors wearing paths into the vegetation, and the presence of trash, may require closer monitoring and attention.

In addition, it appears through discussion with Department staff that many visitors are currently gaining access to beach areas through privately-owned lots adjacent to County-owned land parcels. Increased visitor-traffic through the County-owned parcels would, therefore, be expected with the development of these private lots in the future.

- **Archaeological/Cultural Considerations**

Archaeological evidence compiled during several inventory surveys reveals a number of culturally and archaeologically significant deposits in lands adjacent to Palauea Beach Park, as well as in the wider surrounding area.
However, no significant surface or subsurface features have been identified in the beach park itself.

An archaeological inventory survey conducted by Landrum and Cleghorn in 1989 covered several parcels approximately 250 yards north of Palauea Beach Park and found several significant subsurface features from as early as the 15th century AD (Paul Cleghorn Consulting, 1992).

Subsequent inventory work conducted by Paul Cleghorn Consulting in 2000 on the mauka side of Makena-Keoneoio Road revealed a number of significant subsurface deposits, including several located immediately across the road from Palauea Beach Park. A total of 11 sites were preserved in situ within a 20-acre cultural preserve deeded to the University of Hawaii. This cultural preserve is situated on the mauka side of the road opposite the south end of Palauea Beach Park (Paul Cleghorn Consulting, 2000).

At the same time, no subsurface archaeological deposits were found by Paul H. Rosendahl Inc. during systematic auger testing of sand dunes on the makai side of Makena-Keoneoio Road in 1988 (Paul Cleghorn Consulting, 1992), suggesting that Palauea Beach Park and other lots on the makai side of Makena-Keoneoio Road are free of cultural and historical resource issues. Nonetheless, the presence of significant cultural deposits immediately opposite the beach park is an important consideration that should be taken into account in future management strategies for Palauea Beach Park.

(7) Makena Landing Beach Park

Park Overview

Makena Landing Beach Park is a 2.4-acre (104,500
square foot) County-owned facility located on Maui's south shore about six (6) miles south of Kihei, 2.5 miles south of Wailea and one (1) mile north of La Perouse. See Figure III-32. It is noted that the restroom facilities at the beach park are maintained by Makena Resort. The boundary of Makena Landing Beach Park is identified by TMKs 2-1-07:98 and 2-1-07:94. See Figure III-33. Makena Landing Beach Park is situated along an area of coastline characterized by volcanic geological formations. As such, the shoreline fronting the beach park is mainly composed of lava rock interspersed with several small volcanic sand beaches. See Figure III-34.

Lands within Makena Landing Beach Park are designated "Urban" and "Agricultural" by the State Land Use Commission. Land uses surrounding Makena Landing Beach Park include high-end single-family residences and vacant undeveloped lands containing predominantly Kiawe tree vegetation.

Hours of operation at Makena Landing Beach Park are from 7:00 a.m. to 7:00 p.m. There are currently no County of Maui OSOs assigned to Makena Landing Beach Park.

**Facility Assessment**

Facilities currently available at Makena Landing Beach Park include a historic landing or ramp area, a small paved parking lot and an enclosed area containing a restroom building, a shower, historical information signage and small trash receptacles. All of the above-mentioned facilities are situated along the makai side of Makena-Keoneoio Road. See Figure III-35.

As indicated above, Makena Landing Beach Park encompasses a historic landing area represented by an old ramp area leading down the shoreline into the water. Refer to Figure III-35. Makena Landing once represented the main point along the South Maui coastline where local ranchers, particularly those from the Ulupalakua Ranch, could load cattle onto ships for transportation to markets on neighboring islands.
Figure III-32 Commercial Ocean Recreational Activity (CORA) Study
Makena Landing Beach Park
Regional Location Map

Prepared for: County of Maui, Dept. of Parks and Recreation
Makena Landing Beach Park Boundary

Figure III-33
Commercial Ocean Recreational Activity (CORA) Study
Makena Landing Beach Park Boundary Map


Prepared for: County of Maui, Dept. of Parks and Recreation
Figure III-34

Commercial Ocean Recreational Activity (CORA) Study

Makena Landing Beach Park Aerial Site Photo

Prepared for: County of Maui, Dept. of Parks and Recreation
Figure III-35  Commercial Ocean Recreational Activity (CORA) Study
Makena Landing Beach Park
Facilities and Resources

Prepared for: County of Maui, Dept. of Parks and Recreation
MUNEKIYO & HIRAGA, INC.
Use of the landing or ramp area for agricultural purposes has long since ceased, and it is now utilized on a regular basis for the launching of small ocean craft such as kayaks, by recreational users and commercial operators. For geographical reference, the landing area is situated between the gated access point to the designated parking lot and the enclosed restroom/shower area. Refer to Figure III-34.

The single paved parking area is situated west of the landing area and contains approximately 20 marked parking stalls. A gated access point located on Makena-Keoneoio Road allows two-way vehicular access to the aforementioned parking lot through a single lane access road. Refer to Figure III-35. There is a large trash receptacle located along the access road between the gated entrance point and the parking lot. County trash collection crews utilize the access road on a regular basis to collect trash from Makena Landing Beach Park. In addition to the designated parking lot, additional roadside parking capacity is available along the stretch of Makena–Keoneoio Road that leads visitors down from Makena-Alanui Road to the beach park. Furthermore, overflow parking in the form of the Maluaka Beach Park parking lot is also available further along Makena–Keoneoio Road towards the Maui Prince Hotel. The Maluaka Beach Park parking lot is situated directly across from the Keawalai Congregational Church. Refer to Figure III-34.

A restroom building and shower facilities are situated on the mauka side of the landing area and are enclosed in a small area defined by a rock wall. Also present within the walled area is an informational sign providing visitors a historical background of Makena Landing and its use as an old cattle port. The lack of healthy grass and the existence of wide areas of worn dirt patches suggests heavy visitor use within this enclosed area. Refer to Figure III-35.

Activity Assessment

Despite its lack of signage from Makena Alanui Road, Makena Landing Beach Park receives high levels of
use by both the general public, especially families, and commercial operators. Scenic resources available at the beach park are generally excellent, with large areas of lava rock interspersed by small pocket beaches of predominantly dark sand deposits. Three (3) small sandy beach areas are accessible along the coastline near Makena Landing Beach Park: a very small beach around the historical landing ramp area and two (2) larger beaches situated further south along the coastline towards Keawalai Congregational Church. Refer to Figure III-34.

The Makena shoreline faces west towards the neighboring islands of Kaho'olawe, Molokini and the more distant Lana'i. The islands provide protection from western swells and some southern swells, resulting in usually low waves at the shore that average about 1 foot in height. Prevailing ocean conditions, therefore, tend to be calm and visibility is high for most of the year, providing excellent opportunities for ocean recreational activities such as swimming, kayaking, scuba diving and snorkeling. It is noted, however, that occasional south swells can periodically create dangerous shorebreak conditions along much of the coastline. The potential for ocean recreational activities is, therefore, restricted during high wave conditions at Makena Landing Beach Park.

Makena Landing Beach Park is also well-known for the characteristic fringing coral reef and geological formations that exist in its near shore waters, an area commonly referred to in the scuba diving/snorkeling industry as "Five Caves/Graves".

While ocean conditions off the coast of Makena Landing Beach Park may occasionally, during specific wind conditions, be deemed suitable for kiteboarding and windsurfing activities, the lack of large open recreational areas within the park make the setting up of equipment difficult. The existence of large amounts of lava rock along the coastline, combined with the dense vegetation in the area, further add to the unsuitability of Makena Landing as a windsurfing/kiteboarding location.
Visitors to Makena Landing Beach Park, therefore, tend to fall in one (1) of two (2) general categories: local residents who tend to enjoy swimming, fishing, snorkeling and picnics, and a mixture of commercial and non-commercial and activity-focused user groups engaging in activities such as kayaking, scuba diving and snorkeling.

According to 2005/2006 permit data, there are currently 27 CORA operators permitted to conduct a total of 40 activities at Makena Landing Beach Park. It is noted that CORA operators may possess permits for more than one (1) activity. CORA permits have been issued for surfing (6 permits), scuba diving (18 permits), snorkeling (1 permit), windsurfing (1 permit), kiteboarding (1 permit) and kayaking (13 permits). Table III-13 summarizes the names of the permitted CORA operators at Makena Landing Beach Park.
Table III-13

<table>
<thead>
<tr>
<th>MAKENA LANDING BEACH PARK CORA OPERATORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CORA Operator</td>
</tr>
<tr>
<td>Action Adventure Travel, Inc.</td>
</tr>
<tr>
<td>B&amp;B Scuba, Inc.</td>
</tr>
<tr>
<td>Big Kahuna Adventures</td>
</tr>
<tr>
<td>Bob's Maui Dive Shop</td>
</tr>
<tr>
<td>Evans, John E.</td>
</tr>
<tr>
<td>Hawaiian Ultimate Adventures</td>
</tr>
<tr>
<td>Keli'i's Kayak Tours</td>
</tr>
<tr>
<td>Kihei Scuba Services</td>
</tr>
<tr>
<td>Lahaina Dive &amp; Surf, Inc.</td>
</tr>
<tr>
<td>Lahaina Divers, Inc.</td>
</tr>
<tr>
<td>Lomas Enterprises LLC</td>
</tr>
<tr>
<td>Makena Boat Partners</td>
</tr>
<tr>
<td>Makena Kayak &amp; Tours, Inc.</td>
</tr>
<tr>
<td>Maui Dreams Dive Co.</td>
</tr>
<tr>
<td>Maui Kayaks, Inc.</td>
</tr>
<tr>
<td>Maui Sun Divers</td>
</tr>
<tr>
<td>Maui Under Sea Adventures</td>
</tr>
<tr>
<td>Molokini Divers, Inc.</td>
</tr>
<tr>
<td>Octopus Garden Diver, Inc.</td>
</tr>
<tr>
<td>Pacific Coast Kayak, LLC</td>
</tr>
<tr>
<td>Premier Scuba &amp; Activities of Maui</td>
</tr>
<tr>
<td>Private Kayak Tours</td>
</tr>
<tr>
<td>Reef Encounters, Inc.</td>
</tr>
<tr>
<td>Shaka Divers</td>
</tr>
<tr>
<td>South Pacific Kayaks</td>
</tr>
<tr>
<td>Ultra Dive, Inc.</td>
</tr>
</tbody>
</table>

Source: Based on 2005/2006 Permit Data from the Department of Parks and Recreation.
The majority of commercial activity at Makena Landing Beach Park was observed during the early morning between the hours of 6:00 a.m. and 12:00 p.m. Kayak companies operate tours out of the beach park in the morning when ocean conditions are calmer. Rougher conditions and increased wind speeds along this section of the South Maui coastline generally occur during the afternoon and hence limit opportunities for safe CORA instruction. Similarly, the majority of scuba and snorkeling tours also occur during the early mornings when maximum visibility associated with calmer waters is expected. Commercial activity at Makena Landing Beach Park, therefore, tends to be confined to the mornings both during the week and on weekends and holidays.

Peak usage at Makena Landing Beach Park occurs on weekends and holidays between late morning and mid-afternoon when the majority of local families utilize the beach park. The park also receives considerable use during the week when a mixture of local residents and tourists visiting the Makena area frequent the park. In general, Makena Landing Beach Park was observed during site visits to receive the majority of its visitors between late-morning and mid-afternoon. As outlined in the facility assessment section, the park does not contain any kind of recreational area and picnic tables and BBQ grills are both lacking. It is not unreasonable, therefore, to assume that ocean resources represent the main attraction to visitors at Makena Landing Beach Park.

In summary, Makena Landing Beach Park is a small park that is currently experiencing high use on both commercial and non-commercial levels. The beach park appears to attract visitors seeking to engage in ocean-based recreational activities due to a general lack of land recreational resources. Makena Landing Beach Park is, therefore, popular for a variety of ocean-based activities such as swimming, fishing, scuba diving, snorkeling and kayaking, with the latter three (3) activities representing the main commercial activities currently taking place in the waters fronting the park.
Environmental Analysis

During the completion of the beach park assessment for Makena Landing Beach Park, the following considerations were deemed particularly noteworthy.

• Internal Drainage Considerations

A general lack of drainage improvements was noted in the designated parking lot, the unimproved roadside parking areas and the restroom/shower area at Makena Landing Beach Park. The sensitivity of shoreline waters to water quality fluctuations during high rainfall events is therefore acknowledged as an important management consideration at Makena Landing Beach park. Localized ponding and waterlogging of soils is also anticipated to affect these areas following intense and prolonged periods of heavy rainfall in the area.

In addition, erosion on the northern slope leading down into the landing ramp area from the designated parking lot was identified during completion of the assessment for Makena Landing Beach Park. See Figure III-36. This area of localized erosion appears to be partly attributable to overland runoff of rainfall flowing from the surrounding Kiawe brushland areas down across Makena-Keoneoio Road and into the ocean via the landing ramp area. Other factors such as visitor foot traffic from the parking area and vehicle intrusion may have also contributed to the overall loss of groundcover in this area of the landing ramp.

Further evidence of runoff-associated erosion was also identified along the makai side of Makena-Keoneoio Road between the landing area and the intersection of Honoiki Street with Makena-Keoneoio Road. Roadside parking and visitor foot traffic again appears to have accelerated natural rates of erosion across the slopes leading down to the shoreline along
Figure III-36 Commercial Ocean Recreational Activity (CORA) Study
Makena Landing Beach Park
Site-Specific Considerations

Historical Informational Sign Near Restroom Facilities

Erosion of Shoreline Areas Around Parking Lot

Erosion Across Slope Leading Down Into "Landing" Beach Area

Roadside Parking Across From Designated Access Point

Erosion and Undercutting of Pavement Surface Along Entry to "Landing" Beach Area

Undesignated Beach Access Point Near Honoiki Street
Makena.

Based on the foregoing analysis regarding internal drainage issues, elevated rates of both natural and visitor-related erosion would be reasonably expected within Makena Landing Beach Park both during and following rainfall events.

- **Water Quality Considerations**

  No drainage gulches or streams were identified near or within the boundaries of Makena Landing Beach Park. The steep gradient of surrounding land areas combined with the lack of drainage improvements within the beach park, however, indicates a high potential for overland flow and associated ocean discharge during high rainfall events in the area. The influx of large amounts of rainfall runoff would be expected to affect the overall quality, especially turbidity, of bay waters surrounding Makena Landing Beach Park. The impact of rainfall events on water quality around Makena Landing Beach Park is, therefore, deemed an important consideration worthy of acknowledgement in the formulation of a future park management strategy.

- **Parking Considerations**

  As outlined in the facility assessment, a limited number of marked parking stalls are provided in the designated parking lot at Makena Landing Beach Park. Refer to Figure III-34 and Figure III-35. This small parking lot was noted to provide insufficient capacity during high use conditions at the park. While the existence of additional/overflow roadside parking areas along both sides of Makena-Keoneoio Road is acknowledged, the ability of these parking areas to cater fully to overflow parking demand is limited due to land availability constraints. As a result, competition for parking space at Makena
Landing Beach Park is expected to be common, particularly during high use periods such as weekends. Parking facility limitations are, therefore, noted as an important factor affecting both current and future use characteristics at Makena Landing Beach Park.

In addition, difficulties relating to the ingress/egress of traffic along the one-lane access road linking the parking area to Makena-Keoneoio Road are anticipated during high use periods when vehicles are both accessing and exiting the beach park simultaneously. Furthermore, the use of roadside parking by visitors directly across from the gated access point was noted to restrict large County refuse collection vehicles requiring access to the large trash receptacle situated along the parking lot access road. Refer to Figure III-36.

Public Safety Considerations

A number of public safety considerations were identified during the completion of the Makena Landing Beach Park assessment.

Most notable is the lack of designated pedestrian walkways and pathways linking the parking and landing ramp areas to the small beaches that line Makena Road towards Honoiki Street and the Keawalai Congregational Church. Refer to Figure III-35. Visitors attempting to access these areas of the beach park are currently forced to walk along the paved surface of Makena Road, exposing themselves to observable safety concerns (i.e., vehicles along the roadway). The popularity of the roadside parking areas situated adjacent to these beaches appears to be attributable to these access limitations. Visitors, especially those with small children, are able to minimize the walk from the designated parking lot to the beaches by simply parking their vehicle along one (1) of
the unimproved, dirt roadside parking areas along Makena-Keoneoio Road. Refer to Figure III-35. The designation of a paved pathway along either the mauka or makai side of the Makena-Keoneoio Road would, therefore, not only be expected to reduce visitor exposure to potential traffic-related safety concerns but may also indirectly result in a decrease in the amount of vehicles using roadside parking areas when capacity exists in the designated parking lot at Makena Landing Beach Park.

Geological characteristics were also highlighted as a public safety consideration at Makena Landing Beach Park. As outlined previously, the coastline along the park consists mainly of lava rock formations encompassing several small beach areas. Refer to Figure III-34. A number of visitors at Makena Landing Beach Park were observed entering and exiting the ocean over the lava rocks, especially along the rocky area situated between the ocean and the designated parking lot. Refer to Figure III-36. The sharp edges of the lava rock are a safety concern in the event of an accidental fall. Signage warning visitors of the potential hazards associated with recreational activity across the lava rock coastline should, therefore, be considered at Makena Landing Beach Park.

A final public safety consideration identified at Makena Landing Beach Park involves problems related to broken glass and other hazardous objects discarded during visitor activities within the designated parking lot. The consumption of alcohol at Makena Landing Beach Park after designated park hours is common and is reportedly the main cause of broken glass. A new gate has recently been installed by the Department at the access point to the parking lot. The routine locking of this gate when the park closes each night would serve to deter individuals seeking
to gain entry to the beach park after hours.

- **Park Facility Considerations**

As noted previously, facilities available at Makena Landing Beach Park are tailored towards ocean recreational enthusiasts. No picnic tables, BBQ grills or recreational areas currently exist within the park boundary. The popularity of the beach park for ocean recreational activity on both commercial and non-commercial levels has placed considerable pressure on the limited facilities that do exist at the park. Both the restroom and shower facilities at Makena Landing Beach Park were identified as showing signs of over-use and deferred maintenance and have consequently fallen into a poor state of repair. Improvements to these facilities in addition to the implementation of a regular maintenance program would allow these facilities to keep pace with and effectively cater to both current and future projected visitor volumes at Makena Landing Beach Park.

- **Visitor Erosion Considerations**

Visitor erosion considerations at Makena Landing Beach Park were noted as particularly severe. Loss of vegetation and the associated exposure of large areas of bare ground to the elements were identified in a number of areas within the park, especially around the toilet, shower and parking lot facilities. Refer to Figure III-36. As outlined previously in the internal drainage consideration section, significant increases in visitor traffic-related erosion would be reasonably expected to increase the sensitivity of ground cover to overland runoff during storm conditions, thus contributing to accelerated rates of overall erosion and soil loss at Makena Landing Beach Park. The development of a pronounced chute by visitors accessing the southern most beach area from Makena-
Keoneoio Road near its intersection with Honoiki Street is deemed particularly noteworthy of attention. Refer to Figure III-36.

- **Historic/Cultural Considerations**

As outlined previously, the landing ramp area at Makena Landing Beach Park once served as a bustling port in the 1800's for agricultural produce, particularly livestock from the Ulupalakua Ranch (formerly Rose Ranch) located Upcountry on the slopes of Haleakala above the Makena coastlands. Ships from around the world would often call at Maui specifically to purchase cattle from Ulupalakua Ranch. Popular also with Hawaiian royalty, regular visitors to the ranch included King Kalakaua and his Queen Kapi'olani who became good friends of the successful American owner/rancher, Captain James Makee. As late as 1948, "Paniolo" (Cowboys) would herd cattle down from the Ulupalakua ranchlands down into the surf at Makena for transport by schooner or steamer to the Honolulu markets on Oahu for wider distribution to the American mainland. Ships would depart Makena Landing packed full with people, livestock, pineapples, sugar and various other crops such as cotton and potatoes.

The historical/cultural background of the landing ramp area at Makena Landing Beach Park is, therefore, also noted as an important beach park management consideration.

(8) **Maluaka Beach Park**

**Park Overview**

Maluaka Beach Park is a 4.31-acre County-owned facility located on Maui's south shore adjacent to the Maui Prince Resort. See Figure III-37. It is noted that the parking and restroom facilities at the beach park are maintained by Makena Resort. The
Figure III-37  Commercial Ocean Recreational Activity (CORA) Study
Maluaka Beach Park
Regional Location Map

Prepared for: County of Maui, Dept. of Parks and Recreation
boundaries of the beach park are identified by TMKs 2-1-06:56 and 2-1-06:59. See Figure III-38. The shoreline, situated in an area of predominantly lava rock material, encompasses a long beach consisting of calcareous white/yellow sand deposits lined by a healthy dune system. See Figure III-39.

The majority of lands belonging to Maluaka Beach Park are State designated “Urban” lands, although portions on the north end are designated “Rural” and “Agricultural” lands. The State Land Use Classifications of surrounding lands are similarly “Urban”, “Rural”, and “Agricultural”. As previously mentioned, the Maui Prince Resort borders Maluaka Beach Park and comprises the majority of its mauka boundary, while the Keawalai Congregational Church is located adjacent to the north end of the beach and the north parking lot. High-end single-family residences and kiawe fields are also situated to the north of the beach park. Refer to Figure III-39.

Public access to the shoreline of Maluaka Beach Park is provided at two (2) separate designated access points. The first access point is located to the north of the Maui Prince Resort on Makena-Keoneoio Road. Visitors access this road by turning off of Makena Alanui Road onto Honoiki Street and then turning left (south) onto Makena-Keoneoio Road. A paved parking lot is located opposite the Keawalai Congregational Church, with a narrow sidewalk providing passage for visitors to the beach area farther south. The park can also be accessed by way of a second access road that joins Makena Alanui Road to the south of the Maui Prince Resort and leads to two (2) additional designated parking areas. Refer to Figure III-39.

Onsite facilities available at Maluaka Beach Park include the three (3) paved parking areas, a loading/turning area, designated walkways and stairs, restroom and shower facilities, a small grassy recreational area, picnic tables, and a water faucet. Posted park hours of operation are from 7:00 a.m. to 7:00 p.m. There are no OSOs currently assigned to Maluaka Beach Park by the County of Maui.
Figure III-38
Commercial Ocean Recreational Activity (CORA) Study
Maluaka Beach Park Boundary Map

Prepared for: County of Maui, Dept. of Parks and Recreation
Figure III-39
Commercial Ocean Recreational Activity (CORA) Study
Maluaka Beach Park Aerial Site Photo

Prepared for: County of Maui, Dept. of Parks and Recreation
Facility Assessment

The paved parking lot north of the Maui Prince Resort and opposite the Keawalai Congregational Church provides approximately 25 marked parking stalls for visitors and is identified by a sign that reads "public beach right-of-way". The second and third designated parking areas are located at the end of the access road just south of the Maui Prince Resort. See Figure III-40. The southernmost parking area contains approximately 30 marked stalls for visitors, including one (1) handicapped parking space, and has a lockable access gate.

The other parking area located nearest to the southern end of the park provides a total of nine (9) marked stalls including two (2) handicapped spaces and forms an "island" in the middle of a large cul-de-sac that serves as a drop-off zone. Another drop-off zone, semicircular in shape, exists adjacent to the northern shoreline access point. Refer to Figure III-40.

Concrete posts prevent vehicles from entering the shoreline area from this northern point while allowing pedestrians direct access to the sandy beachfront. The other access point at the south end of the beach park is provided via a designated paved path leading from the south cul-de-sac parking lot across a grassy recreational area and down a set of stairs to the shoreline of Maluaka Beach. A long, paved lateral walkway separates the Maui Prince Resort from the beach park area and shoreline while also conveying visitors to designated dunewalkways. Refer to Figure III-40.

There are two (2) comfort stations at Maluaka Beach Park, the first of which is located in the north parking lot, while the second is situated between the south cul-de-sac and the mauka side of the grassy recreational area. Refer to Figure III-39. Shower facilities are located adjacent to both comfort stations. The grassy recreational area in the southern portion of Maluaka Beach Park includes three (3) picnic tables, as well as several trash cans for visitor use.
Figure III-40  Commercial Ocean Recreational Activity (CORA) Study
Maluaka Beach Park
Facilities and Resources

Prepared for: County of Maui, Dept. of Parks and Recreation
Another trash receptacle is located in the north parking lot next to the comfort station. Signs indicating hazardous ocean conditions are located adjacent to the comfort station at the south end of the beach park and at the north end of the main lateral walkway. BBQ facilities and public telephones were noted as lacking at Maluaka Beach Park, although the latter are available at the Maui Prince Resort.

**Activity Assessment**

Located south of the major resort hub of Wailea, Maluaka Beach Park enjoys a remote setting whose only major development is the Maui Prince Resort. No signs on Makena Alanui Road identify the beach park's presence to passing traffic. As a result, the primary beach park users during the week are mainly guests of the Maui Prince Resort and a few other tourists, while local residents were observed to utilize the beach park mainly during weekends and holidays.

The shoreline of Maluaka Beach Park is characterized by a wide, white/yellow sandy beach with rocky outcrops on both sides. Fringing reef is located in both nearshore and offshore waters, and volunteers with the Reef Environmental Education Foundation have identified 135 aquatic species around Maluaka Beach Park to date, the most common of which are triggerfish, wrasse, Moorish idols, butterflyfish, tang and goatfish. Other notable though less common forms of marine life include several species of moray eel, as well as larger species such as whitetip reef shark and green sea turtles (The Reef Environmental Education Foundation, 2001). The reef and its associated marine species thus provide excellent opportunities for snorkeling and scuba diving.

The generally mild shorebreak at Maluaka Beach Park also allows other ocean-based activities such as swimming and kayaking at different skill levels to take place. It is noted, however, that ocean recreational activities are sometimes unsuitable at Maluaka Beach Park during high wave shorebreak conditions. A catamaran, observed moored offshore, also indicates
the popularity of adjacent coastal waters for ocean recreation activities. With regard to land-based recreational activities, the small grassy recreational area with picnic tables at the south end is ideal for picnics, while the large beach area is well-suited for sunbathing and walking.

According to 2005/2006 permit data, there are currently five (5) CORA operators permitted to conduct a total of nine (9) activities at Maluaka Beach Park. It should also be noted that CORA operators may possess permits for more than one (1) activity. CORA permits have been issued for scuba diving (3 permits), snorkeling (3 permits), and kayaking (4 permits). Table III-14 summarizes the names of the permitted CORA operators at Maluaka Beach Park.

Table III-14

<table>
<thead>
<tr>
<th>MALUAKA BEACH PARK CORA OPERATORS</th>
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<tbody>
<tr>
<td>CORA Operator</td>
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<tr>
<td>Keli'i's Kayak Tours</td>
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<tr>
<td>Kihei Scuba Services, Inc.</td>
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<tr>
<td>Lahaina Dive &amp; Surf, LLC</td>
</tr>
<tr>
<td>Makena Kayak &amp; Tours, Inc.</td>
</tr>
<tr>
<td>Octopus Garden Diver, Inc.</td>
</tr>
</tbody>
</table>

Source: Based on 2005/2006 Permit Data from the Department of Parks and Recreation.

Environmental Analysis

Upon completion of the environmental analysis, the following considerations were deemed particularly noteworthy.

- Coastal Erosion Considerations

The shoreline directly fronting Maluaka Beach
Park has experienced moderate erosion over time. The average Annual Erosion Hazard Rate (AEHR) for this section of shoreline was -1.11 ft./yr. between 1931 and 1997. Additionally, the average beach width has declined by 10 percent between 1960 and 2002 (University of Hawaii, SOEST, 2003).

While acknowledging the key role of natural forces in coastal erosion processes, it is noted that human activity can be an important secondary cause of erosion. Although the vast majority of the dune system at Maluaka Beach Park is protected from visitor traffic by dense vegetative covering, steep slopes and designated paths, a notable level of visitor-led erosion was observed during site visits.

Well-worn tire tracks were noted leading from the end of Makena-Keoneoio Road just south of the semicircular drop-off zone across the backside of the dune, suggesting that vehicle intrusion onto the dune system is a common occurrence. It appears that certain visitors are using these dune areas to offload items instead of using the designated drop-off zone. Vehicle-led erosion, possibly from a maintenance vehicle, was also observed near the comfort station at the south end of the beach park. See Figure III-41.

In addition, an undesignated and well worn pedestrian path starts off at the north end of the main walkway near a hazardous ocean condition sign and cuts straight across one of the steepest portions of the dune. Refer to Figure III-41. Some areas of vegetation on the makai side of the dune structure running along the beach also seemed to be suffering from some degree of pedestrian trampling. The presence of designated paths on both the north and south sides of the beach park seems to have had limited success in deterring visitor foot traffic across these aforementioned vegetated areas between the designated
Evidence of Vehicle Intrusion Near the North Shoreline Access Point

Evidence of Vehicle Intrusion in Grassy Recreational Area Near Comfort Station

Visitor-Led Erosion at the North End of the Main Walkway

Visitor-Led Erosion at North Shoreline Access Point, Mauka View

Visitor-Led Erosion at North Shoreline Access Point, Makai View

Ponding Near the Shower Facilities, North Parking Lot

Figure III-41 Commercial Ocean Recreational Activity (CORA) Study
Maluaka Beach Park
Site-Specific Considerations

Prepared for: County of Maui, Dept. of Parks and Recreation

MUNEKIYO & HIRAGA, INC.
access points. The overall impact of this erosion to date, however, appears to have been minimal given the fact that it is distributed over a large area of generally intact and healthy dunes.

- **Internal Drainage Considerations**

The areas of Maluaka Beach Park nearest the shoreline are located within FEMA designated Flood Zone V14, an area of the 100-year coastal flood with velocity wave action. All other remaining portions of Maluaka Beach Park are situated in FEMA designated Flood Zone A4, an area of the 100-year flood, and Flood Zone C, an area of minimal flood risk.

Maluaka Beach Park is characterized by a gently sloping beachfront, a relatively steep and vegetated hill-like dune structure, and a level recreational area covered with a thick layer of grass. All of these features suggest that excess water during high rain events is quickly drained through a combination of sheet flows and percolation.

It is also noted that a series of drainage improvements were added to the main walkway that runs between the shoreline and the Maui Prince Hotel during its construction nearly two decades ago, including drainage inlets and a dry well. The path was regraded to an incline of 2 percent to facilitate positive drainage (Environmental Communications Inc, 1988). The risk of ponding on this nonporous surface is thus judged to be minimal. Refer to Figure III-40.

Both of the shower facilities at Maluaka Beach Park are surrounded by a gutter filled with rocks, which is intended to slow soil percolation and lessen the potential for waterlogging around the shower areas. However, it is noted that the shower facility in the north parking lot receives heavy use not
just from beachgoers at Maluaka Beach Park but also from patrons of Makena (Big) Beach further to the south. During high use, the gutter sometimes overflows and excess water seeps across Makena-Keoneoio Road. Refer to Figure III-41.

• Archaeological/Cultural Considerations

Tax maps and historic maps indicate that a cluster of Land Commission Awards (LCAs) exist near Maluaka Beach Park (Hammatt, 2001). LCAs or kuleana awards were distributed during the Great Mahele—the division of Hawaiian lands—which introduced private property into Hawaiian society in the latter half of the 1840s. LCAs were presented to tenants who could prove occupancy on the parcels before 1845. Because of the presence of these LCAs in the vicinity, Maluaka Beach Park is classified as having a moderate potential for subsurface deposits. However, no surface archaeological resources were identified at the park. In addition, disturbances associated with construction in and around the Maui Prince Hotel and the public right-of-way have addressed most, if not all, subsurface deposit issues in the immediate vicinity. The possible existence of additional subsurface deposits is, however, deemed a noteworthy consideration and should be acknowledged in the future management strategy for Maluaka Beach Park.

• Scenic and Open Space Considerations

With a relatively undeveloped setting and minimal traffic on surrounding roads, Maluaka Beach Park affords visitors a feeling of solitude, as well as scenic and relatively unencumbered views of Molokini and Kaho'olawe. Mauka views of Haleakala's lower slopes are, however, partially obstructed by the presence of the Maui Prince Resort. Despite these partially obstructed views,
Ulupalakua and Haleakala are still partially visible from the beach park and fully visible from the south parking lot and access road.

2. **West Maui Community Plan Region**

Six (6) of the 17 beach parks selected for inclusion in this study fall within the limits of the West Maui Community Plan region. See Figure III-42. The six (6) West Maui beach parks are Papalaua, Ukumehame, Kamehameha Iki, Wahikuli Wayside, Hanakao'o, and D.T. Fleming. As outlined previously, the section (a) which follows provides a general socio-economic summary of the West Maui Community Plan Region. An assessment of general beach park conditions within the region follows in the second section (b). Individual assessments for each of the six (6) aforementioned beach parks in the West Maui region are then presented in the final section (c), encompassing a park overview, facility/activity assessments, and pertinent site-specific environmental management considerations.

a. **Regional Overview**

The West Maui Community Plan covers the entire region west of the West Maui mountain range from McGregor Point near Maalaea Small Boat Harbor in the south to Poelua Bay in the north. Primary access to the region is provided by way of the Honoapiilani Highway, a State-owned coastal road that starts near Central Maui and continues through Lahaina/Kaanapali before terminating just beyond the resort community of Kapalua. The West Maui Airport is located at Mahinahina near Kapalua and conveniently links the West Maui region to other parts of Maui and neighboring islands. The West Maui Community Plan region has witnessed
Figure III-42 Commercial Ocean Recreational Activity (CORA) Study
West Maui Community Plan Map

Source: County of Maui, Dept. of Planning

Prepared for: County of Maui, Dept. of Parks and Recreation
significant growth in virtually all aspects of the community over the past three (3) decades. In 2000, the resident population of the island of Maui was 117,644, with 17,967 persons (15 percent) of the island’s population residing in West Maui (SMS, 2002). Since 1970, West Maui has seen a considerable growth in population, with population increasing from about 5,500 persons in 1970, to approximately 10,300 persons in 1980, and to about 14,600 persons in 1990. These increases represent an 87 percent gain from 1970 to 1980, a 42 percent gain from 1980 to 1990, and a 22 percent gain from 1990 to 2000. The resident population of the West Maui region is projected to increase to 21,663 by the year 2010 (SMS, 2002).

The majority of the lands in West Maui are either State designated “Conservation” or “Agricultural”. Generally, “Conservation” lands occupy the higher elevations, while the “Agricultural” district spans the foothills of the West Maui Mountains. Diversified agriculture and pineapple fields occupy much of the lower slopes of the West Maui Mountains north of Kaanapali. Pineapple cultivation, a vital component of the West Maui economy, is handled by Maui Land & Pineapple Company, Inc. Since the termination of sugarcane cultivation and the closure of the Pioneer Mill in 1999, small-scale coffee and seed corn operations have supplanted sugarcane on a portion of the lands previously cultivated by the Pioneer Mill Company, Ltd.

“Urban” designated lands occupy the lower elevations along the coast and include the communities of Lahaina,
Kaanapali and Kahana-Napili-Kapalua. These resort communities include a mixture of hotels and visitor-oriented condominiums and serve as the focal point for visitor accommodations. Major hotels in the region include the Hyatt Regency Maui, the Westin Maui, the Royal Lahaina Resort, The Ritz-Carlton Kapalua, the Sheraton Maui Resort, the Kaanapali Beach Hotel and the Maui Marriott Resort.

The historic plantation town of Lahaina represents the commercial center of West Maui. Refer to Figure III-42. It contains a number of shopping centers and retail business areas, and also serves as the core for the region's residential housing. In addition, the Front Street area of Lahaina is lined with numerous restaurants, retail stores and activity outlets and is a popular tourist destination both during the day and at night. Limited visitor accommodations are also available in the Lahaina area, such as the Best Western Pioneer Inn Hotel located along Front Street near the Lahaina Small Boat Harbor.

Part of West Maui's attraction with both tourists and residents alike can be attributed to its year-round dry and warm climate. The desirable weather in the region is further complemented by the sharp contrast provided by the many white-sand beaches along the coast set against the scenic backdrop of the West Maui Mountain range. Diverse land-based and ocean recreational opportunities exist along the West Maui coastline, including but not limited to surfing, scuba, swimming, snorkeling, kayaking/canoeing, fishing, walking/jogging, picnicking, golf, tennis, and whale watching.
b. **General Beach Park Conditions**

The West Maui Community Plan region contains approximately 21 County-owned parks, of which eight (8) are beach parks situated along the scenic coastline. While specific environmental conditions vary between individual locations, beach parks in the region also exhibit a number of similar character traits. A discussion of the general environmental conditions at the six (6) West Maui beach parks is presented herein. This section will be followed by assessments for each individual West Maui beach park in which specific environmental parameters in the context of the CORA study will be addressed.

(1) **Surrounding Land Uses**

Surrounding land uses vary according to the precise location for each particular beach park. Papalaua, Ukumehame and D.T. Fleming Beach Parks are considered non-urban parks for the purposes of this study as the majority of the surrounding lands are State classified as either "Agricultural" or "Conservation".

Papalaua and Ukumehame Beach Parks are both located along Honoapiilani Highway where the pali cliffs transition to coastal lowlands. The Papalaua/Ukumehame shoreline area is characterized by agricultural lands that have remained fallow since the closure of sugarcane operations by the Pioneer Mill Company, Ltd.
D.T. Fleming Beach Park is also surrounded by a portion of fallow agricultural lands but is also characterized by the Kapalua Golf Courses and The Ritz-Carlton Kapalua Hotel and Resort.

The remaining three (3) beach parks, Kamehameha Iki, Wahikuli Wayside and Hanakao'o, are deemed urban beach parks as they are either located in or around the major tourist resort areas of old Lahaina Town or Kaanapali.

Typical land uses surrounding these urban parks include single-family/multi-family residential housing, mixed retail/commercial, public/quasi-public uses and recreational facilities. Kamehameha Iki Beach Park, in particular, is situated in the heart of old Lahaina Town near the Lahaina Small Boat Harbor. Wahikuli Wayside and Hanakao'o Beach Parks are situated between old Lahaina Town and Kaanapali Resort near the Lahaina Civic Center.

All six (6) of the aforementioned West Maui beach parks, except Kamehameha Iki, are bordered by and are exclusively accessible from Honoapiilani Highway. Due to its location in the heart of busy Lahaina Town, Kamehameha Iki is accessed via Front Street.

Table III-15 provides a brief summary of the State Land Use designations and surrounding land uses for each of the six (6) CORA study parks within the West Maui Community Plan region.
Table III-15

<table>
<thead>
<tr>
<th>Beach Park</th>
<th>State Land Use Designation of Beach Park</th>
<th>State Land Use Designations of Surrounding Areas</th>
<th>Surrounding Land Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Papalaua</td>
<td>Conservation</td>
<td>Conservation</td>
<td>Ukumehame Firing Range, fallow agricultural lands</td>
</tr>
<tr>
<td>Ukumehame</td>
<td>Conservation</td>
<td>Agricultural, Conservation</td>
<td>Ukumehame Firing Range, fallow agricultural lands</td>
</tr>
<tr>
<td>Kamehameha Iki</td>
<td>Urban</td>
<td>Urban</td>
<td>Lahaina Small Boat Harbor, Malu Ulu Olele Park, single/multi-family residential housing, 505 Front Street retail complex, Kamehameha III Elementary School, retail units, and restaurants</td>
</tr>
<tr>
<td>Wahikuli Wayside</td>
<td>Urban, Conservation</td>
<td>Agricultural, Urban, Conservation</td>
<td>Lahaina Post Office, Lahaina Police Station, Lahaina Civic Center, Lahaina Fire Station, Hanakao'o Beach Park, single-family residential housing</td>
</tr>
<tr>
<td>Hanakao'o</td>
<td>Urban, Agricultural</td>
<td>Agricultural, Urban, Conservation</td>
<td>Hyatt Regency Resort, Kaanapali Golf Courses, Wahikuli Wayside Beach Park, single-family residential housing</td>
</tr>
<tr>
<td>D.T. Fleming</td>
<td>Conservation</td>
<td>Agricultural, Urban, Conservation</td>
<td>The Ritz-Carlton Kapalua, Kapalua Golf Courses, Kapalua Preschool, mixture of agricultural (pineapple cultivation) and fallow lands</td>
</tr>
</tbody>
</table>

(2) Flora and Fauna

Species of flora and fauna/avifauna at beach parks along the West Maui coastline are generally not rare, threatened or endangered due to both the high
volumes of visitor use and the proximity of many of the parks to Honoapiilani Highway.

Flora species observed during assessment of the six (6) West Maui beach parks include Coconut/Manila Palms, Kiawe, Lauhala, Kukui Nut, Seagrape, Ironwood, Koa Haole, Hau, Beach Naupaka, Morning Glory as well as various mixed grasses and wedella. Certain beach parks are vegetated by a single dominant form of vegetation while others contain a variety of different flora. Papalaua Beach Park, for example, is almost entirely vegetated by Kiawe trees, whereas D.T. Fleming Beach Park is characterized by a variety of abundant floral species.

Fauna at West Maui beach parks are generally limited to stray cats and dogs, mongoose, rats and mice, all of which tend to be attracted by trash and other waste left by visitors to the park. Avifauna tends, however, to be more diverse and is possibly related to the degree of vegetation/landscaping and natural dune structure existing at each individual beach park.

The combined effect of high visitor volumes and natural coastal retreat has in some instances contributed to the loss of vegetation at many of the beach parks situated along the West Maui coastline. Dune systems, located along the shoreline of beach parks, were noted to be particularly vulnerable to
visitor-led degradation due to the high frequency of visitor movements between landside park facilities and shoreline areas. The relative health and stability of coastal dune systems are deemed important contributing factors to the overall diversity and abundance of flora and fauna species at the beach parks. It is noted that degradation of dune systems tends to be more pronounced in those parks lacking designated pathways and moveable dune walkways.

(3) **Topography and Soils**

U.S. Department of Agriculture soils data was collected for all six (6) West Maui beach parks using the *Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai and Lana'i* (U.S. Department of Agriculture, 1972).

Coastal lands contained within the West Maui Community Plan region are represented by the Pulehu-Ewa-Jaucus, Waiakoa-Keahua-Molokai, and Rock Land-Rough mountainous soil associations. Each soil association contains a variety of different soil types. Individual soil types underlying each of the beach parks, therefore, vary according to precise geographical location.

Papalaua, Ukumehame, Kamehameha Iki and Hanakao'o Beach Parks all fall within the Pulehu-Ewa-Jaucus soil association. This soil association is found on alluvial fans and in basins and is
characterized by deep, nearly level to moderately sloping, well-drained and excessively drained soils that have a moderately fine textured to coarse textured subsoil or underlying material (U.S. Department of Agriculture, 1972).

Wahikuli Wayside and D.T. Fleming Beach Parks both fall within the Waiakoa-Keahua-Molokai soil association. This association is more common throughout low upland areas and is characterized by moderately deep and deep, nearly level to moderately steep, well-drained soils that have a moderately fine textured subsoil (U.S. Department of Agriculture, 1972).

Table III-16 provides a brief summary of the general soil associations and specific soil types for each of the six (6) selected beach parks in the West Maui Community Plan region.
<table>
<thead>
<tr>
<th>Beach Park</th>
<th>General Soil Association</th>
<th>Association Characteristics</th>
<th>Specific Soil Type</th>
<th>Type Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Papalaua</td>
<td>Pulehu-Ewa-Jaucus</td>
<td>Found on alluvial fans and in basins; characterized by deep, nearly level to moderately sloping, well-drained and excessively drained soils that have a moderately fine textured to coarse textured subsoil or underlying material.</td>
<td>KMW</td>
<td>A poorly drained, dark reddish soil with moderately rapid permeability and very slow run-off. Characterized by a high salt content and a brackish water table that fluctuates with the tide. KMW is particularly vulnerable to wind erosion.</td>
</tr>
<tr>
<td>Ukumehame</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kamehameha Iki</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hanakaoo</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wahikuli Wayside</td>
<td>Waikoa- Keahua-Molokai</td>
<td>Commonly found throughout upland areas; characterized by moderately deep and deep nearly level to moderately steep, well-drained soils that have a moderately fine texture subsoil.</td>
<td>WdB</td>
<td>A well-drained soil common throughout gently to moderately sloping upland areas. WdB is developed in material weathered from basic igneous rock. Stones are commonly found on the surface on WdB.</td>
</tr>
<tr>
<td>D.T. Fleming</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

KMW - Kealia Silt Loam, EaA - Ewa Silty Clay Loam, JaC - Jaucus Sand, WdB - Wahikuli Very Stony Silty Clay, PsA - Pulehu Clay Loam, rRR - Rough Broken Land

Shoreline Geology and Physiographical Features

A combination of reports, maps analysis and site observations was utilized to determine the shoreline geology and physiographical features for all six (6) West Maui beach parks. The Maui Coastal Zone Atlas (AECOS, Inc, 1979/1981) was utilized to provide shoreline geological information, whereas the Maui Shoreline Atlas (University of Hawaii, SOEST, 2003) provided necessary shoreline erosion rate data.

Beach parks in the West Maui region are situated on low-lying coastal terraces situated at the foot of the West Maui Mountain range. Drainage gulches, serving the West Maui Mountains, are commonly found flowing into the ocean at various points along the coastline.

Stretches of varying shades of white/yellow beach sand, consisting of calcareous coral deposits, are found adjacent to the shoreline boundaries of all six (6) of the selected beach parks in the West Maui region.

West Maui’s coastline has experienced moderate erosion over time (University of Hawaii, SOEST, 2003). Coastal armoring projects initiated both by the State Department of Transportation (SDOT) and private homeowners in response to the increasing threat from coastal erosion can now be found near or at the majority of beach parks in the West Maui
Community Plan region. Wahikuli Wayside is noted as having the most extensive coastal armoring out of the six (6) West Maui beach parks and presently contains only a small beach area in the central portion of the park, which is also protected by a small seawall situated between the grassy recreational park areas and the shoreline. D.T. Fleming, in contrast, represents the beach park least affected by the presence of coastal armoring initiatives in the West Maui region. No coastal armoring has yet taken place at D.T. Fleming Beach Park.

As mentioned previously, data from the Maui Shoreline Atlas was used to assess erosion rates at the six (6) selected beach parks within the West Maui Community Plan region. The study breaks Maui's coastline into 30 different study areas, measuring erosion rates at 20 meter transects in these areas. An Annual Erosion Hazard Rate (AEHR), taking a spatially smoothed center weighted average of these erosion measurements, is shown in the Atlas for each study area. An average AEHR for the shorelines fronting the selected beach parks was calculated in this CORA study by taking an arithmetic mean of the AEHRs of transects along the designated shoreline fronting each of the six (6) West Maui beach parks area. Data relating to change in average beach width, the horizontal distance from the vegetation line to the low water mark, was also used to analyze erosion patterns at selected beach parks.
Table III-17 summarizes the shoreline characteristics and annual coastal erosion rates for each of the six (6) beach parks in the West Maui Community Plan region.
### Table III-17

**SHORELINE GEOLOGY AND COASTAL EROSION RATES FOR WEST MAUI COMMUNITY PLAN REGION BEACH PARKS**

<table>
<thead>
<tr>
<th>Beach Park</th>
<th>Shoreline Characteristics</th>
<th>Study Area</th>
<th>Average Beach Width for Study Area</th>
<th>Average AEHR for Study Area</th>
<th>Average AEHR for Shoreline Area Near Beach Park</th>
</tr>
</thead>
<tbody>
<tr>
<td>Papalaua</td>
<td>Calcareous sand beach, coastal armoring located nearby</td>
<td>Ukumehame and Papalaua (Aalalola Pali to Ukumehame Gulch, 150 transects)</td>
<td>-8%&lt;sup&gt;2&lt;/sup&gt;</td>
<td>-1.0 ft./yr.&lt;sup&gt;2&lt;/sup&gt;</td>
<td>-1.5 ft./yr. (transects 75-150)&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td>Ukumehame</td>
<td>Calcareous sand beach, coastal armoring located nearby</td>
<td>Ukumehame and Papalaua (Aalalola Pali to Ukumehame Gulch, 150 transects)</td>
<td>-8%&lt;sup&gt;2&lt;/sup&gt;</td>
<td>-1.0 ft./yr.&lt;sup&gt;2&lt;/sup&gt;</td>
<td>-1.55 ft./yr. (transects 53-78)&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td>Kamehameha Iki</td>
<td>Calcareous sand beach, coastal armoring located nearby</td>
<td>Puamana (Lahaina Boat Harbor to Paunau Beach Park, 134 transects)</td>
<td>-29%&lt;sup&gt;2&lt;/sup&gt;</td>
<td>-1.0 ft./yr.&lt;sup&gt;3&lt;/sup&gt;</td>
<td>0 ft./yr.&lt;sup&gt;3&lt;/sup&gt; (transects 117-134)&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td>Wahikuli Wayside</td>
<td>Small calcareous sand, significant coastal armoring fronting beach park</td>
<td>Wahikuli (Mala Wharf to Hanakao'o Beach Park, 133 transects)</td>
<td>-22%&lt;sup&gt;2&lt;/sup&gt;</td>
<td>-0.70 ft./yr.&lt;sup&gt;3&lt;/sup&gt;</td>
<td>-0.74 ft./yr. (transects 38-45, 72-77)&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hanakao'o</td>
<td>Wide calcareous sand beach, coastal armoring located nearby</td>
<td>Kaanapali (Hanakao'o to Kekaa Point, 124 transects)</td>
<td>-29%&lt;sup&gt;2&lt;/sup&gt;</td>
<td>-0.6 ft./yr.&lt;sup&gt;3&lt;/sup&gt;</td>
<td>-1.36 ft./yr. (transects 0-20)&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td>D.T. Fleming</td>
<td>Wide calcareous sand beach, no coastal armoring</td>
<td>Hawea and Honolulu (Hawea Point to east Honolulu Bay, 71 transects)</td>
<td>-22%&lt;sup&gt;2&lt;/sup&gt;</td>
<td>-0.4 ft./yr.&lt;sup&gt;3&lt;/sup&gt;</td>
<td>-0.02 ft./yr. (transects 25-49)&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

<sup>1</sup> Annual Erosion Hazard Rate (AEHR).
<sup>2</sup> Between 1949 and 1997.
<sup>3</sup> Based on data collected between 1912 and 1997.
<sup>4</sup> A positive AEHR on the southern side of the park and a negative AEHR on the north have resulted in an average AEHR for the entire beach park of 0 ft./yr.


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(5) **Offshore Bottom Type**

A combination of reports and site observations were utilized to collect necessary data on offshore bottom type. The Maui Coastal Zone Atlas (AECOS, Inc.,
1979/1981) was used as the primary data source for offshore bottom type geological data.

A mixture of fringing coral reef, basaltic rock hard bottom, limestone cobble/boulders, and sand patches characterizes the West Maui coastline. Table III-18 shows that fringing coral reef resources exist at five (5) out of the six (6) selected beach parks in the West Maui Community Plan region; Papalaua, Ukumehame, Kamehameha Iki, Wahikuli Wayside and Hanakao’o Beach Parks (AECOS, Inc., 1979/1981).

**Table III-18**

<table>
<thead>
<tr>
<th>Beach Park</th>
<th>Offshore Bottom Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Papalaua</td>
<td>rcs, rc, sc</td>
</tr>
<tr>
<td>Ukumehame</td>
<td>rcs, rc, sc</td>
</tr>
<tr>
<td>Kamehameha Iki</td>
<td>rcs</td>
</tr>
<tr>
<td>Wahikuli Wayside</td>
<td>rb, rs</td>
</tr>
<tr>
<td>Hanakao’o</td>
<td>rbs, rcl</td>
</tr>
<tr>
<td>D.T. Fleming</td>
<td>sc</td>
</tr>
</tbody>
</table>

rb - sand or hard bottom; a massive rock surface
rbs - hard bottom with sand pockets (less than 50% of the area)
rc - complex reef bottom type consisting of a mixture of limestone boulders and outcrops, and sand; hard bottom rubble, or boulders predominate
rcl - predominantly consolidated limestone surface
rcs - complex reef bottom type consisting of a mixture of limestone rubble and (mostly) sand
rs - sand pocket with scattered outcrops of limestone and/or limestone boulders
sc - areas of sand bottom without significant proportions of limestone rock

Stream Hydrology and Surface Drainage Characteristics

A combination of U.S.G.S./FEMA map analysis and site observation were utilized to determine the presence of major gulches and streams at the six (6) selected beach parks in the West Maui Community Plan region. FEMA Flood Insurance Rate Maps (FIRM) provided data on specific flood zoning at beach parks.

It is noted that beach parks located along the low-lying coastal terraces of the West Maui coastline are particularly susceptible to flash flooding during storm events. Numerous streams and gulches convey flows from the West Maui Mountains to the ocean, passing near or sometimes through County beach parks. Drainage discharge points are present at all six (6) of the beach parks selected for inclusion in the CORA study. Out of the six (6) West Maui beach parks, Wahikuli Wayside Beach Park was noted as having multiple active shoreline drainage discharge points. Papalaua, Ukumehame, Kamehameha Iki, Hanakao'o and D.T. Fleming are all served by a single drainage discharge point located either within or near the designated park boundaries. All shoreline areas of the selected beach parks, with the exception of D.T. Fleming Beach Park, are located within the "V" FIRM designation, an area of 100-year flood with wave action. The shoreline area of D.T. Fleming Beach Park falls within the "A" FIRM designation, an area of...
A general lack of internal surface and subsurface drainage improvements was noted during site visits to the beach parks along the West Maui coastline. As such, low gradients combined with this lack of improvements at the selected beach parks suggests that internal drainage predominantly occurs by a combination of percolation and overland sheet flows across sites into the ocean. Ponding and waterlogging of soils and other grassy recreational areas were noted as a universal problem characteristic of beach parks along the West Maui coastline.

Table III-19 provides a summary of the flood zoning and drainage characteristics of each of the beach parks in the West Maui Community Plan region.
### Table III-19

<table>
<thead>
<tr>
<th>Beach Park</th>
<th>Flood Zone</th>
<th>Major Gulches/ Streams</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Papalaua</td>
<td>V8</td>
<td>Papalaua Gulch</td>
<td>Drainage culvert located in the central portion of the park</td>
</tr>
<tr>
<td>Ukumehame</td>
<td>V8</td>
<td>Hanaula Gulch, Makiwa Gulch</td>
<td>Gulches are located along east and west park boundaries</td>
</tr>
<tr>
<td>Kamehameha Iki</td>
<td>V12, B</td>
<td>Drainage channel</td>
<td>Small drainage culverts are located between beach park and Lahaina Small Boat Harbor</td>
</tr>
<tr>
<td>Wahikuli Wayside</td>
<td>V12, C</td>
<td>Various channelized drainage channels</td>
<td>Multiple drainage discharge points throughout beach park</td>
</tr>
<tr>
<td>Hanakao'o</td>
<td>V12, A4, C</td>
<td>Hahakea Gulch, Wahikuli Gulch</td>
<td>Single ocean discharge point located between the Hyatt Regency Resort and the beach park</td>
</tr>
<tr>
<td>D.T. Fleming</td>
<td>A4, C</td>
<td>Honokuhua Gulch and Mokupea Gulch</td>
<td>The two gulches converge near the preschool at Kapalua and emerge as a single discharge point along the shoreline at the northeastern most extent of the beach park</td>
</tr>
</tbody>
</table>

V - Areas of 100-year coastal flood with velocity (wave action).
A - Areas of 100-year flooding.
B - Areas between the limits of the 100-year flood and 500-year flood; or contain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one (1) square mile; or areas protected by levees from the base flood.
C - Areas of minimal flooding.


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(7) **Marine Biology**

Hawaii's coral reefs shelter around 700 species, over 400 of which can be found in waters less than 200 feet deep. An estimated 24 percent of Hawaii's fish species are endemic (found only in Hawaii), along with 25 percent of Hawaii's reef building corals, 21
percent of marine snails and 25 percent of sponges. This offers snorkelers and divers the opportunity to view species of marine life found nowhere else on earth (CZM Hawaii, et al., 2003).

Marine life in waters along the West Maui Community Plan region is considered both abundant and diverse due to the large proportion of fringing coral reef present along the coastline from Papalaua to Kapalua. The presence of healthy coral reef ecosystems adjacent to many County-owned beach parks indicates the possible presence of common reef species, including but not limited to wrasse, coris, parrotfish, butterflyfish, surgeonfish, damselfish, triggerfish, moray eel, and octopus.

Larger marine mammals and fish, such as sharks (tiger, gray, oceanic white-tip), dolphins (spinner, bottlenose) and sea turtles (green, hawksbill and leatherback), have also been observed in deeper waters along the West Maui coast. During the months of November to April, frequent Humpback Whale activity can be observed in the Auau and Kealaikahiki channels between the islands of Kaho'olawe, Lana'i, Molokai and Maui. Hawaii represents the winter breeding grounds for the North Pacific stock of Humpback Whales that migrate from Alaska having spent the summer feeding (Pacific Whale Foundation, 2005).
The health and overall stability of coral reef ecosystems is extremely sensitive to both environmental changes and human impacts. Natural factors affecting coral reefs include hurricanes, storms, predators and competition among different coral species for both space and light. Pollution and trampling represent major threats to coral reef survival, particularly those areas located within shallow areas of water near beach parks (Pacific Whale Foundation, 2005).

(8) **Water Quality**

All six (6) of the beach parks in the West Maui Community Plan region are classified under the State of Hawaii Water Quality Standards Classification as Class A. Class A waters are designated for recreational purposes and aesthetic enjoyment so long as it is compatible with the protection and propagation of fish, shellfish, and wildlife. Discharge which has not received the best degree of treatment and met State criteria may not be disposed of in Class A waters (State of Hawaii, Department of Health, 2004).

Evaluation of water quality at beach parks requires an assessment of factors such as surrounding land uses and drainage characteristics. Preliminary assessment of the aforementioned factors indicates that the overall quality of waters fronting beach parks along the West Maui coastline is generally good under dry
conditions but sensitive to pollutant loading associated with storm flow conditions. Deterioration in water quality is experienced during high rainfall events due to the large number of drainage channels which flow down from the West Maui Mountain range and enter the ocean at various points along the coastline. Preliminary analysis of Department of Health water quality monitoring data suggests that Hanakao'o Beach Park is the most sensitive of the six (6) beach parks to deterioration in beach water quality during times of storm run-off input. Site observations noted an increased possibility of water quality fluctuations in beach parks containing or situated near gulches and streams that drain from urban areas, lands associated with agricultural practices or golf course developments.

(9) Archaeological/Cultural Resources and Practices

Beach parks along the West Maui coastline are generally not associated with the presence of significant archaeological resources due to completed park development improvements (e.g., grading, paving, landscaping). Three (3) out of the six (6) study beach parks located along the West Maui coastline were, however, identified as possessing archaeological/cultural resource characteristics. Kamehameha Iki and Hanakao'o Beach Parks both accommodate well-developed and active traditional Hawaiian canoe paddling associations. Hanakao'o Beach Park is also noted for the presence of
Hanakao'ō Cemetery and the Hoana grinding stones within the park. D.T. Fleming Beach Park was identified to be in close proximity to an ancient burial site fronting The Ritz-Carlton Kapalua Hotel and Resort. No cultural practices or archaeological resources were identified during the completion of assessments for Papalaua, Ukumehame, and Wahikuli Wayside Beach Parks.

**(10) Air Quality**

Air quality at beach parks along the West Maui coastline is very much dependent upon the nature of land use and the extent of development in surrounding areas. Honoapiilani Highway, an intermittent generator providing primary access to the region, is the primary source of air pollution for all six (6) parks. No point sources of air pollution were identified to exist within the direct locality of any of the six (6) beach parks. Existing airborne pollutants are, therefore, attributed primarily to vehicle-generated exhaust from traffic flows along Honoapiilani Highway. Other potential sources of air pollution at the parks included fugitive dust emissions from temporary construction projects and vacant lands surrounding the beach park, especially during dry weather conditions. It is noted that any high concentrations of airborne particulate present along the West Maui coastline are quickly dispersed by the prevailing wind conditions.
(11) **Noise**
Traffic noise, especially during peak traffic flows, was identified as the primary noise generator due to the proximity of the Honoapiilani Highway to all the beach parks except Kamehameha Iki. Traffic along Front Street represented the primary noise source at Kamehameha Iki Beach Park. Secondary noise generators identified during park visits included park visitors and natural sources, such as wind and wave noise. Due to the intermittent nature of traffic noise, ambient noise levels tend to be lower during low flow traffic conditions.

It is noted that additional noise generators were identified during completion of the assessment for Kamehameha Iki Beach Park. These additional noise sources are associated with the surrounding tourism hub of Front Street and the operations of the nearby Lahaina Small Boat Harbor.

(12) **Scenic and Open Space Resources**
Excellent scenic and open space resources were noted to exist at all six (6) beach parks situated along the West Maui coastline due to the scenic backdrop provided by the West Maui Mountains and the makai views of the Pacific Ocean and the neighboring islands of Kaho'olawe, Lanai and Molokai.

c. **Study-Specific Beach Park Conditions**
As previously outlined, six (6) beach parks in the CORA
Study sample fall within the boundary of the West Maui Community Plan region. Those six (6) beach parks are Papalaua, Ukumehame, Kamehameha Iki, Wahikuli Wayside, Hanakao'o, and D.T. Fleming. Refer to Figure III-42. Assessment summaries for each of these six (6) West Maui parks follow:

(1) **Papalaua Beach Park**

*Park Overview*

The Ukumehame and Papalaua areas extend from Manawaiipueo Gulch in the southeast to Ukumehame Gulch in the northwest. Papalaua Beach Park is a 6.7-acre County-owned facility located at the Mile 11 marker along Honoapiilani Highway. See Figure III-43. The boundary of the beach park is identified by TMK 4-8-02:41. See Figure III-44. The park, located between McGregor Point and Olowalu, is approximately four (4) miles west of Maalaea Harbor and eight (8) miles east of Lahaina Town. Agricultural lands surround the park, but these areas have remained fallow since the termination of sugarcane operations by Pioneer Mill Company, Ltd. Apart from Honoapiilani Highway along the northern boundary, there are no urban land uses surrounding the beach park.

Papalaua Beach Park, consisting of a series of unimproved parking areas and minimal facilities, is situated near Ukumehame Beach Park and is within an area commonly referred to as “Thousand Peaks”. See Figure III-45. Hours of operation are not posted at the park. There are no OSOs currently assigned to Papalaua Beach Park by the County of Maui. Camping is allowable by permit only within a designated area situated in the central portion of the park, west of the Papalaua Gulch drainage culvert.

*Facility Assessment*

Facilities currently available at Papalaua Beach Park

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Figure III-43 Commercial Ocean Recreational Activity (CORA) Study
Papalaua Wayside Beach Park
Regional Location Map
Figure III-44
Commercial Ocean Recreational Activity (CORA) Study
Papalaua Beach Park Boundary Map

Prepared for: County of Maui, Dept. of Parks and Recreation


NOT TO SCALE
Figure III-45
Commercial Ocean Recreational Activity (CORA) Study
Papalaua Beach Park Aerial Site Photo

Prepared for: County of Maui, Dept. of Parks and Recreation
are limited to portable toilets, small and large trash receptacles, picnic tables and BBQ grills. Green and white portable toilets are located at various points along the park's boundary with Honoapiilani Highway. See Figure III-46. Several large trash receptacles are also located in the north and south areas of the park. No shower and changing facilities, water taps or drinking fountains are currently available at Papalaua Beach Park.

Entry to the beach park is provided through a series of unimproved and unmarked dirt parking areas positioned at various intervals along Honoapiilani Highway. There are no internal gated access points. A small improved, unmarked parking area is located at the westernmost extent of the park. This parking area provides unmarked capacity for approximately 10 cars. Refer to Figure III-46.

**Activity Assessment**

According to 2005/2006 permit data, there are currently five (5) CORA operators permitted to conduct a total of fourteen (14) activities at Papalaua Beach Park. It is noted that CORA operators may possess permits for more than one (1) activity. CORA permits have been issued for surfing (1 permit), scuba diving (5 permits), snorkeling (4 permits), windsurfing (1 permit), kiteboarding (1 permit) and kayaking (2 permits). Table III-20 summarizes the names of the permitted CORA operators at Papalaua Beach Park.
Figure III-46  Commercial Ocean Recreational Activity (CORA) Study
Papalaua Beach Park
Facilities and Resources

Prepared for: County of Maui, Dept. of Parks and Recreation
## Table III-20

<table>
<thead>
<tr>
<th>PAPALAU MAUI CORA OPERATORS</th>
<th>CORA Operator</th>
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<tbody>
<tr>
<td>Bob's Maui Dive Shop</td>
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<tr>
<td>Lahaina Dive and Surf, LLC</td>
<td></td>
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<tr>
<td>Maui Dreams Dive Co.</td>
<td></td>
</tr>
<tr>
<td>Maui Undersea Adventures, Inc.</td>
<td></td>
</tr>
<tr>
<td>South Pacific Kayaks &amp; Outfitters</td>
<td></td>
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</tbody>
</table>

Source: Based upon 2005/2006 Permit Data from the Department of Parks and Recreation.

Surfing and scuba represent the main commercial activities currently taking place in the waters fronting the park. Relatively small waves and light winds at the beach park provide suitable conditions for beginner surf instruction and scuba diving at all skill levels. The presence of fringing coral reef and rocky outcrops, however, can be potentially hazardous to the inexperienced ocean user.

Visitor use of Papalaua Beach Park is considered high due to the proximity of the park to Honoapiilani Highway and ease of access from both Central and West Maui areas. The park offers an attractive stop-off point for many tourists traveling from Central Maui to West Maui. The park is also a convenient rest-stop location for local residents commuting between the Central Maui and West Maui areas. The majority of these general park users tend to utilize the park for picnicking, swimming and sunbathing. The park also attracts a significant number of Non-CORA surfers during the week, as well as on weekends and holidays. Relatively calm ocean conditions and the presence of fringing coral reef in shoreline waters also provide excellent fishing opportunities during the early morning and evening hours.

Papalaua Beach Park is also a popular camping location for local families, particularly during
weekends and holidays. Refer to Figure III-46. It is noted that camping is by permit only and is restricted to a designated area in the center of the park.

**Environmental Analysis**

Upon completion of the environmental analysis for Papalaua Beach Park, the following considerations were deemed particularly noteworthy:

- **Traffic and Safety Considerations**
  A number of traffic and safety-related concerns were highlighted during the course of the assessment of Papalaua Beach Park.

  Honoapiilani Highway, which runs along the northern boundary of the park, represents the only major development in the vicinity of the park. The park is accessible from a number of unimproved points located at intervals along the park's boundary with the highway. Refer to Figure III-45. Though a paved hard shoulder exists on both sides of Honoapiilani Highway, no exclusive turning lanes are currently available for vehicles entering or exiting the park. West-bound vehicles turning left into one of the unimproved, dirt parking areas lining Honoapiilani Highway were observed to experience delays due to heavy traffic volumes and frequent speeding. The speed limit along the stretch of Honoapiilani Highway adjacent to the park boundary varies from 45 miles per hour (MPH) around the eastern seawall to 55 MPH at the western seawall towards Ukumehame Beach Park. Vehicle ingress and egress to Papalaua Beach Park appear, therefore, to be particularly challenging during peak traffic flow conditions along the Highway.

  The lack of improved surfaces adjacent to the paved hard shoulder of the Honoapiilani Highway also presents a safety hazard to vehicles entering the park. Erosion along this improved/unimproved surface boundary has resulted in significant undercutting of the
highway and the appearance of a pronounced grade change around the more popular park access points. See Figure III-47. Vehicles entering (or exiting) the park are, therefore, forced to negotiate this access interface condition, a task that can prove particularly hazardous at high speeds and/or under wet conditions.

As a final note, the proximity of many park recreational areas to highway traffic flows and the lack of adequate fencing along the perimeter were identified as posing additional safety concerns to children using the park facilities.

While park users are not impacted by the use of the surrounding agricultural lands, traffic along Honoapiilani Highway does appear to marginally impact visitor experience at Papalaua Beach Park, but only during the early morning and late afternoon rush hours. The park's relative isolation during low flow traffic conditions, however, may be viewed as a park asset in that it promotes a feeling of solitude among park visitors due to the lack of development in the area.

- Coastal Erosion Considerations

As mentioned previously, the coastline fronting Papalaua Beach Park is currently undergoing coastal erosion and associated vegetation loss, particularly along western portions of the beach park. The shoreline directly fronting the park is steep in parts and is composed of calcareous beach sand and cobble deposits. The area of beach fronting the eastern portion of the park is generally wider in area and attracts the most visitor activity. The beach rapidly becomes narrower to the west towards Ukumehame Beach Park. Coastal armoring is in place at both ends of the park directly adjacent to the Honoapiilani Highway, constructed by the State of Hawaii, Department
Shoreline Vegetation Loss and Deadwood Along Beach

Deterioration of Dune System Along Shoreline Fronting Beach Park

Evidence of Vehicle Intrusion Along Shoreline Fronting Park

Vehicle/Visitor-Led Erosion Around Unimproved Parking Areas Adjacent to Honoapiilani Highway

Ponding/Erosion and Dumping of Vehicles Around Central Unimproved Parking Areas

Undercutting/Erosion Along Edge of Honoapiilani Highway Adjacent to Park

Figure III-47 Commercial Ocean Recreational Activity (CORA) Study Papalaua Beach Park Site-Specific Considerations

Prepared for: County of Maui, Dept. of Parks and Recreation
of Transportation (SDOT) in order to protect the roadway from the encroaching coastal erosion. The sea wall to the west is located between Papalaua Beach Park and Ukumehame Beach Park. To the east, the seawall continues beyond the park boundary out and along the headland. Refer to Figure III-45.

The Atlas of Natural Hazards in the Hawaiian Coastal Zone (Department of the Interior, 2002) indicates that coastal erosion represents the most severe hazard affecting Papalaua Beach Park. The Papalaua/Ukumehame area as a whole experienced moderate to high erosion between 1912 and 1997, with an average Annual Erosion Hazard Rate (AEHR) of -1.0 ft./yr. The particular portion of shoreline near Papalaua Beach Park has, however, experienced a higher than average rate of coastal erosion with an average AEHR of -1.5 ft./yr., including those areas of coastal hardening fringing the boundary (University of Hawaii, SOEST, 2003). As previously noted, shoreline hardening projects along the coastline most affected by coastal erosion have been initiated in recent years by the SDOT. Refer to Figure III-45.

The gradual degradation of healthy dune structure by pedestrian access to the beach is an observed aggravation to the aforementioned coastal erosion problem. Exposed soil horizons, unprotected from both natural and man-made elements, are now evident along much of the affected coastline. Vegetation loss, particularly the destruction of Kiawe, is extensive along much of the shoreline fronting the western edge of Papalaua Beach Park. Refer to Figure III-47. The absence of a healthy dune structure along the majority of the park shoreline has exposed these wooded areas to an accelerated rate of coastal erosion and associated loss in flora. A mixture of deadwood and vegetation in the process of
dying can now be observed at a number of points along the beach fronting the western portion of the park. Refer to Figure III-47. Visitor use of Papalaua Beach Park, both on commercial and non-commercial levels, appears to be contributing to the problem, as there are currently no designated access pathways/walkways linking park areas to the beach.

- **Internal Drainage Considerations**

Papalaua Beach Park is located within the V8 Flood Zone, an area of the 100-year flood with wave action. Papalaua Beach Park occupies a fairly level site, which slopes slightly from the mountains towards the ocean. The park is surrounded by the steep slopes of the West Maui Mountain range, from which various gulches and streams flow down into the ocean. It is noted that drainage gulches located along the arid coastal terraces of West Maui are susceptible to flash flooding during storm events. While some overland flow of runoff into the ocean takes place, site drainage appears to occur predominantly through soil percolation due to the lack of internal surface and subsurface drainage improvements within the park and the low coastal slope. A drainage culvert situated in the central portion of the park drains the Papalaua Gulch that flows from the West Maui Mountain range and through the agricultural lands to the north. The Manawaipueo Gulch is also located relatively close to the park and enters the ocean to the southeast. Refer to Figure III-43. Soils at the beach park are, therefore, particularly prone to ponding in times of high rainfall. Based on the foregoing, usability of unimproved parking areas by both commercial and general park visitors may be limited during storm events. Evidence of vehicle tire erosion can be observed in the majority of the unimproved parking areas and undesignated access points that line the park’s boundary with Honoapiilani.
As outlined previously, a lack of internal surface and subsurface drainage improvements was noted within the beach park, and onsite drainage during rainfall events appears to occur predominantly through soil percolation or overland flow into the ocean. Surface ponding and waterlogging of soils in times of high rainfall may increase the potential for both pedestrian-led and vehicle-led erosion both along the exposed shoreline, as well as within the unimproved parking areas and access points along the highway boundary of the park. Refer to Figure III-47.

The designation of beach access pathways/walkways would potentially reduce the contributions of visitor traffic to natural erosion rates at Papalaua Beach Park. Similarly, the paving of roadside parking areas would aid the reduction of vehicle-led erosion along the beach park.

- **Ocean Water Quality Considerations**

Water quality under dry conditions at Papalaua Beach Park is, like most undeveloped areas on Maui, generally excellent. The noted lack of drainage improvements at the park and the presence of Papalaua and Manawaipueo Gulches in the vicinity of the park, however, indicate a potential for deterioration in ocean water quality during times of high rainfall. It is noted, however, that tidal flow and ocean currents along the West Maui coastline tend to disperse any pollutants present in near shore waters in the days following a storm event.

- **Aesthetic Quality Considerations**

The presence of portable toilets scattered across the park at irregular intervals was noted as detracting somewhat from the overall aesthetic quality of the park. Refer to
• **Coral Reef and Marine Life Considerations**

The waters fronting Papalaua Beach Park are relatively shallow and are characterized by a fringing coral reef. This shallowness indicates an elevated sensitivity of these coral reef ecosystems to impacts from recreational visitors using the beach park. Trampling, therefore, appears to represent a major threat to the survival of coral reef ecosystems along the shoreline adjacent to the park. No other significant threats to coral reef survival at Papalaua Beach Park were identified due to the lack of development in the surrounding lands.

(2) **Ukumehame Beach Park**

**Park Overview**

Ukumehame Beach Park is a 3.8-acre County-owned facility located at the Mile 12 marker along Honoapiilani Highway. See Figure III-48. The boundary of the Ukumehame Beach Park is identified by TMK 4-8-02:31. See Figure III-49. The park, located between McGregor Point and Olowalu, is approximately five (5) miles west of Maalaea Harbor and seven (7) miles east of Lahaina. Agricultural lands surround the park but have remained fallow since the termination of sugarcane operations by Pioneer Mill Company, Ltd. Apart from Honoapiilani Highway along the northern boundary, there are no urban land uses surrounding the beach park. Ukumehame, consisting of a small paved parking area with portable toilets and a small grassy picnic and recreational area, is situated to the west of Papalaua Beach Park and is also within the area commonly referred to as “Thousand Peaks”. See Figure III-50. Park hours of operation are posted at Ukumehame Beach Park and are from 7:00 a.m. until 8:00 p.m. There are no OSOs currently assigned to Ukumehame Beach Park by the County of Maui.
Figure III-48  Commercial Ocean Recreational Activity (CORA) Study

Ukumehame Beach Park
Regional Location Map

Source: 2002 DeLorme, 3D Topo Quads

Prepared for: County of Maui, Dept. of Parks and Recreation

MUNEKIYO & HIRAGA, INC.
Figure III-49

Commercial Ocean Recreational Activity (CORA) Study
Ukumehame Beach Park Boundary Map


Prepared for: County of Maui, Dept. of Parks and Recreation

NOT TO SCALE
Figure III-50
Commercial Ocean Recreational Activity (CORA) Study
Ukumehame Beach Park Aerial Site Photo

Prepared for: County of Maui, Dept. of Parks and Recreation
Facility Assessment

Entry to the site is provided through an ungated access point located along Honoapiilani Highway. Refer to Figure III-50. The single vehicular access point allows two-way traffic flow and connects via a short driveway to a small paved parking area, containing approximately 15 marked stalls. See Figure III-51. No exclusive turning lanes on the highway are currently available for vehicles entering or exiting the park. Roadside parking and a small gravel parking area situated adjacent to Honoapiilani Highway provide additional parking capacity in times when the designated parking lot is operating at capacity. Refer to Figure III-50. Facilities currently available at Ukumehame Beach Park are limited to portable toilets, small and large trash receptacles, picnic tables and BBQ grills. The two (2) portable toilets and one (1) large trash receptacle available at the park are located within the small designated parking lot near the internal access gate. Refer to Figure III-51. The internal access gate allows County crews and parks maintenance staff to gain entry to the small picnic and recreational areas. Refer to Figure III-51. It is noted that no shower, changing facilities, water taps or drinking fountains are presently available at Ukumehame Beach Park.

Activity Assessment

According to 2005/2006 permit data, there are currently 11 CORA operators permitted to conduct a total of 28 activities at Ukumehame Beach Park. It is noted that CORA operators may possess permits for more than one (1) activity. CORA permits have been issued for surfing (8 permits), scuba diving (3 permits), snorkeling (3 permits), windsurfing (4 permits), kiteboarding (4 permits) and kayaking (6 permits). Table III-21 summarizes the names of the permitted CORA operators at Ukumehame Beach Park.

While a variety of commercial activities are currently permitted at Ukumehame Beach Park, surf lessons and scuba instruction/tours represent the main
Figure III-51  Commercial Ocean Recreational Activity (CORA) Study

Ukumehame Beach Park
Facilities and Resources

Prepared for: County of Maui, Dept. of Parks and Recreation

MUNEKIYO & HIRAGA, INC.
Table III-21

<table>
<thead>
<tr>
<th>UKUMEHAME BEACH PARK CORA OPERATORS</th>
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<tbody>
<tr>
<td><strong>CORA Operator</strong></td>
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<tr>
<td>Action Sports Maui</td>
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<tr>
<td>Hawaii Sailboarding Techniques, Inc.</td>
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<tr>
<td>Keli'i's Enterprises</td>
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<tr>
<td>Keli'i's Kayak Tours</td>
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<td>Lomas Enterprises, LLC</td>
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<td>Maui Beach Boys</td>
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<td>Maui Sports Unlimited</td>
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<tr>
<td>Maui Surfer Girls, Inc.</td>
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<tr>
<td>Private Kayak Tours</td>
</tr>
<tr>
<td>South Pacific Kayaks &amp; Outfitters</td>
</tr>
</tbody>
</table>

Source: Based on 2005/2006 Permit Data from the Department of Parks and Recreation.

operations currently taking place in the waters fronting the park. Relatively small waves and light winds at the beach park provide suitable conditions for both beginner surf instruction and scuba diving at all skill levels. It is noted, however, that the presence of a fringing coral reef and rocky outcrops in sometimes shallow water can be potentially hazardous to the inexperienced ocean user.

With respect to non-CORA use, tourist use of Ukumehame Beach Park is considered relatively high due to the proximity of the park to Honoapiilani Highway, the main arterial route between West Maui and Central/South Maui areas. Refer to Figure III-42. The park offers an attractive stop-off point for many tourists traveling between locations in Central Maui and West Maui. The park is also a convenient rest-stop location for local resident commuters who, for example, may live on one side of the island and work on the other. The majority of general park users, therefore, tend to utilize the park predominantly for
picnicking, swimming, sunbathing activities and fishing. The park is also a popular place for non-CORA surfers both during the week and on the weekends.

**Environmental Analysis**

Upon completion of the environmental analysis for Ukumehame, the following considerations were deemed particularly noteworthy.

- **Traffic Safety and Parking Considerations**

  A number of traffic safety-related concerns were highlighted during the course of the assessment of Ukumehane Beach Park.

  The park is accessible exclusively from Honoapiilani Highway by a two-way ungated access point. Refer to Figure III-50. No exclusive turning lanes on the highway are available for vehicles entering or exiting the park. A hard shoulder is available on both sides of the highway.

  The speed limit along Honoapiilani Highway at the access point to the park is 55 miles per hour (MPH). Difficulties relating to vehicle ingress and egress to Ukumehame Beach Park were observed during peak traffic flow conditions along the highway due to speeding vehicles and high traffic volumes. Vehicles entering/exiting the park through the designated access point were often observed to be delayed due to the aforementioned traffic conditions. In addition, the proximity of the grassy recreational area within the park limits to the highway and the lack of adequate fencing along the perimeter was highlighted as posing potential safety concerns for park use by children.

  Despite these traffic safety considerations, user experience at the park does not appear to be significantly impacted by the proximity of
the highway, possibly due to the lack of development on the lands surrounding Ukumehame Beach Park. The park's relative isolation away from developed areas may be viewed as a park asset in that it promotes a feeling of solitude.

As outlined previously, parking within Ukumehame Beach Park is limited to a small, paved parking area providing space for 15 vehicles. While the availability of additional roadside parking along Honoapiilani Highway is noted, the size of the internal parking area provides insufficient capacity to cater to visitor volumes during peak periods, such as weekends and holidays, at the beach park.

**Coastal Erosion Considerations**

Coastal erosion potential along the coastline fronting Ukumehame Beach Park is ranked as high by *The Atlas of Natural Hazards in the Hawaiian Coastal Zone* (Department of the Interior, 2002). Similar to Papalaua Beach Park, the shoreline near Ukumehame Beach Park experienced a higher than average rate of coastal erosion between 1912 and 1997 of -1.55 ft./yr. (University of Hawaii, SOEST, 2003). Various shoreline hardening projects along the coastline near the park have been initiated in recent years by the SDOT in response to the growing threat posed to roadway infrastructure from coastal erosion.

The shoreline directly fronting the park is steep in parts and consists of calcareous beach sand deposits. The area of beach fronting the eastern portion of the park is generally wider in area and attracts the most visitor activity. The beach rapidly becomes narrower to the west towards Olowalu. A sea wall (armoring) exists to the east of the park directly adjacent to Honoapiilani Highway which protects the roadway from coastal retreat. The sea wall is located between Ukumehame Beach Park and
Papalaua Beach Park. To the west, a thin stretch of beach continues beyond the park boundary towards Olowalu. Refer to Figure III-50.

Evidence along the shoreline of Ukumehame Beach Park suggests that coastal erosion in the area is directly associated with increased vegetation loss, particularly along western portions of the beach park. The absence of a healthy dune structure along the entire length of the park shoreline has exposed these areas to coastal erosion and the associated loss in flora. Coastal erosion at the beach park is impacting certain picnic tables and BBQ facilities nearest to the shoreline. Storm surges and high wave conditions have also resulted in the deposition of considerable amounts of sand around these picnic facilities. See Figure III-52. Pedestrian access to the beach is an observed aggravation to the dune loss problem. Exposed soil horizons, unprotected from both natural and man-made elements, are now evident along much of the affected coastline. A mixture of deadwood and vegetation in the process of dying can be observed at a number of points along the beach fronting the western portion of the park. Refer to Figure III-52. Visitor use of the park, both on commercial and non-commercial levels, appears to be contributing to the overall erosion problem, as there are currently no designated access pathways/walkways linking park areas to the beach. The implementation of designated beach access pathways/walkways would help to reduce the impact of visitor traffic along this sensitive area of coastline.

- **Internal Drainage Considerations**

Ukumehame Beach Park is located within the V8 Flood Zone, an area of the 100-year flood with wave action. It occupies a fairly level site, which slopes slightly from the mountains.
Shoreline Vegetation Loss and Deadwood Along Beach

Coastal Erosion Along Grassy Recreational Area

Undercutting Near Picnic Tables by Coastal Erosion

Accumulation of Sand Deposits Along Edge of Grass Recreational Area

Affected Dune System Along Eastern Portion of Park

Worn Area Adjacent to Parking Area

Figure III-52 Commercial Ocean Recreational Activity (CORA) Study
Ukumehame Beach Park
Site-Specific Considerations

Prepared for: County of Maui, Dept. of Parks and Recreation
towards the ocean. A drainage pipe situated at the western end of the park drains the Makiwa Gulch that flows through the agricultural lands to the north. Refer to Figure III-51. It is noted that drainage gulches along the arid coastal terraces of West Maui are susceptible to flash flooding during storm events. While some overland flow of runoff into the ocean takes place, site drainage appears to occur predominantly through soil percolation due to the low gradient and the lack of drainage improvements within the park. The lack of internal surface and subsurface drainage improvements suggests that soils at the beach park are prone to ponding and waterlogging in times of high rainfall. The usability of the main grassy area for recreational use by visitors and CORA operations is, therefore, expected to be diminished under such conditions. Furthermore, surface ponding and waterlogging of soils in times of high rainfall is expected to result in increased rates of pedestrian-led erosion both along the exposed shoreline, as well as within the grassy recreational areas of the park.

• **Coral Reef and Marine Life Considerations**

The waters fronting Ukumehame Beach Park are relatively shallow and are characterized by a fringing coral reef. This shallowness indicates an elevated sensitivity of these coral reef ecosystems to impacts from recreational users using the beach park. Trampling, therefore, appears to represent a major threat to the survival of coral reef ecosystems along the shoreline adjacent to the park. No other significant threats to coral reef survival at Ukumehame Beach Park were identified due to the lack of development in the surrounding lands.
Ocean Water Quality Considerations

Water quality under dry conditions at the beach park is, like most undeveloped areas on Maui, generally excellent. The lack of drainage improvements at the park and the presence of two (2) gulches (Makiwa and Hanaula) in the vicinity of the park draining lands formerly used for agricultural cultivation, however, indicates a potential for water quality deterioration during times of high rainfall. Refer to Figure 111-48. It is noted, however, that tidal flow and ocean currents along the West Maui coastline tend to disperse any pollutants present in near shore waters in the days following a storm event.

(3) Kamehameha Iki Beach Park

Park Overview

Kamehameha Iki Beach Park is a small 1.8-acre County-owned facility located on Front Street in Lahaina adjacent to the 505 Front Street retail complex. See Figure III-53. The boundary of Kamehameha Iki Beach Park is identified by TMK 4-6-2:10 (por.). See Figure III-54. The park falls within the limits of the Lahaina Historic District and is designated as Lahaina Historic Site Number 15 by the Lahaina Restoration Fund. Traditional Hawaiian practices existing within the park are represented by the operation of a canoe hale, whose current activities encompass the refurbishment of traditional outrigger canoes. The area surrounding the beach park is considered urbanized and consists of a mix of retail, residential and park uses. See Figure III-55. Onsite facilities available for use by park visitors consist of a single designated parking area, a shower area, park benches and small trash receptacles. Refer to Figure III-55. Posted park hours of operation are from 7:00 a.m. to 8:00 p.m. There are no OSOs currently assigned to Kamehameha Iki Beach Park by the County of Maui.
Figure III-53 Commercial Ocean Recreational Activity (CORA) Study
Kamehameha Iki Beach Park Regional Location Map

Prepared for: County of Maui, Dept. of Parks and Recreation
Figure III-54

Commercial Ocean Recreational Activity (CORA) Study

Kamehameha Iki Beach Park Boundary Map


Prepared for: County of Maui, Dept. of Parks and Recreation
Commercial Ocean Recreational Activity (CORA) Study
Kamehameha Iki Beach Park Aerial Site Photo

Prepared for: County of Maui, Dept. of Parks and Recreation
**Facility Assessment**

Facilities currently available at Kamehameha Iki are limited by the small amount of land available and include a shower area, consisting of two (2) showerheads, ADA-accessible pathways, various park benches and a number of small trash receptacles scattered throughout the site. See Figure III-56. A volleyball net is currently located on the beach near the 505 Front Street boundary. It is noted that there are no permanent or portable toilets currently available to park users. Visitors requiring the use of a toilet can utilize available facilities at Malu Ulu Olele Park located to the east of the beach park. Picnic tables, BBQ grills, changing facilities, water taps or drinking fountains, and public telephones are also not available at the park.

A permanent structure housing administrative workshop and storage functions is situated near the parking lot at Kamehameha Iki Beach Park and is operated by the Lahaina canoe organization which also undertakes canoe restoration activities. Refer to Figure III-56. A large, temporary steel container, situated behind the aforementioned building, provides additional storage capacity for the daily activities and operations associated with the canoe *nale*. Refer to Figure III-56.

Access to Kamehameha Iki Beach Park is provided from Front Street through two (2) designated pedestrian walkways and one (1) ungated vehicle access point. This single vehicular access point along Front Street allows two-way traffic flow to/from the beach park. The access point is connected to a parking area containing approximately 25 marked parking stalls and is located adjacent to the 505 Front Street retail complex. Vehicular access to this parking area is available exclusively from Front Street. Where available, roadside parking along both sides of the Front Street roadway adjacent to the park provides additional parking capacity in times when the designated parking lot is full. However, parking in Lahaina Town, a tourism hub, is often very difficult to find due to the high proportion of visitor traffic in the area.
Figure III-56  Commercial Ocean Recreational Activity (CORA) Study
Kamehameha Iki Beach Park
Facilities and Resources

Prepared for: County of Maui, Dept. of Parks and Recreation

MUNEKIY0 & HIRADA, INC.
Internal access is available for Department maintenance staff and members of the canoe hale at two (2) designated points, one (1) of which is located along Front Street and the other in the main parking area near the 505 Front Street retail complex. Though not gated, these entrances are blocked from unauthorized access by lockable poles secured in the asphalt of the pavement. Refer to Figure III-56.

**Activity Assessment**

According to 2005/2006 permit data, there are currently 11 CORA operators permitted to conduct a total of 15 activities at Kamehameha Iki Beach Park. It is noted that CORA operators may possess permits for more than one (1) activity. CORA permits have been issued for surfing (10 permits), scuba diving (1 permit) and kayaking (4 permits). Table III-22 summarizes the names of the permitted CORA operators at Kamehameha Iki Beach Park.
Table III-22

<table>
<thead>
<tr>
<th>KAMEHAMEHA IKI BEACH PARK CORA OPERATORS</th>
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<tbody>
<tr>
<td><strong>CORA Operator</strong></td>
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<tr>
<td>Club Maui Beach Service, Inc.</td>
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<td>Hula Surf, LLC</td>
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<tr>
<td>Kelli’s Enterprises, Inc.</td>
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<tr>
<td>Kelli’s Kayak Tours</td>
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<tr>
<td>Knimaka, James</td>
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<tr>
<td>Maui Beach Boys</td>
</tr>
<tr>
<td>Maui Waveriders, Inc.</td>
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<tr>
<td>Opelu’s Surf School</td>
</tr>
<tr>
<td>RDK/LB DBA Outrageous Adventures</td>
</tr>
<tr>
<td>Reef Encounters, Inc.</td>
</tr>
</tbody>
</table>

*Source: Based on 2005/2006 Permit Data from the Department of Parks and Recreation.*

Surf schools represent the main commercial operations currently taking place in the shallow waters fronting the park. Relatively small waves and light winds at the beach park, especially within the area of breakwall off the Lahaina Small Boat Harbor wall, provide optimal year-round conditions for beginner surf instruction. The presence of coral reef and rocky outcrops, however, is noted in this popular surfing area and can be potentially hazardous to the inexperienced ocean user.

In regards to non-CORA use, tourist use of Kamehameha Iki Beach Park is considered very high due to the park’s proximity to the central shopping, retail and restaurant areas of Front Street, as well as nearby single-family and multi-family residential areas located to the northwest and southeast of the park. Due to the high tourist presence associated with Lahaina Town, the park attracts relatively constant visitor volumes throughout the day, with peak usage
generally occurring on weekends and holidays when local families utilize the park. During weekdays, local residents tend to only utilize the beach park in the late afternoons and early evenings for exercise and dog-walking activities. The park is also a very popular place for non-commercial surfers both during the week and on the weekends. Based on the foregoing, the majority of general park users tend to utilize the park for surfing, sunbathing, swimming, beach games (including volleyball) and walking.

Environmental Analysis

Upon completion of the environmental analysis for Kamehameha Iki Beach Park, the following considerations were deemed particularly noteworthy.

- Coastal Erosion Considerations

The shoreline directly fronting the park is fairly wide and consists of calcareous beach sand deposits. Coastal slope along this area of Lahaina coastline is low. To the southeast, beach width becomes gradually narrower as the coastline proceeds towards Puamana. Refer to Figure III-55. To the northwest, the beach gradually disappears towards the Lahaina Small Boat Harbor.

Although the average AEHR for the coastline near Kamehameha Iki Beach Park between 1912 and 1997 was -1.0 ft./yr., statistics relating to the precise beach area fronting the beach park indicate a negligible coastal erosion impact (University of Hawaii, SOEST, 2003).

The small portion of shoreline fronting Kamehameha Iki Beach Park towards the Lahaina Small Boat Harbor is, however, currently undergoing moderate coastal erosion (U.S. Department of the Interior, 2002). This pocket of beach loss is possibly attributable to the increasing number of coastline hardening projects around Lahaina that have occurred in
response to the growing threat of coastal retreat.

The first armoring project occurred in 1949 towards Puamana where residential properties were being threatened by shoreline change (U.S. Department of the Interior, 2002).

The increasing proportion of hardened coastline in the area since 1949 has likely contributed to increased rates of coastal erosion along the remaining exposed areas, such as shoreline around Kamehameha Iki Beach Park. The barriers/walls associated with Lahaina Small Boat Harbor represent the nearest of the coastal hardening projects to Kamehameha Iki Beach Park. Research indicates that the highest rate of coastal erosion along the shoreline fronting Kamehameha Iki Beach Park is currently being experienced along the narrow beach area between the beach park and the Lahaina Small Boat Harbor (University of Hawaii, SOEST, 2003).

Loss of dune system and associated vegetation, such as morning glory, was noted along the shoreline during site visits to Kamehameha Iki Beach Park. See Figure III-57. This gradual decline in healthy dune structure could potentially accelerate the rate of land loss associated with coastal erosion and high waves. The deterioration of healthy dune structure along the shoreline appears to be affected by impacts resulting from visitor movement between the park and the beach area. Increased visitor use of the park, both on a commercial and non-commercial basis, is accelerating the problem, as there are currently no designated access pathways/walkways linking park areas to the beach. Refer to Figure III-57. The implementation of a dune restoration/establishment project between the beach and the park would enhance the ability of the
Deterioration of Dune System Along Shoreline Fronting Beach Park

Sign Highlighting Historic Value of Beach Park

Proximity to Lahaina Small Boat Harbor

Proximity to Neighboring Single-Family Residential Housing Along Park Boundary

Canoe Halau and Associated Restoration Activities within Beach Park

Parking and Traffic Conditions Along Front Street

Figure III-57 Commercial Ocean Recreational Activity (CORA) Study Kamehameha Iki Beach Park Site-Specific Considerations

Prepared for: County of Maui, Dept. of Parks and Recreation
shoreline to protect itself against storm surges and high wave conditions in the future.

- **Internal Drainage Considerations**

A lack of internal surface and subsurface drainage improvements were noted during site visits to Kamehameha Iki Beach Park. Kamehameha Iki Beach Park occupies a fairly level site, which slopes slightly from the mountain towards the ocean.

The shoreline portion of Kamehameha Iki Beach Park is located within the V12 Flood Zone, an area of the 100-year flood with wave action. The remaining portions of the park back towards Front Street are situated within the B Flood Zone. Zone B areas are between the limits of the 100-year flood and 500-year flood, or certain areas subject to the 100-year flood with average depths less than one (1) foot or where contributing drainage area is less than one (1) square mile, or areas protected by levees from the base flood.

As previously noted, stream channels along the arid coastal terraces of West Maui are particularly susceptible to flash flooding during storm events due to the large number of streams and gulches that drain into the Lahaina area from the West Maui Mountains (U.S. Department of the Interior, 2002). Overland flows bypass many developed areas and are conveyed to the ocean via underground culverts and open channels. One (1) of these drainage channels is located between Kamehameha Iki Beach Park and the Lahaina Small Boat Harbor breakwall. It is noted, however, that there are no gulches or streams flowing directly through Kamehameha Iki Beach Park. Refer to Figure III-53 and Figure III-55.

While some amount of storm runoff flows into the ocean, the majority of site drainage is expected to take place through soil percolation.
due to the lack of internal drainage improvements within the park boundary. Off-site drainage improvements do, however, exist along the Front Street roadway. The aforementioned drainage channel located between the single-family residential housing area and Lahaina Small Boat Harbor to the northwest of the beach park also provides drainage service to off-site urban areas.

Soils within the park, therefore, appear to be sensitive to drainage problems associated with exceptionally high rainfall such as ponding and water logging. Onsite recovery from heavy rains, however, is expected to be fairly rapid as a large proportion of the park is vegetated with dense grass cover, overlying highly permeable soils. During this process of recovery, however, it is noted that a higher potential for visitor-led erosion both along the exposed shoreline and within the grassy recreational areas of the park would be expected. The usability of this grassy area for recreational purposes by both visitors and CORA operators would also be temporarily restricted both during and following storm events.

- **Coral Reef and Marine Life Considerations**

A mixture of fringing coral reef, basaltic rock hard bottom, limestone cobble/boulders, and sand patches characterize the geology present in the waters fronting Kamehameha Iki Beach Park. A narrow band of sand, situated along the shoreline fronting the park, allows limited swimming opportunities. The shallowness of the waters fronting Kamehameha Iki Beach Park suggests environmental sensitivity in this area.

Marine life in waters fronting Kamehameha Iki Beach Park is generally representative of other beach parks on Maui situated near developed areas. Larger species of marine life tend not to venture as close to the Lahaina coastline as
other areas on Maui, due to the daily movements of ocean vessels and other activities associated with the Lahaina Small Boat Harbor.

- **Ocean Water Quality Considerations**

While the limited number of drainage channels entering the ocean near the park indicate minimal deterioration in local water quality during times of high rainfall, the presence of a harbor near the park is deemed a noteworthy pollution source. Refer to Figure III-57. The daily operations associated with the Lahaina Small Boat Harbor are, therefore, expected to influence day-to-day water quality levels in the vicinity of the beach park. It is noted, however, that the impact of the Harbor on long-term water quality around Kamehameha Iki Beach Park is expected to be lessened by the dispersal of pollutants by tidal flow and ocean currents along the West Maui coastline.

- **Cultural and Archaeological Considerations**

Kamehameha Iki Beach Park is located within the Lahaina Historic District and is designated as Lahaina Historic Site Number 15 by the Lahaina Restoration Fund. No surface archaeological resources were observed during the assessment of Kamehameha Iki Beach Park. Cultural practices, in the form of Hawaiian outrigger canoe paddling, however, take place on a regular basis. Structures supporting cultural uses, such as a canoe *hale* and vessel-refurbishment workshop, currently exist at the park. An increased possibility of conflict between park users and cultural resource user groups during times of high volume visitor usage at the park is particularly noteworthy. The possible expansion in cultural activities at Kamehameha Iki Beach Park is also noteworthy. Plans for the construction of a traditional Hawaiian canoe *hale* are currently being proposed for a central portion of the park. This
potential expansion in cultural activities within the limited grounds available at the beach park could potentially increase conflict opportunities between park users and members of the canoe hale. This problem could potentially be further compounded were the park to experience an overall increase in visitor volumes over the next few years.

Furthermore, a 1992 research team from the Bishop History Museum located significant archaeological resources representing one of Hawaii's most sacred sites, Mokuula, underlying lands currently occupied by the recreational playing fields of Malu Ulu Olele Park directly across from Kamehameha Iki Beach Park.

Mokuula was once a royal residence built on a tiny island, surrounded by a sacred 17-acre pond. This moated palace represented the secluded seat of King Kamehameha III during the middle of the 19th century (1837-1845). It was a place of the "Sacred Red Mists", an oasis of rest and calm during the raucous, rollicking days of Pacific whaling (Friends of Mokuula, 2005). Recreational activities at Malu Ulu Olele Park have now ceased and excavation work is planned for the reclamation and preservation of this important historic site for future generations. The archaeological significance of Mokuula and its close proximity to Kamehameha Iki Beach Park should, therefore, be incorporated as an integral element of future park management strategies.

• Noise Considerations

Noise levels at Kamehameha Iki Beach Park are considered noteworthy due to the presence of numerous intermittent noise generators commonly associated with urban areas, particularly those popular for tourist activities. Ambient noise levels within the park are affected by a variety of sources, such as contributions from vehicles traveling along Front Street
and ocean vessel operations at Lahaina Small Boat Harbor. Secondary sources at the park include noise generated by visitors/pedestrians, but these sources are not considered significant when compared to the primary noise generators. Ambient noise levels at the park can be considered low during night hours when traffic flow, harbor operations and visitor volumes are low.

- **Scenic and Open Space Considerations**

Scenic and open space resources within the vicinity of Kamehameha Iki Beach Park are partially limited by the urban setting in which the park is located. The park provides mauka views of the West Maui Mountains, as well as makai views of the Pacific Ocean and the neighboring islands of Kaho'olawe, Lana'i and Molokai. Although unrestricted by development across Front Street, mauka views are limited by landscaping present within the park. Makai views are restricted both by the presence of the Lahaina Small Boat Harbor breakwall to the northwest of the park and the mooring of ocean vessels off the Lahaina coastline. It is noted, however, that scenic and open space resources available at Kamehameha Iki Beach Park are generally good considering its location in the heart of Maui's most popular tourist destination.

(4) **Wahikuli Wayside Beach Park**

**Park Overview**

Wahikuli Wayside Beach Park is a 8.02-acre (349,351 square feet) strip of County-owned land located along Honoapiilani Highway between Lahaina and Kaanapali resort. See Figure III-58. The boundary of the beach park is identified by TMK (2) 4-5-21:07. See Figure III-59. The coastline of the beach park is characterized by a high degree of shoreline hardening. Revetment walls cover the majority of the
Figure III-58 Commercial Ocean Recreational Activity (CORA) Study
Wahikuli Wayside Beach Park
Regional Location Map

Source: 2002 DeLorme, 3D Topo Quads

Prepared for: County of Maui, Dept. of Parks and Recreation
Figure III-59

Commercial Ocean Recreational Activity (CORA) Study

Wahikuli Wayside Beach Park Boundary Map

Prepared for: County of Maui, Dept. of Parks and Recreation
shoreline, however, a small sandy beach exists in the central portion. The area directly surrounding the beach park is considered relatively urbanized and consists of a mixture of single-family residential, public/quasi-public, and golf course uses. See Figure III-60. Onsite facilities, available for use by park visitors, include three (3) designated paved parking areas, restroom facilities, shower areas, covered picnic pavilions, picnic tables, BBQ grills, water taps, telephones and trash disposal facilities. Park hours of operation are from 7:00 a.m. until 8:00 p.m. There are currently no OSOs assigned to the Wahikuli Beach Park by the County of Maui.

**Facility Assessment**

Numerous covered pavilions and picnic tables are scattered throughout the main grassy recreational areas of the site. BBQ grills and water taps are provided near the majority of the covered picnic pavilions. The relatively poor condition of certain BBQ grills indicates that use of picnic and BBQ facilities at Wahikuli Wayside Beach Park is relatively high. There is a designated restroom, outdoor shower area and water fountain available adjacent to each of the three (3) designated, paved parking areas. Each shower area is equipped with three (3) showerheads, providing a total capacity of nine (9) showerheads for use by park visitors. Changing cubicles are provided in each of the restroom facilities. Two (2) public telephones are also available for use by park visitors. Aside from the aforementioned restrooms and picnic pavilions, there are no other permanent structures existing within the boundaries of Wahikuli Wayside Beach Park. See Figure III-61.

Access to Wahikuli Wayside Beach Park is provided exclusively from Honoapiilani Highway at three (3) designated access points, each of which is ungated. Approximately 91 marked parking stalls are available for park users at all three (3) of these designated parking areas. Refer to Figure III-60.
Figure III-60
Commercial Ocean Recreational Activity (CORA) Study
Wahikuli Wayside Beach Park Aerial Site Photo

Prepared for: County of Maui, Dept. of Parks and Recreation
• The south parking lot, located towards Lahaina, provides approximately 32 marked parking stalls.

• The central parking lot, the smallest of the three (3) parking areas, has approximately 13 marked parking stalls. Vehicles were, however, observed parking along the interior fence on the opposite side of the designated parking stalls during high use conditions, limiting traffic movement within the small parking area.

• The north parking area, situated near Hanakao'o Beach Park, is the largest parking area of the three (3) providing approximately 46 marked spaces for vehicles.

Two (2) out of the three (3) parking areas at Wahikuli Wayside Beach Park allow for one-way vehicle movement and have been designed in order to account for potential safety concerns posed by heavy traffic flows along Honoapiilani Highway. Each parking area has two (2) access points, one (1) allowing the entry of vehicles to the beach park and the other enabling vehicles to exit onto Honoapiilani Highway. There is no roadside parking capacity available along Honoapiilani Highway.

The speed limit along the stretch of Honoapiilani Highway bordering the park is 40 mph. A signalized turning lane is available for traffic at the entry point to the central parking lot. Signs prohibiting left turns in and out of the park are posted at the designated access point to the south parking lot.

A number of lockable, gated internal access points are available within the beach park which feed off the three (3) parking areas in order to allow County staff to maintain the park facilities.

It is noted that ADA-accessibility throughout the site
is limited due to a lack of designated pathways and ramps linking parking and recreational areas to the beach.

Activity Assessment

According to 2005/2006 permit data, there are currently three (3) CORA operators permitted to conduct a total of four (4) activities at Wahikuli Wayside Beach Park. It is noted that CORA operators may possess permits for more than one (1) activity. CORA permits have been issued for scuba diving (3 permits) and snorkeling (1 permit). Table III-23 summarizes the names of the permitted CORA operators at Wahikuli Wayside Beach Park.

Table III-23

<table>
<thead>
<tr>
<th>WAHIKULI WAYSIDE BEACH PARK CORA OPERATORS</th>
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<tbody>
<tr>
<td>CORA Operator</td>
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<tr>
<td>Bob’s Maui Dive Shop</td>
</tr>
<tr>
<td>Evans, John E.</td>
</tr>
<tr>
<td>Extended Horizons, Inc.</td>
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</tbody>
</table>

Source: Based on 2005/2006 Permit Data from the Department of Parks and Recreation.

Scuba diving represents the majority of commercial operations currently taking place in the waters fronting the park. A combination of fringing coral reefs and calm conditions provide suitable conditions for scuba instruction/tours.

Access to the ocean is limited considerably by the presence of revetment seawalls along much of the coastline fronting the beach park. A single, small beach area is, however, available between the central and north parking areas for park users wishing to
engage in ocean recreational activities or undertake beach activities such as sunbathing. The presence of coral reefs and rocky outcrops in waters fronting the park, however, can be potentially hazardous to the inexperienced ocean user.

With respect to non-commercial activity, general visitor use at the beach park is considered high due to the location of the park between two (2) of Maui's most popular tourist destinations, Lahaina Town and the Kaanapali Resort. The high proportion of revetment seawalls along the coastline of the park, however, seems to deter people wishing to undertake ocean recreational activities. The park is, therefore, a more popular location for land-based activities, such as picnics, BBQs and large parties, due to the high availability of individual picnic pavilions. Local families were observed to be the main users of picnic and BBQ facilities at Wahikuli Wayside Beach Park, both during weekdays and on weekends and holidays. Peak usage at Wahikuli Wayside Beach Park seems to occur during late afternoon/early evening during the week and all day on weekends and holidays.

Based on the foregoing, the majority of general park users at Wahikuli Wayside Beach Park tend to utilize the park for picnics/BBQs, parties, sunbathing, walking, swimming and beach games. The park is, therefore, not considered particularly attractive for most ocean recreational activities except swimming and scuba diving.

**Environmental Analysis**

Upon completion of the environmental analysis for Wahikuli Wayside Park, the following site-specific considerations were deemed particularly noteworthy:

- **Parking Considerations**

  Wahikuli Wayside Beach Park appears to contain a sufficient number of parking stalls to cater to current levels of visitor use. The three (3) designated parking areas seem to distribute
the ingress/egress of traffic along the park's boundary with Honoapiilani Highway in an effective way. The design of the central parking lot, however, was deemed a noteworthy consideration, particularly during times of peak usage when overflow parking restricts overall traffic movement. See Figure III-62.

- **Coastal Erosion Considerations**

Wahikuli Wayside Beach Park is located on a low-lying coastal terrace and is sensitive to coastal erosion. The shoreline along Wahikuli Wayside Beach Park experienced an average AEHR rate of -0.74 ft./yr. between 1912 and 1997, indicating a moderately high sensitivity to coastal erosion (University of Hawaii, SOEST, 2003). The majority of the shoreline fronting Wahikuli Wayside Beach Park is now armored with rock-boulder revetments. A single beach area provides ocean access to park users and is located in the central portion of the park between the northern and central parking lots. The beach, consisting of darker, calcareous beach sand deposits, is fairly wide and has a relatively low coastal slope.

A general absence of natural dune systems along the entire park coastline is noted. A seawall has also been constructed along the vegetation line of the beach area in the central portion of the park. Internal visitor-led erosion is evident along the majority of areas in the park, a problem aggravated by the lack of designated pathways linking the three (3) parking areas. Refer to Figure III-62.

Coastal armoring appears to have reduced coastal erosion along the coastline of Wahikuli Wayside Beach Park. The park's beach area, protected by a lesser degree of armoring, is, however, proving more sensitive to coastal erosion and high waves.
Erosion Around Culvert Discharge Point Adjacent to Honoapiilani Highway

Drainage Erosion from Sheet Flows Across Honoapiilani Highway

Overflow Parking Along Edge of Designated Parking Area

Deterioration of BBQ Facilities

Pedestrian Erosion Along Grassy Park Areas

Influence of Drainage Flows on Beach Conditions

Figure III-62 Commercial Ocean Recreational Activity (CORA) Study
Wahikuli Wayside Beach Park
Site-Specific Considerations

Prepared for: County of Maui, Dept. Of Parks and Recreation

MUNEKIYO & HIRAGA, INC.
• **Internal Drainage Considerations**

Wahikuli Wayside Beach Park occupies a relatively steep site, which slopes from the mountain towards the ocean. The shoreline portion of Wahikuli Wayside Beach Park is located within the V-12 Flood Zone, an area of 100-year coastal flood with wave action. The remaining portions of the park nearest Honoapiilani Highway are situated within Flood Zone C, an area of minimal flooding.

A lack of internal subsurface drainage improvements were noted within the parking lots and grassy recreational areas within Wahikuli Wayside Beach Park. Drainage culverts, draining mauka lands, however, access the ocean at certain points along the shoreline fronting the beach park. Evidence of erosion was noted around a number of minor, unimproved drainage outlets extending from beneath Honoapiilani Highway. Refer to Figure III-62. Drainage of rainfall falling within the park boundary, therefore, occurs through a combination of overland sheet flows, soil percolation, and drainage culverts. Soils within the park appear to be sensitive to erosion problems in times of exceptionally high rainfall due to the lack of internal drainage improvements and the presence of these unimproved drainage outlets along Honoapiilani Highway.

An increased potential for visitor-led erosion at the park is expected following heavy rainfall conditions, especially since there are no existing pathways linking parking, recreational and beach areas. The installation of pathways linking parking areas to the beach is, therefore, recommended as one element of a future management plan for Wahikuli Wayside Beach Park.
• **Park Facility Considerations**

Use of certain facilities at Wahikuli Wayside Beach Park is deemed high. Highly used facilities identified during site visits included the picnic pavilions and BBQ grills which appear to be utilized on a regular basis. Significant deterioration in the quality of these aforementioned facilities due to overuse was also highlighted. Refer to Figure III-62. In addition, poorly maintained sprinkler systems were identified to be watering picnic tables and BBQs instead of vegetation, thus preventing park users from utilizing these facilities. The need for regular repair and maintenance of facilities and irrigation systems at Wahikuli Wayside Beach Park is, therefore, deemed an important park management consideration.

• **Ocean Water Quality Considerations**

Evaluation of overall water quality at Wahikuli Wayside requires an examination of surrounding land uses and drainage characteristics. Preliminary assessment of these factors indicate that the overall quality of waters fronting Wahikuli Wayside is generally good under dry conditions but poor under storm flow conditions. Deterioration in water quality is expected due to the large number of improved and unimproved drainage culverts within the beach park, some of which discharge into the ocean along the shoreline of the park during high rainfall conditions. It is noted, however, that tidal flow and ocean currents along the West Maui coastline would be expected to disperse and dilute pollutants present in nearshore waters following storm events.

• **Noise Considerations**

Ambient noise levels at Wahikuli Wayside Beach Park are considered particularly high due to the close proximity of all areas within
the park to a busy stretch of Honoapiilani Highway. Refer to Figure III-60 and Figure III-61. The primary source of noise at the beach park is, therefore, vehicles traveling along the Honoapiilani Highway. Noise contributions from other sources, such as park users and natural sources (wind, waves), are minimal in comparison to the background noise levels from Honoapiilani Highway, especially during peak traffic flows.

• **Scenic and Open Space Considerations**

Scenic and open space resources within the vicinity of Wahikuli Wayside Beach Park are governed by the urban setting in which the park is located. The park provides limited mauka views of the West Maui Mountains, as well as expansive makai views of the Pacific Ocean and the neighboring islands of Lana'i and Molokai. Mauka views are affected by the presence of Honoapiilani Highway, especially from the beach area of the park. It is noted, however, that scenic and open space resources available at Wahikuli Wayside Beach Park are generally good, especially when considering its location along a busy stretch of Honoapiilani Highway between Lahaina Town and Kaanapali.

(5) **Hanakao'o Beach Park**

**Park Overview**

Hanakao'o Beach Park is a small 3.69-acre (160,692.84 square feet) County-owned facility located to the north of Wahikuli Wayside Beach Park on the fringe of Kaanapali Resort along Honoapiilani Highway. See Figure III-63. The boundary of the beach park is identified by land parcels referenced by TMK 4-4-13:06 and 07. See Figure III-64.

The majority of the lands surrounding the beach park are State-classified as "Urban". The park is bordered
Figure III-63 Commercial Ocean Recreational Activity (CORA) Study
Hanakao'o Beach Park
Regional Location Map

Prepared for: County of Maui, Dept. of Parks and Recreation
Hanakaoʻo Beach Park Boundary

Pacific Ocean


Figure III-64
Commercial Ocean Recreational Activity (CORA) Study
Hanakaoʻo Beach Park Boundary Map

Prepared for: County of Maui, Dept. of Parks and Recreation
by Honoapiilani Highway and the Kaanapali South Golf Course to the east, Wahikuli Wayside Beach Park to the south, the Hyatt Regency Maui Hotel and Resort and the Hanakao'o Cemetery to the north, and the Pacific Ocean to the west. See Figure III-65. Onsite facilities available for use by park visitors include designated paved and roadside parking areas, restroom facilities, shower areas, covered picnic pavilions, picnic tables, BBQ grills, water taps, telephones and trash disposal facilities. Park hours of operation are from 7:00 a.m. until 8:00 p.m. County of Maui OSOs are assigned to Hanakao'o Beach Park and there is an existing OSO station located near the restroom facilities.

**Facility Assessment**

Facilities currently available at Hanakao'o are considered good. Covered picnic pavilions and picnic tables are scattered throughout the grassy recreational areas of the site located near the paved parking lot and also around the canoe hale clubhouse. Picnic and BBQ facilities are, however, less in number than at Wahikuli Wayside Beach Park, and also show signs of overuse and deferred maintenance. There is a designated permanent restroom facility (including an OSO equipment storage locker, outdoor shower area and water fountain) available adjacent to the main paved parking area. Changing cubicles are provided in each of the restroom facilities. One (1) public telephone is also available for use by park visitors and is attached to the restroom building. Other existing permanent structures within Hanakao'o Beach Park consist of clubhouses/storage associated with canoe club operations and an OSO substation. See Figure III-66.

A single designated, two-way driveway provides visitor access to the internal parking area at Hanakao'o Beach Park from Honoapiilani Highway. The driveway is ungated and a left-turn lane is available along Honoapiilani Highway allowing vehicle ingress to the park. Approximately 30 marked parking stalls are available for park users in the
Figure III-66  Commercial Ocean Recreational Activity (CORA) Study
Hanakao`o Beach Park
Facilities and Resources

Prepared for: County of Maui, Dept. of Parks and Recreation
upper paved parking area located near the park access point from Honoapiilani Highway. An access ramp linking the main paved parking area and restroom facilities to the beach allows limited ADA-accessibility for disabled park users. Approximately 30 additional unmarked spaces are available in a second, unpaved dirt parking area located along the park access road adjacent to the Hanakao'o Cemetery. It is noted, however, that this parking area is connected with the cemetery and under the ownership and operation of the State of Hawaii. Roadside parking along both sides of the access road provides additional parking capacity in times of peak visitor volumes.

A single lockable, gated internal access point is located along the access road through the park providing access for County park maintenance staff to recreational areas within Hanakao'o Beach Park. Vehicular access to the beach fronting the park is also available for the OSO through a designated and lockable All-Terrain Vehicle (ATV) access point.

Activity Assessment

According to 2005/2006 permit data, there are currently nine (9) CORA operators permitted to conduct a total of 21 activities at Hanakao'o Beach Park. It is noted that CORA operators may possess permits for more than one (1) activity. CORA permits have been issued for surfing (3 permits), scuba diving (7 permits), snorkeling (4 permits), windsurfing (1 permit), kiteboarding (1 permit) and kayaking (5 permits). Table III-24 summarizes the names of the permitted CORA operators at Hanakao'o Beach Park.
Table III-24

<table>
<thead>
<tr>
<th>HANAKAOO BEACH PARK CORA OPERATORS</th>
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<tbody>
<tr>
<td>CORA Operator</td>
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<tr>
<td>Bob's Maui Dive Shop</td>
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<tr>
<td>Evans, John E.</td>
</tr>
<tr>
<td>Extended Horizons, Inc.</td>
</tr>
<tr>
<td>Hawaiian Ultimate Adventures, Inc.</td>
</tr>
<tr>
<td>Lahaina Dive &amp; Surf, LLC</td>
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<td>Lahaina Divers, Inc.</td>
</tr>
<tr>
<td>Maui Kayaks, Inc.</td>
</tr>
<tr>
<td>Reef Encounters, Inc.</td>
</tr>
<tr>
<td>South Pacific Kayaks &amp; Outfitters</td>
</tr>
</tbody>
</table>

Source: Based on 2005/2006 Permit Data from the Department of Parks and Recreation.

Scuba diving represents the majority of commercial operations currently taking place in the waters fronting the park, particularly in the early mornings. A combination of coral reef, deep waters and calm conditions provide suitable conditions for scuba instruction/tours.

Access to the ocean is provided across the wide beach area that stretches across the entire coastal boundary of the beach park. The waters fronting the beach park are deemed particularly suitable for a variety of both commercial and non-commercial ocean recreational activities, such as swimming, snorkeling, scuba diving, kayaking and canoeing. Windsurfing and kiteboarding opportunities occasionally exist at the park during appropriate wind conditions. The park is considered attractive for most ocean-based recreational activities due to the large beach area and relatively safe ocean conditions in the waters fronting the park. Grassy recreational areas within the park also allow for the setting up and breaking down of ocean recreational equipment.
Hanakao'o Beach Park is a popular location in West Maui for traditional outrigger canoe paddling. Members/clubs associated with the canoe hale and teams from the surrounding area regularly practice in the waters fronting the beach park. The wide, sandy beach also provides a suitable training ground for warm-up routines and jogging prior to the initiation of paddling practice sessions. The canoes utilized by the canoe clubs are generally stored onsite near the main clubhouse buildings located adjacent to the drainage gulch. A number of canoes were, however, also observed being stored along the shoreline boundary of the park. See Figure III-67.

The members and school groups associated with the early morning and late afternoon paddling activities of the canoe club represent a major element of the use pattern of Hanakao'o Beach Park.

General (non-commercial) visitor use at the beach park is considered moderate to high due to the location of the park between Lahaina Town and Kaanapali Resort. Peak usage at the park generally occurs on the weekend when local residents are attracted to the park for picnics, parties, canoe regattas and other recreational activities. The park, located on the fringe of the Kaanapali Beach area, also attracts large numbers of tourists from the nearby Kaanapali hotels. The majority of tourists were observed entering the park from the beach, indicating that they had walked from hotels and other areas further north along Kaanapali Beach.

Hanakao'o Beach Park is a popular location for land-based activities, such as picnics, BBQs and parties, due to the availability of individual picnic pavilions, BBQ facilities, parking, restroom and shower facilities, and a wide sandy beach. Residents were observed to be the main users of picnic and BBQ facilities at Hanakao'o Park, particularly on weekends. Peak usage at Hanakao'o, therefore, seems to occur during weekends and holidays when both tourists and residents are utilizing park facilities at the same time.
Hanakao‘o Cemetery
Adjacent to Park

Canoe Club Activity
on Main Beach Area

Erosion and Dune Loss
Along Grassy Recreational Area

Stormwater Ponding at Entrance to
Unimproved Parking Area

Drainage Gulch Along Park
Boundary Under Low Flow Conditions

Storm Flows Across Beach
From Drainage Gulch

Figure III-67 Commercial Ocean Recreational Activity (CORA) Study
Hanakao‘o Beach Park
Site-Specific Considerations

Prepared for: County of Maui, Dept. of Parks and Recreation
MUNEKIYO & HIRAGA, INC.
Environmental Analysis

Upon completion of the environmental analysis for Hanakao'o Beach Park, the following considerations were deemed particularly noteworthy.

- **Archaeological and Cultural Considerations**

  Surface archaeological resources identified during site visits to Hanakao'o Beach Park include the Hanakao'o Cemetery and a designated plaque detailing the Hoana Grinding Stones located adjacent to the shower and restroom facilities. Refer to Figure III-67. Cultural practices at Hanakao'o Beach Park are defined by the activities associated with the daily operations of the canoe *hale*.

  The aforementioned archaeological/cultural resources are, therefore, deemed important considerations and should be acknowledged prior to the implementation of park management tools at Hanakao'o Beach Park in the future.

- **Ocean Water Quality Considerations**

  The quality of the waters fronting Hanakao'o Beach Park appear to be sensitive to fluctuations associated with storm water flows from surrounding areas. The influx of these drainage waters and any suspended pollutants into the ocean during a storm event may result in increased turbidity. The major factor affecting the sensitivity of the waters directly adjacent to Hanakao'o Beach Park is the presence of the Hahakea/Wahikuli Gulch that flows along the western boundary of the park near the Hyatt Regency Maui Hotel and Resort. Refer to Figure III-67. Though the gulch does not reach the ocean during dry or low flow conditions, rainfall events can increase the volume of water flowing through
the gulch, resulting in storm flow discharge into the ocean. The availability and viability of ocean recreational resources accessible from the park is expected to be restricted both during and following periods of high rainfall. It is noted, however, that local currents and ocean circulation patterns along the West Maui coastline would probably tend to disperse contaminants present in the waters fronting Hanakao'o Beach Park in the days following a storm event.

• **Internal Drainage Considerations**

The shoreline portion of Hanakao'o Beach Park is located within the V-12 Flood Zone, an area of 100-year coastal flood with wave action, and the coastal A-4 Flood Zone, an area of 100-year flood. The remaining portions of the park nearest Honoapiilani Highway fall within Flood Zone C, an area of minimal flooding.

A lack of internal surface and subsurface drainage improvements were noted during the assessment of Hanakao'o Beach Park. This general lack of drainage improvements is expected to result in ponding in certain areas of the park as well as associated erosion from visitor-traffic movement within grassy recreational areas during times of high rainfall. Though not part of Hanakao'o Beach Park, it is noted that evidence of ponding is particularly evident within the State-owned unpaved dirt parking area located adjacent to the Hanakao'o Cemetery. Refer to Figure III-67. The low gradient of this unpaved dirt parking area, as well as the grassy recreational area around the canoe hale, possibly explains the apparent sensitivity of such areas to drainage problems.

• **Coastal Erosion Considerations**

Internal erosion within Hanakao'o Beach Park was noted as minimal due to the presence of
existing pathways linking the parking areas, restroom and beach areas. Erosion along the high water mark boundary between the beach and park was, however, deemed a noteworthy consideration. While it is acknowledged that a variety of natural processes play a part in the overall erosion of shorelines, evidence observed during site visits suggests that user-related activities, particularly those associated with the movement and storage of canoes/kayaks, may contribute to erosion-prone beach conditions. Refer to Figure III-67. Erosion associated with the use and daily operation of OSO equipment, such as ATV and jet-ski trailers, was also observed around the beach access point located nearest to the OSO station.

(6) **D.T. Fleming Beach Park**

**Park Overview**

D.T. Fleming Beach Park is a 3.29-acre (143,312 square foot) County-owned facility located in a relatively undeveloped setting on the northeastern fringe of the Kapalua Resort in West Maui. The access point to the park is situated at Emergency Call Box Number 15 along the Honoapiilani Highway approximately nine (9) miles north of Lahaina and four (4) miles north of Kaanapali. See Figure III-68. The boundary of D.T. Fleming Beach Park is identified by TMK 4-2-04:16. See Figure III-69. The shoreline fronting the beach park consists of calcareous white/yellow sand deposits and is situated between Makaluapuna Point and Mokuleia Bay. Honolua Bay is located to the northeast of Mokuleia Bay. See Figure III-70.

Lands surrounding the beach park are State-classified as "Urban", "Agricultural" and "Conservation". The Kapalua master-planned resort community and the associated Kapalua golf courses, as well as the Maui Pineapple Company, Ltd. pineapple fields, represent uses within the "Urban" and "Agricultural" designated areas. The shoreline lands both near and falling
Figure III-68 Commercial Ocean Recreational Activity (CORA) Study
D.T. Fleming Beach Park
Regional Location Map

Prepared for: County of Maui, Dept. of Parks and Recreation
Figure III-69

Commercial Ocean Recreational Activity (CORA) Study

D.T. Fleming Beach Park Boundary Map

Prepared for: County of Maui, Dept. of Parks and Recreation
Figure III-70

Commercial Ocean Recreational Activity (CORA) Study
D. T. Fleming Beach Park Aerial Site Photo

Prepared for: County of Maui, Dept. of Parks and Recreation
within the boundary of D.T. Fleming Beach Park are classified as "Conservation" lands. The park lies west of the Honoapiilani Highway and the Kapalua Plantation Course. The Ritz-Carlton, Kapalua Hotel and Resort and Kapalua Bay Course are located west of the park, with the Preschool at Kapalua situated to the south and the Pacific Ocean to the north. Refer to Figure III-70. Onsite facilities available for use by park visitors include a paved parking area, a restroom building, a shower area, picnic tables, BBQ grills, a telephone and small and large trash receptacles. Park hours of operation are from 7:00 a.m. until 8:00 p.m. County of Maui OSOs are assigned to D.T. Fleming Beach Park and are present between the hours of 8:00 a.m. and 4:30 p.m. There is an existing OSO station and an office/equipment storage building located near the restroom facilities.

**Facility Assessment**

D.T. Fleming Beach Park enjoys a relatively remote location on the fringe of the Kapalua Resort. Exclusive access to the beach park is provided from Honoapiilani Highway through a two-way designated access road with no posted turning restrictions. The access point to the park is currently ungated. See Figure III-71. A long, winding access road leads park visitors from the access point on Honoapiilani Highway down to the designated paved parking areas at sea level.

Parking at D.T. Fleming Beach Park consists of approximately 22 stalls near the OSO office/equipment storage building. Refer to Figure III-71. Limited drainage improvements exist within the paved parking area consisting of improved gullies or swales conveying surface runoff to the Honokuhua/Mokupea Gulches that converge into a single flow within the park boundary. A lockable internal access gate is available in the paved parking area allowing County of Maui OSOs and maintenance staff to gain vehicular access to the interior areas of the beach park.

A series of small, unpaved roadside parking areas are available at various points along the access road.
Figure III-71 Commercial Ocean Recreational Activity (CORA) Study
D. T. Fleming Beach Park
Facilities and Resources

Prepared for: County of Maui, Dept. of Parks and Recreation
linking the beach park to Honoapiilani Highway. These roadside parking areas provide additional parking capacity in times of peak visitor volumes.

A large grassy recreational area exists along the shoreline to the east of the OSO station near the converged flow of Honokuhua/Mokupea Gulches containing a number of scattered picnic tables and BBQs. The number of picnic and BBQ facilities available, however, is relatively small in comparison to the overall size of the grassy recreational area. The relatively poor condition of certain picnic tables and BBQ grills indicates heavy usage and some degree of deferred maintenance.

There is a permanent restroom facility and outdoor shower area available mauka of the main beach area. Refer to Figure III-71. Two (2) other permanent structures exist within the boundaries of the beach park, consisting of a small OSO station situated directly on the shoreline and an OSO office and equipment storage building located near the shower area. A single public telephone is available for use by park visitors and is attached to the aforementioned office/storage building. Refer to Figure III-71.

**Activity Assessment**

D.T. Fleming Beach Park enjoys a natural, relatively undeveloped setting and there is currently no coastal armoring fronting any portion of the local coastline. The Ritz-Carlton, Kapalua Hotel and Resort is positioned on lands in proximity to the beach park to the west. The beach, therefore, receives a mixture of user groups including hotel guests, as well as tourists and local residents gaining entry through the County beach park.

It is likely that peak usage at the park generally occurs at the weekend and holidays during the summer when high numbers of local residents add to the consistently high tourist volumes associated with The Ritz-Carlton, Kapalua and other nearby resort areas.

Access to the ocean is provided across the wide
beach area that stretches across the entire coastal boundaries of the beach park and The Ritz-Carlton, Kapalua Resort. The waters fronting the beach park are noted as being particularly well suited for a variety of commercial and non-commercial ocean recreational activities, such as swimming, surfing and kayaking during optimal weather and ocean conditions. Windsurfing and kiteboarding opportunities may also occasionally exist at the park during appropriate weather conditions. Grassy recreational areas present within the park are deemed appropriate for the setting up and breaking down of ocean recreational equipment. It is noted, however, that entry to the water is considered hazardous during high shorebreak wave conditions associated with incoming swells, particularly during the winter season. As such, ocean recreational activities opportunities at D.T. Fleming Beach Park are limited during adverse ocean conditions.

The park is also a popular location for land-based activities, such as picnics and BBQs, due to the availability of picnic facilities in a large recreational area situated in close proximity to a wide sandy beach. Local residents were observed to be the main users of picnic and BBQ facilities at D.T. Fleming, particularly on weekends.

According to 2005/2006 permit data, there are currently ten (10) CORA operators permitted to conduct a total of 20 activities at D.T. Fleming Beach Park. It is noted that CORA operators may possess permits for more than one (1) activity. CORA permits have been issued for surfing (3 permits), scuba diving (2 permits), snorkeling (4 permits), windsurfing (1 permit), kiteboarding (1 permit) and kayaking (9 permits). Table III-25 summarizes the names of the permitted CORA operators at D.T. Fleming Beach Park.
Table III-25

<table>
<thead>
<tr>
<th>D.T. FLEMING BEACH PARK CORA OPERATORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CORA Operator</td>
</tr>
<tr>
<td>Action Adventure Travel, inc.</td>
</tr>
<tr>
<td>Hawaiian Ultimate Adventures, Inc.</td>
</tr>
<tr>
<td>Honua Kai Kayak Expeditions LLC</td>
</tr>
<tr>
<td>Keli'i's Kayak Tours</td>
</tr>
<tr>
<td>Lahaina Dive and Surf, LLC</td>
</tr>
<tr>
<td>Lomas Enterprises, LLC</td>
</tr>
<tr>
<td>Maui Kayaks, Inc.</td>
</tr>
<tr>
<td>Maui Surfer Girls, Inc.</td>
</tr>
<tr>
<td>Pacific Coast Kayak, LLC</td>
</tr>
<tr>
<td>South Pacific Kayaks &amp; Outfitters</td>
</tr>
</tbody>
</table>

Source: Based on 2005/2006 Permit Data from the Department of Parks and Recreation.

Kayaking and surfing represent the majority of commercial operations currently taking place in the waters fronting the park. In times of low wave conditions, the wide calcareous beach and sand channel ocean bottom combine to provide not only a suitable training ground for surf schools but also a convenient access point for kayak tours. According to Ocean Safety Hawaii (2005), there is a cluster of rocks in the inner surf zone in front of the lifeguard tower. These rocks may be sharp, slippery and dangerous to ocean recreational users.

During the assessment process, interviews were conducted with OSOs on-duty at D.T. Fleming Beach Park. During the interviews, OSOs indicated that swell conditions at the beach park, particularly during the winter months, often create hazardous shore break wave conditions, thus affecting the suitability of the shoreline as an access point for kayak groups. Furthermore, the high wave conditions associated with an incoming swell, while providing optimal
conditions for intermediate/advanced surfers, also present safety concerns for beginner surf instruction. Based on the foregoing, the suitability for ocean recreation activities at D.T. Fleming Beach Park appears to increase with the incidence of normal, low wave conditions.

In summary, D.T. Fleming Beach Park is utilized for a variety of land-based and ocean-based recreational activities, including but not limited to, walking, jogging, picnic/BBQ parties, beach games, sunbathing, swimming, bodyboarding, surfing and kayaking. The park is considered attractive for most ocean-based recreational activities due to the large beach area and relatively safe prevailing ocean conditions and bottom type in the waters fronting the park. It is again noted, however, that the suitability for ocean-based recreational activities particularly at D.T. Fleming Beach Park is very much contingent upon safe onshore wave and wind conditions.

Environmental Analysis

Upon completion of the environmental analysis for D.T. Fleming Beach Park, the following considerations were deemed particularly noteworthy.

- **Ocean Water Quality Considerations**

As noted previously, the converged flow of the Honokuhua and Mokupea Gulches flow through D.T. Fleming Beach Park, providing drainage for the surrounding lands. The gulches converge into a single drainageway near the Preschool at Kapalua. The drainageway then follows the boundary of the grassy recreational area and emerges as a gulch head along the shoreline at the easternmost extent of the beach park. See Figure III-72. The gulch head is relatively inactive during low flow conditions and evidence along the beach suggests that ocean discharge predominantly occurs both during and following periods of significant rainfall. Refer to Figure III-72. The presence of this
Slope Erosion Near Restrooms Along Shoreline of Beach Park

Coastal Vegetation Loss Along Shoreline of Beach Park

View of Gulch Head Along Eastern Section of Beach

View of Gulch Pathway to Ocean

Localized Erosion Around Picnic Tables in Grassy Recreational Area

Undercutting of Grassy Recreational Area by Coastal Erosion

Figure III-72  Commercial Ocean Recreational Activity (CORA) Study

D.T. Fleming Beach Park

Site-Specific Considerations

Prepared for: County of Maui, Dept. of Parks and Recreation

MUNEKIYO & HIRAGA, INC.
gulch results in stormwater discharge at the easternmost extent of the beach shoreline during storm events. Localized waters surrounding the Honokuhua/Mokupea Gulches discharge point appear, therefore, to be potentially sensitive to water quality fluctuations associated with storm water flows from surrounding areas. The availability and viability of ocean recreational resources accessible in these localized waters could, therefore, be potentially restricted both during and in the immediate aftermath of high rainfall events. It is noted, however, that local currents and ocean circulation patterns along the West Maui coastline would be expected to disperse contaminants present in local waters soon after the cessation of storm drainage flows.

Coastal Erosion Considerations

The coastline near D.T. Fleming Beach Park is subject to low rates of coastal erosion. According to the Maui Shoreline Atlas (University of Hawaii, SOEST, 2003), the shoreline directly fronting the beach park experienced an average AEHR of -0.02 ft./yr. between 1912 and 1997. D.T. Fleming Beach Park, therefore, represents the West Maui beach park least affected by coastal erosion. Although D.T. Fleming has historically been subject to low to moderate coastal erosion rates, evidence of erosion, coastal retreat, and vegetation loss was identified during the course of site visits to D.T. Fleming Beach Park, particularly along the slope areas leading down to the beach from the restroom area. While it is acknowledged that a variety of natural processes play an important role in the overall degradation process and retreat of coastal terraces, park user traffic is highlighted as contributing to overall rate of erosion across shoreline slopes at D.T. Fleming Beach Park. A fence has been constructed along the top of the slope seeking to minimize visitor-led
erosion in this area and prevent park users from taking the shortest available route between the beach and the restroom facilities. The height of the fence, however, is deemed insufficient to prevent visitor traffic across these slopes between the restroom and the beach areas. Erosion primarily attributable to user traffic was also observed around picnic tables and other areas within the grassy recreational area of D.T. Fleming Beach Park. Refer to Figure III-72. The lack of pathways and designated beach access points were highlighted as one (1) possible factor contributing to the overall rate of visitor-led erosion within the grassy recreational area and along the shoreline between park facilities and the beach.

- **Archaeological and Cultural Resources/Considerations**

Though no onsite surface archaeological resources were noted during site visits to D.T. Fleming Beach Park, the presence of an important ancient Hawaiian burial ground near the shoreline portion of The Ritz-Carlton, Kapalua Hotel and Resort is considered noteworthy. The presence of this archaeological resource is deemed significant in the context of this study due to its location on land situated adjacent to the beach park. The sensitivity of the burial site to park-related impacts should, therefore, be acknowledged in any future management actions implemented at D.T. Fleming Beach Park.

- **Internal Drainage Considerations**

It is noted that the shoreline regions of West Maui are susceptible to flash flooding due to the large number of gulches and streams that convey drainage flows from the upper reaches of the West Maui Mountain range down through the low-lying arid coastal terraces (U.S. Department of the Interior, 2002). West
Maui beach parks are, therefore, particularly sensitive to flooding during high rainfall events due to their location within this low-lying coastal terrace.

The shoreline portion of D.T. Fleming Beach Park falls within the A-4 Flood Zone, an area of the 100-year flood. The portion of the park nearest Honoapiilani Highway is located in Flood Zone C, an area of minimal flooding.

D.T. Fleming Beach Park, therefore, appears to be sensitive to internal drainage issues, particularly around the low-lying paved parking area, due to the presence of Honokuhua and Mokupea Gulches and limited drainage improvements within the park boundaries. Interviews conducted with OSOs assigned to D.T. Fleming Beach Park also indicated that localized flooding and ponding has been experienced in the past around the OSO office and equipment building which is situated in a low-lying area of the park near the OSO lookout tower. The grassy recreational area, bordering the converged Honokuhua and Mokupea Gulches, was also noted as an area potentially sensitive to localized flooding resulting from high drainage flows from mauka areas during storm conditions. The relatively low gradient of the grassy recreational area indicates the occurrence of both ponding and the waterlogging of soils. Refer to Figure III-72.

**Public Safety Considerations**

Ocean conditions at D.T. Fleming Beach are rated as highly hazardous by Ocean Safety Hawaii. According to Ocean Safety Hawaii, shoreline conditions such as wave height, current strength and beachrock exposure vary greatly with season and prevents ocean recreational activity during the winter months (Ocean Safety Hawaii, 2005). Ocean safety considerations were, therefore, highlighted as
a result of site observations and OSO interviews. Shorebreak wave conditions are frequent at D.T. Fleming Beach Park, particularly during winter swell season. These conditions are hazardous for all ocean recreational participants, a fact illustrated by the number of neck and spinal injuries that occur at Maui beaches each year. The safety concerns associated with shorebreak conditions at D.T. Fleming Beach Park are particularly notable when a variety of different activities, such as swimming, surfing and kayaking are occurring at the same time in the waters fronting the beach. Interview responses gained from on-duty OSOs during site visits suggest that shore break wave conditions increase the incidence of user-ocean related injuries at the beach park. In particular, OSO feedback indicated that there was a higher potential for user-user related accidents/conflicts during high surf events.

3. **Wailuku-Kahului Community Plan Region**

Two (2) of the 17 beach parks included in this study fall within the limits of the Wailuku-Kahului Community Plan region. The two (2) beach parks are Waihee Beach Park and Kanaha Beach Park, both of which are situated on the north shore of Maui. See Figure III-73. Waihee Beach Park is located west of Kahului Harbor adjacent to Waihehu Municipal Golf Course, whereas Kanaha Beach Park is situated near the eastern limits of Kahului in the vicinity of the airport.
Figure III-73
Commercial Ocean Recreational Activity (CORA) Study
Wailuku-Kahului Community Plan Map

Source: County of Maui, Dept. of Planning
Prepared for: County of Maui, Dept. of Parks and Recreation
As outlined at the beginning of this report, the section (a) which follows provides a general socio-economic summary of the Wailuku-Kahului Community Plan region. An assessment of general environmental conditions for the two (2) beach parks located in the Wailuku-Kahului Community Plan region is contained in the second section (b). Detailed summaries comprising a park overview, facility/activity assessments, and pertinent environmental analysis considerations are presented in the final section (c). A discussion of the park-specific opportunities and concerns relating to management of each beach park is also addressed in the individual assessment summaries.

a. **Regional Overview**

The Wailuku-Kahului Community Plan region is located on the north shore of Maui and includes the civic and business centers of Wailuku and Kahului, as well as the major seaport and airport on the island. The region also encompasses the surrounding agricultural lands of Central Maui and the eastern half of the West Maui Mountains.

The Wailuku-Kahului Community Plan region is the most populous region in Maui County, with 41,503 of the 117,644 residents (35 percent) living in the region (SMS, 2002). Since 1990, Central Maui’s population has grown from 32,816 to 41,503 persons, representing a 26 percent increase over ten (10) years. Growth is expected to continue with the projected population for the Wailuku-Kahului Community Plan region in 2010 standing at 47,930 (SMS, 2002).

State designated “Agricultural,” “Conservation,” “Rural,” and
“Urban” lands are found in Central Maui. “Urban” lands are concentrated around the towns of Wailuku and Kahului in the central plain of Maui. Wailuku serves primarily as the civic and financial center on Maui, while Kahului serves as the retail, business and industrial center. Major facilities in the towns of Wailuku and Kahului include the Federal, State, and County office buildings and courts, Maui Community College, the War Memorial Center, the Maui Arts and Cultural Center, and several large retail complexes, such as Queen Kaahumanu Shopping Center and Maui Marketplace.

“Conservation” lands are primarily found along the coastline and on the upper slopes of the West Maui Mountains, while “Agricultural” lands are located on the lower slopes of the West Maui Mountains and in the central plain, south and east of Kahului. The Hawaiian Commercial & Sugar Company (HC&S), the largest sugar producer in the State, cultivates 35,000 acres of sugar cane in Central Maui and produces approximately 200,000 tons of raw sugar annually (Alexander & Baldwin, 2005).

b. **General Beach Park Conditions**

The Wailuku-Kahului Community Plan region contains approximately 36 County-owned parks, of which four (4) are beach parks situated along Maui’s northern coastline. While specific environmental conditions vary between individual locations, beach parks in the region also exhibit a number of similar character traits. A discussion of the general environmental conditions at the two (2) beach parks selected for inclusion within the study is presented herein. This
section will be followed by individual assessments for both Waihee and Kahana Beach Parks in which site-specific environmental considerations deemed relevant to the CORA study will be addressed.

(1) Surrounding Land Uses

Surrounding land uses vary according to the precise location of each particular beach park. The two (2) beach parks studied in the Wailuku-Kahului Community Plan region, Waihee and Kanaha Beach Parks, are both located in areas that are classified as “Conservation” by the State Land Use Commission. As a result, the immediate lands surrounding Waihee and Kanaha beach parks are relatively undeveloped. It is noted that both beach parks are located in close proximity to wetland resources.

The Maui Coastal Land Trust recently purchased 277 acres in Waihee, to the north of Waihee Beach Park, with plans for habitat and native plant restoration and protection of cultural sites (Maui Coastal Land Trust, 2005). Directly adjacent to the beach park on the southeastern boundary is the Waiehu Municipal Golf Course.

The Kanaha Pond Wildlife Sanctuary is located to the south of Kanaha Beach Park. This wetland preserve serves as a nesting site for indigenous and introduced waterfowl species, including Black-crowned Heron, Hawaiian Duck or Koloa, Hawaiian
Stilt or Ae'o, Northern Shoveler, and Pacific Golden Plover. Abandoned World War II bunkers are scattered throughout the Kanaha Pond Wildlife Sanctuary and surrounding areas.

Because of the two (2) beach parks’ relatively undeveloped surroundings and location away from the major resort areas, a large segment of park users tends to be local residents. The lack of major tourist presence and undeveloped surrounding areas, combined with the expansive park area at Kanaha Beach Park and the low volume use at Waihee Beach Park, may contribute to the presence of campers living in tents, cars, and other make-shift shelters.

State designated “Urban” lands are located beyond the “Conservation” areas of both beach parks. Single-family residential units, typified by Waihee Village, Waiehu Kou, Ocean View Estates, and Waiehu Heights, occupy a majority of “Urban” lands to the south and west of Waihee Beach Park.

Kahului Harbor, the island’s only deep water port, and Kahului Airport, the second busiest airport in the State, occupy “Urban” lands to the west and south of Kanaha Beach Park, respectively. The Maui Electric Power Plant is also located to the west of Kanaha Beach Park.

The Wailuku-Kahului Wastewater Reclamation
Facility, the primary wastewater reclamation facility in Central Maui, is located on Amala Place to the west of Kanaha Beach Park. The facility disposes of treated effluent through four (4) onsite injection wells rather than through discharge points, limiting the possible water quality impacts on the surrounding coastline (K. Noda & Associates, 1996).

Table III-26 provides a brief summary of the State Land Use designations and surrounding land use characteristics for each of the CORA study parks within the Wailuku-Kahului Community Plan region.
Table III-26

<table>
<thead>
<tr>
<th>Beach Park</th>
<th>State Land Use Designation of Beach Park</th>
<th>State Land Use Designations of Surrounding Areas</th>
<th>Surrounding Land Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waihee</td>
<td>Conservation</td>
<td>Urban</td>
<td>Waiehu Golf Course, single-family housing (Waiehu Kou, Waihee Village, Ocean View Estates, Waiehu Heights), Maui Coastal Land Trust</td>
</tr>
</tbody>
</table>

(2) **Flora and Fauna**

Dominant species of flora observed during assessment of the two (2) Wailuku-Kahului Community Plan beach parks include Kiawe, Ironwood, Morning Glory, beach naupaka and Bermuda grass. Dune systems along the coast of the Wailuku-Kahului Community Plan region have also been identified to contain other species of vegetation, including but not limited to koa haole, lantana, Christmas Berry, Java Plum, telegraph plant, gaillardia and Madagascar Periwinkle (Char & Associates, August 1988).
Ironwood trees were identified to be the most prevalent form of vegetation at both Waihee and Kanaha Beach Parks.

Fauna at the Wailuku-Kahului beach parks is generally limited to dogs, cats, mongoose, rats and mice, and other stray animals commonly associated with coastal areas. Avifauna present tends to be more diverse and is possibly related to the degree of vegetation/landscaping and natural dune structure existing at the beach parks. Wetland avifauna may also be observed in the vicinity of Kanaha Beach Park due to the close proximity to the Kanaha Pond Wildlife Sanctuary.

Varying degrees of coastal erosion and degradation of dune systems were noted during site visits to both beach parks in the Wailuku-Kahului Community Plan region. In some instances, natural wind and wave erosion has led to exposed roots of various shoreline flora and general vegetation loss.

Dune systems were noted to be particularly vulnerable to park visitor-related impacts along the shoreline of the two (2) beach parks as neither park had designated permanent pathways and dune walkways between park facilities and ocean-front areas. Visitor foot traffic across sand dune areas between the park and ocean-front appear to have resulted in accelerated erosion at Waihee and
Kanaha Beach Parks.

(3) **Topography and Soils**

The United States Department of Agriculture’s *Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai* classifies land according to soil association, each of which include a variety of characteristic soil types. Waihee and Kanaha Beach Parks both fall within the Puiehu-Ewa-Jaucus Association, which is characterized by deep, nearly level to moderately sloping, well-drained and excessively drained soils that have a moderately textured to coarse-textured subsoil or underlying material. This association is primarily found on alluvial fans and in basins.

Table III-27 provides a brief summary of the soil association and specific soil type characteristics for each of the beach parks studied in the Wailuku-Kahului Community Plan region.
<table>
<thead>
<tr>
<th>Beach Park</th>
<th>General Soil Association</th>
<th>Association Characteristics</th>
<th>Specific Soil Type</th>
<th>Type Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waihee</td>
<td>Pulehu-Ewa-Jaucus</td>
<td>Found on alluvial fans and in basins; characterized by deep, nearly level to moderately sloping, well-drained and excessively drained soils that have a moderately fine textured to coarse textured subsoil or underlying material</td>
<td>JaC</td>
<td>Excessively drained, calcareous soil that occurs as narrow strips on coastal plains, adjacent to the ocean. Permeability is rapid and runoff is very slow to slow. The slope range of this soil is 0 to 15 percent, but in most places the slope does not exceed 7 percent. The soil profile is single drained and excessively grain, pale brown to very pale brown, sandy and more than 60 inches deep. The surface layer is often dark brown as a result of accumulation of organic matter and alluvium.</td>
</tr>
<tr>
<td>Kanaha</td>
<td></td>
<td></td>
<td>JcC</td>
<td>Excessively drained, calcareous soil that occurs as narrow strips on coastal plains. This soil occurs near the ocean in areas where the water table is near the surface and salts have accumulated. It is somewhat poorly drained in depressions but excessively drained in knolls. In the depressions there is normally a layer of silty alluvial material flocculated by the high concentration of soluble salts. Vegetation on the salty soil in the depressions consists of salt-tolerant plants. Kiawe grows profusely on the better drained soils and knolls.</td>
</tr>
<tr>
<td>DL</td>
<td>Dune Land</td>
<td>Consists of hills and ridges of sand-size particles (formed from coral and seashells) drifted and piled by wind that are actively shifting or are so recently fixed or stabilized that no soil horizons have developed. Vegetation is usually sparse but includes species such as ironwood trees, koa haole, tropical almond, Kiawe, and mixed grasses.</td>
<td>BS</td>
<td>Beaches occur in sandy, gravely and cobbly areas and consist mainly of light colored sands derived from coral and seashells. Certain beaches are characterized by dark-colored sands due to the presence of basalt and andesite deposits.</td>
</tr>
</tbody>
</table>

JaC - Jaucus Sand, 0 to 15 percent  
JcC - Jaucus Sand Saline, 0 to 12 percent  
DL - Dune Land  
BS - Beaches  

(4) **Shoreline Geology and Physiographical Features**

Beach Parks in the Wailuku-Kahului Community Plan region are found along low-lying coastal terraces at the foot of the West Maui Mountains and along the northern coastline of the central plain. Varying colors and types of beach sand are found along the north shore coastline of the Central Maui region.

Maui’s north, west, and south shores are coastal areas subject to long-term coastal retreat. In particular, the north shore is susceptible to seasonal high waves during winter months from October through March. These “high surf” conditions are caused by ocean swells associated with North Pacific storms (University of Hawaii, Department of Geography, 1998). Seasonal waves may contribute to long-term coastal erosion and beach loss along Maui’s north shore.

Waihee Beach Park has experienced moderate erosion over time while Kanaha Beach Park has experienced moderate to severe erosion. Data from the Maui Shoreline Atlas (University of Hawaii, SOEST, 2003) was used to assess erosion patterns at Waihee and Kanaha Beach Parks. The Atlas breaks Maui’s coastline into 30 different study areas, measuring erosion rates at 20 meter transects in these areas. The Atlas also utilizes an Annual Erosion Hazard Rate (AEHR) for each study area, produced by taking a spatially smoothed center
weighted average of transect erosion measurements. This study uses average AEHR data for the shoreline area fronting each of the selected beach parks by taking an arithmetic mean of the AEHRs for the applicable number of transects in a designated area. Data relating to the change in average beach width, the horizontal distance from the vegetation line to the low water mark, has also been used to analyze erosion patterns at Waihee and Kanaha Beach Parks.

Table III-28 summarizes the shoreline geology and coastal erosion characteristics for the two (2) beach parks in the Wailuku-Kahului Community Plan Region.
Table III-28

SHORELINE GEOLOGY AND COASTAL EROSION RATES
FOR WAILUKU-KAHULUI COMMUNITY PLAN BEACH PARKS

<table>
<thead>
<tr>
<th>Beach Park</th>
<th>Shoreline Characteristics</th>
<th>Study Area</th>
<th>Average AEHR for Study Area</th>
<th>Average Beach Width Change for Study Area</th>
<th>Average AEHR for Shoreline Fronting Beach Park</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waihee</td>
<td>Sand beach of predominantly detrital sediments</td>
<td>Waihee (Waihee Point to Waihee Beach Park, 95 transects)</td>
<td>-0.8 ft./yr.¹</td>
<td>-17%¹</td>
<td>-0.71 ft./yr. (transects 49-63)</td>
</tr>
<tr>
<td>Kanaha</td>
<td>Sand beach of predominantly calcareous (reef rock) sediments</td>
<td>Kahului Harbor (Kahului Harbor to Kaa Point, 134 transects)</td>
<td>-1.6 ft./yr.²</td>
<td>-20%²</td>
<td>-0.57 ft./yr (transects 105-134; 0-76)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kanaha (Kaa Point to Papaula Point, 148 transects)</td>
<td>-1.5 ft./yr.³</td>
<td>+25%³</td>
<td></td>
</tr>
</tbody>
</table>

¹ Based on data collected between 1912 and 2002.
² Based on data collected between 1899 and 2002.
³ Based on data collected between 1960 and 2002.

Source: Coastal Geology Group, Department of Geology and Geophysics, School of Ocean and Earth Science and Technology, University of Hawai‘i at Mānoa. Maui Shoreline Atlas (2003).

(5) **Offshore Bottom Type**

Fringing coral reefs are well established along the north shore coastline of the Wailuku-Kahului region and are commonly delineated by the white water of offshore breaking waves (U.S. Department of the Interior, 2002). The shoreline of Waihee Beach Park is characterized by an expansive area of fringing coral reef, Waihee Reef, predominately consisting of a mixture of limestone boulders and outcrops and sand, hard bottom, rubble, or boulders (AECOS, 1981).
Complex reef bottom consisting of a mixture of limestone rubble and mostly sand is found off of Kanaha Beach Park (AECOS, 1981). The reef flat directly offshore of Kanaha Beach Park, which extends from Kahului Harbor eastward to Lower Paia, is referred to as "Spartan Reef." The outer edge of the shallow reef is located one-half mile from shore. At distances greater than a mile from the beach, the reef is submerged 30 feet below the surface (K. Noda and Associates, 1996).

Table III-29 summarizes the offshore bottom types for the two (2) beach parks studied in the Wailuku-Kahului Community Plan region.

Table III-29

<table>
<thead>
<tr>
<th>Beach Park</th>
<th>Offshore Bottom Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waihee</td>
<td>rc</td>
</tr>
<tr>
<td>Kanaha</td>
<td>sc, rc, rcs</td>
</tr>
</tbody>
</table>

rcs - complex reef bottom type consisting of a mixture of limestone rubble and (mostly) sand  
rc - complex reef bottom type consisting of a mixture of limestone boulders and outcrops, and sand; hard bottom rubble or boulders predominate  
sc - areas of sand bottom without significant proportions of limestone rock  

Stream Hydrology and Surface Drainage Characteristics

Streams and gulches flowing through the Wailuku-Kahului region, particularly those situated near Waihee, are especially prone to flash flooding. Streams draining lands contained within the Iao Valley, one of the wettest places in Hawaii, bring rocks and boulders down to the coastline around Waihee and Waiehu (U.S. Department of the Interior, 2002). It is noted, however, that no gulches or streams were identified in the immediate locality of Waihee Beach Park. Kanaha Beach Park is the ocean discharge point for the Kalialinui Gulch drainageway. Kalialinui Gulch flows from the slopes of Haleakala, through sugarcane fields, and across the western boundary of Kahului Airport into a man-made storm drainageway which ends approximately 50 feet from the ocean-front. During times of low flow, the stream pools at the end of the storm drain and does not flow into the ocean. However, during storm events, discharge flows breach the sand plug, potentially contributing to intermittent water quality degradation, particularly turbidity fluctuations, in nearshore coastal waters.

Waihee and Kanaha Beach Parks are both located in FEMA Flood Insurance Rate Map designated V23 areas, which are areas of 100 year coastal flood with velocity wave action. In addition, both beach parks are located within tsunami-evacuation zones.
A lack of internal surface and subsurface drainage improvements were noted at both Waihee and Kanaha Beach Parks. Internal drainage, therefore, is assumed to predominantly occur through a combination of soil percolation and overland sheet flows across both sites into the ocean. Ponding and waterlogging of soils appear to be common conditions, particularly around undrained shower areas and water taps at both parks.

Table III-30 provides a summary of the flood zone and drainage characteristics of each of the beach parks in the Wailuku-Kahului Community Plan region, as identified by the applicable Flood Insurance Rate Maps.

Table III-30

<table>
<thead>
<tr>
<th>Beach Park</th>
<th>Flood Zone</th>
<th>Major Gulches/Stre...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waihee</td>
<td>V23</td>
<td>None</td>
</tr>
<tr>
<td>Kanaha</td>
<td>V23</td>
<td>Kalialinui Gulch</td>
</tr>
</tbody>
</table>

V - An area of 100-year coastal flood with wave action.
Source: Federal Emergency Management Agency (FEMA), Flood Insurance Rate Maps (FIRM) for Maui County, Hawaii.

(7) Marine Biology
Marine life in waters along the Wailuku-Kahului
Community Plan coastline varies due to the range of offshore bottom types found. The wide expanse of healthy coral reef ecosystems present off of Waihee and Kanaha Beach Parks suggests the possible presence of common reef species, including but not limited to wrasse, coris, parrotfish, butterflyfish, surgeonfish, damselfish, triggerfish, moray eel, and octopus.

Larger forms of marine life also frequent the waters along the north shore of Maui, including turtles and sharks.

(8) Water Quality
Both of the beach parks in the Wailuku-Kahului Community Plan region are classified under the State of Hawaii Water Quality Standards Classification as Class A. Class A waters are designated for recreational purposes and aesthetic enjoyment so long as it is compatible with the protection and propagation of fish, shellfish, and wildlife. Discharge which has not received the best degree of treatment and met State criteria may not be disposed of in Class A waters (State of Hawaii, Department of Health, 2004).

The water quality at Waihee and Kanaha Beach Parks was noted to be primarily affected by on-site drainage characteristics and surrounding land uses. While there is no drainage point noted at Waihee
Beach Park, the Kalialinui Gulch drainageway discharges at Kanaha Beach Park. During times of low flow, impact on water quality appears to be negligible as storm flows do not enter the ocean. Water quality around Kalialinui Gulch Drainageway at Kanaha Beach Park, however, does appear to be influenced by high storm conditions when rainfall increases overland drainage flows.

(9) Archaeological/Cultural Resources and Practices

Waihee Beach Park is located within the traditional Na Wai Eha ("The Four Streams") land division. This region was the most expansive area of continuous kalo (taro) pond-field agriculture in the Hawaiian Islands. In particular, lands between Waiehu and Waihee were extensively modified by terraces and irrigation ditches, from the near-coastal sand dunes to the high upper valleys (Monahan, 2004).

Two (2) traditional villages of Kapokea and Kapoho were located near the mouth of Waihee Stream, with habitations located right along the shoreline, just east of the sand dunes and set several hundred feet from the waterfront. Additionally, a large number of heiau were located in Waiehu and Waihee; however, most of the shrines were completely or nearly completely destroyed by the early 20th century (Monahan, 2004).

A 1989/1992 archaeological study for the Waihee Oceanfront Golf project located just north of Waihee
Beach Park identified a number of subsurface deposits within the project area. However, none of these deposits were located near the project boundary with the beach park (Belt Collins & Associates, 1993).

A 2004 archaeological study of the Waiehu Golf Course on the southern border of Waihee Beach Park found no significant cultural deposits, burials, or human remains in sample shovel probe excavations. However, excavations did reflect previous subsurface disturbances (Monahan, 2004). There are no identified surface features within Waihee Park.

Kanaha Beach Park and surrounding areas contain remains of World War II military activity related to the Naval Air Station Kahului (NASKA). Most of the facilities are now only concrete foundations, although some buildings still exist. These structures contain no special architectural features and are not considered to be architecturally significant (K. Noda and Associates, 1996).

Within the coastal strip along Kahului Airport, it is possible that surface burials and other cultural deposits exist. Construction and subsurface excavation projects at Kanaha Beach Park have potential for significant impacts on archaeological features, especially buried cultural deposits (K. Noda and Associates, 1996). As with Waihee Beach Park,
however, no surface features were observed within the boundaries of Kanaha Beach Park.

(10) **Air Quality**
Air quality at beach parks, in general, is largely influenced by the nature and extent of surrounding land uses. The location of the two (2) selected beach parks within State designated “Conservation” lands contributes to relatively undeveloped surroundings. No direct sources of air pollution are in immediate proximity of either beach park. Although the Maui Electric Power Plant, Wailuku-Kahului Wastewater Reclamation Facility and Kahului Airport are major public/quasi-public facilities located in proximity to Kanaha Beach Park, these operations do not appear to have an adverse air quality impact upon park operations and visitor experience levels. Furthermore, both beach parks are accessible from roads predominantly used for local access, limiting traffic flows and associated air pollution.

(11) **Noise**
Noise pollution at the two (2) selected beach parks, like air quality, also varies according to surrounding land uses. Because both parks are surrounded by State designated conservation lands, there is little noise generated by traffic and other urban development sources. However, the close proximity of Kahului Airport to Kanaha Beach Park results in aircraft noise conditions from airplanes and
helicopters departing from and arriving at the airport. Secondary noise generators at both parks included park visitors, maintenance crews, and natural sources such as wind and waves.

(12) **Scenic and Open Space Resources**

Beach parks in the Wailuku-Kahului Community Plan region have excellent scenic resources including panoramic views of the West Maui Mountain range, Haleakala, Waihee Point, Kahului Harbor, Maui’s north shore, and the Pacific Ocean.

c. **Site-Specific Beach Park Conditions**

As previously outlined, two (2) beach parks in the CORA study sample fall within the boundary of the Wailuku-Kahului Community Plan region. Those two (2) beach parks are Waihee and Kanaha. Refer to Figure III-73. Assessment summaries for each of these two (2) Wailuku-Kahului parks follow:

(1) **Waihee Beach Park**

**Park Overview**

Waihee Beach Park is a 4-acre (174,240 square foot) county-owned facility located in an undeveloped, rural setting adjacent to Waiehu Municipal Golf Course. See Figure III-74. The boundary of the beach park is identified by TMK 3-2-13:06(por.). See Figure III-75. The shoreline is comprised of hard shoreline, cobble and sandy beach. See Figure III-76.

Access to the park is provided by Halewaiu Road via Kahekili Highway. Halewaiu Road traverses a single-family residential community and recreational area at
Figure III-74 Commercial Ocean Recreational Activity (CORA) Study
Waihee Beach Park
Regional Location Map

Prepared for: County of Maui, Dept. of Parks and Recreation
Figure III-75

Commercial Ocean Recreational Activity (CORA) Study
Waihee Beach Park Boundary Map

Prepared for: County of Maui, Dept. of Parks and Recreation
Figure III-76
Commercial Ocean Recreational Activity (CORA) Study
Waihee Beach Park Aerial Site Photo

Prepared for: County of Maui, Dept. of Parks and Recreation
its intersection with Kahekili Highway and leads down to the Waihee coastline allowing entry to the parking area of the Waiehu Municipal Golf Course. The Halewaiu Road junction to the park is situated approximately one (1) mile east of Waihee town. The beach park access road links the golf course and beach park parking areas and runs adjacent to the driving range. Refer to Figure III-76.

Lands surrounding the beach park are State-classified as "Urban", "Agricultural" and "Conservation". Conservation areas are represented by the entire Waihee shoreline, as well as the County-owned golf course and beach park facilities. All of the remaining surrounding land, including the Waihee residential communities and nearby fallow agricultural lands, are State-classified as either "Agricultural" or "Urban". The beach park is bordered by Waiehu Municipal Golf Course to the south and east, vacant land to the west, and the Pacific Ocean to the north. Refer to Figure III-76.

On-site facilities available for use by park visitors include a small paved parking area, permanent restroom facilities, a shower area, picnic tables and several small trash disposal units. Park hours of operation are not posted at the beach park. There are no OSOs currently assigned to Waihee Beach Park by the County of Maui due to relatively low volumes of park visitors. "No Camping" signs are posted within the beach park.

**Facility Assessment**

Waihee Beach Park is characterized by low visitor volumes and arguably represents the quietest and most underused out of all the 17 beach parks addressed in this study. The private lane that provides exclusive access to the beach park is currently ungated and connects the golf course parking areas to the much smaller parking area that exists at the beach park. The parking area at the beach park is paved and provides approximately 15 marked stalls for visitors. Refer to Figure III-76.
The parking area is 'circular' in shape and has been designed to function like a roundabout to ensure the efficient, unrestricted movement of traffic through the park. In times of high visitor volumes, additional capacity is available at the other end of the access lane in the parking areas attached to the golf course. A lockable, internal access gate is available within the designated parking areas allowing County of Maui maintenance staff to gain vehicular access to the interior recreational areas of the beach park.

A lack of internal surface and subsurface drainage improvements was noted to exist at Waihee Beach Park. The paved parking area is, however, situated on a dome of land enabling efficient drainage of any rainfall falling on the paved surfaces. Ponding within parking areas, therefore, does not appear to represent a significant concern at Waihee Beach Park. See Figure III-77.

As mentioned previously, a small grassy recreational area is situated adjacent to the parking area, containing a restroom building, shower area and several picnic tables. While paved pathways provide limited ADA access to the restroom building, the restrooms are not ADA compliant. Though the restroom facilities appeared to be functioning adequately, it is noted that both the shower area and the picnic tables appeared to be in need of some degree of maintenance and/or repair. No BBQ facilities were identified at Waihee Beach Park. Apart from the restroom building, no other permanent structures are present at Waihee Beach Park. Refer to Figure III-77.

**Activity Assessment**

Waihee Beach Park enjoys a natural, relatively undeveloped setting on Maui's north shore. There is currently no coastal armoring fronting any portion of the localized coastline. Refer to Figure III-76. Use of the beach areas is low due to a lack of development in surrounding areas. Inasmuch as the beach park is located away from the main tourist areas of South and West Maui, visitors to the beach areas along the
Figure III-77 Commercial Ocean Recreational Activity (CORA) Study
Waihee Beach Park
Facilities and Resources

Prepared for: County of Maui, Dept. of Parks and Recreation

MUNEKIYO & HIRAGA, INC.
Waihee coast are predominantly local residents.

Peak usage at the park generally occurs on the weekend and holidays during the summer when higher than usual numbers of local residents visit the park from surrounding residential areas in Waihee, Waiehu, Wailuku and Kahului.

Access to the ocean is provided from the beach area fronting the park, which is accessible from a number of undesignated pathways and access points situated at various positions along the grassy recreational area. Most of these paths appear to be heavily eroded from visitor traffic. See Figure III-78. Offshore of the beach park is the widest fringing coral reef in Maui, beginning at Waihee Point with a width of one thousand feet and continuing and narrowing to approximately 500 feet at Paukukalo (Clark, 1989). Nearshore coral reef areas are very shallow in places and, therefore, offer limited ocean recreational activities. Spear fishing (and fishing) was identified as the most popular ocean-based activity at Waihee Beach Park. This type of activity reflects both the marine conditions and the fact that the majority of visitors to the park tend to be local residents.

Conditions in the waters fronting the beach park, therefore, limit the potential for commercial and non-commercial recreational activities. The presence of a diverse fringing coral reef along with the shallowness and visibility of the water, however, suggest that the beach park is highly suitable during the calm conditions associated with the summer months for scuba diving and snorkeling activities. Surfing appears to be a more suitable activity during the winter months when north shore swells are common. Refer to Figure III-77.

Limited opportunities for land-based recreation exist within the park due to the relative lack of picnicking and BBQ facilities and the presence of a number of long-term campers. Refer to Figure III-78.

According to 2005/2006 permit data, there are currently no CORA operators holding permits for Waihee Beach Park.
Erosion Around Main Beach Access Point

Pedestrian Erosion Along Grassy Recreational Area

Additional Undesignated Pathway Between Grassy Recreational Area and Beach

Coastal Erosion and Vegetation Loss Along Shoreline

Deadwood Along Main Beach Area

Camping Between Parking Area and Restroom Building

Figure III-78 Commercial Ocean Recreational Activity (CORA) Study
Waihee Beach Park
Site Specific Conditions

Prepared for: County of Maui, Dept. of Parks and Recreation
Scuba diving by private parties may occur at the beach park due to the extensive reef present in the shallow waters fronting Waihee Beach Park. It is noted, however, that the suitability of a particular site for scuba diving is heavily dependent on both weather and ocean conditions. Use of the waters at Waihee Beach Park by private scuba diving parties would, therefore, tend to be limited to calm conditions such as those associated with the summer season. Swells commonly associated with the onset of the winter would significantly limit scuba diving opportunities at beach parks, such as Waihee, located along Maui's north shore. Refer to Figure III-77.

Based on the foregoing, the following factors seem to be contributing to the lack of commercial usage and the low levels of non-commercial activities at Waihee Beach Park: geographical location away from tourist resort areas, the presence of an increasing number of long-term campers and the limited availability and poor condition of existing picnic and BBQ facilities.

**Environmental Analysis**

The following potential areas of concern were highlighted during the collection, analysis and interpretation of data gathered during site visits:

- **Coastal Erosion Considerations**

  The coastline along Waihee Beach Park is characterized by persistently high wave energy and has been subject to coastal erosion over time. The portion of shoreline directly fronting Waihee Beach Park experienced an average loss of 0.71 feet per year between 1912 and 2002 (University of Hawaii, SOEST, 2003).

  Evidence of significant erosion, coastal retreat, and vegetation loss was identified during the course of site visits to Waihee Beach Park, particularly around the various beach access points located between the grassy recreational area and the beach. Refer to Figure III-78. While it is acknowledged that a variety of
natural processes play an important role in the overall degradation process and retreat of coastal terraces, visitor traffic is highlighted as one of the possible secondary causes of erosion across shoreline slopes directly fronting Waihee Beach Park. It is noted that the potential for visitor-led erosion along Waihee Beach Park is particularly high as there is a marked change in topographic elevation between the park and beach areas. The lack of pathways and designated beach access points across the steep dune areas appears to be an important contributing factor to the overall rate of visitor-led erosion both within the grassy recreational area and along the shoreline between park facilities and the beach. Refer to Figure III-78.

- **Long-Term Camping Considerations**

Numerous long-term campers were observed during site visits to Waihee Beach Park. As well as impacting the quality of aesthetic resources, the presence of these groups appears to be placing significant pressure on the limited facilities that currently exist within the park. A number of unleashed dogs were also observed roaming the park, some of which appeared to be directly associated with the campers. Observations concerning the use of the park as a long-term campground included families residing in large tarp enclosures near the restroom facilities, individuals and groups living in tents located within the dune structure and people living out of parked vehicles located in the parking area. Camping activities at Waihee Beach Park may compromise the park’s overall recreational resource capacity. Refer to Figure III-78.

- **Coral Reef Considerations**

As outlined previously, a large area of fringing coral reef exists in the waters directly fronting Waihee Beach Park. The sensitivity of coral
reef ecosystems and potential for user-related injuries are, therefore, noted as concerns pertinent to beach park activity. The shallowness of the waters containing coral reef ecosystems indicates a potential for trampling over coral formations as well as for visitor injuries, especially among more inexperienced ocean users. The posting of signs within the beach park to inform visitors of the ecological sensitivity and dangers posed by coral reefs may, therefore, be an appropriate park management option. Refer to Figure III-78.

(2) **Kanaha Beach Park**

**Park Overview**

Kanaha Beach Park is a 40-acre (1,742,400 square foot) County-owned facility located on Maui's north shore about 1.5 to 2 miles east of Kahului Harbor. See Figure III-79. The boundary of Kanaha Beach Park is identified by TMK 3-8-01:19 (por.) and 119. See Figure III-80. The long area of shoreline fronting the beach park is characterized by several white/yellow sandy beaches composed mainly of calcareous seashell and coral deposits. The beaches in the area are interspersed by small areas of rocky outcrops. See Figure III-81 and Figure III-82.

Lands within Kanaha Beach Park are designated "Conservation" by the State Land Use Commission. The conservation area lining the coast around Kanaha Beach Park also includes the Kanaha Pond Wildlife Sanctuary, which is situated to the southwest of the beach park. Urban lands located further inland completely envelope the coastal conservation areas of Kanaha Beach Park and the wildlife sanctuary. These urban lands are represented by Kahului Airport to the south and the commercial-industrial areas of Kahului to the southwest beyond Kanaha Pond.

Land uses neighboring Kanaha Beach Park, therefore, include Kahului Airport to the south, Kanaha Pond Wildlife Sanctuary and the Wailuku-
Figure III-79  Commercial Ocean Recreational Activity (CORA) Study

Kanaha Beach Park
Regional Location Map

Prepared for: County of Maui, Dept. of Parks and Recreation
Figure III-81

Commercial Ocean Recreational Activity (CORA) Study
Kanaha Beach Park (Undeveloped Portion)
Aerial Site Photo

Prepared for: County of Maui, Dept. of Parks and Recreation
Figure III-82

Commercial Ocean Recreational Activity (CORA) Study
Kanaha Beach Park (Developed Portion)
Aerial Site Photo

Prepared for: County of Maui, Dept. of Parks and Recreation
Kahului Wastewater Reclamation Facility to the west and southwest, single-family residential houses associated with the Sprecklesville development along the coast to the east and the Pacific Ocean to the north. Refer to Figure III-81 and Figure III-82.

Access to the park is provided from Hana Highway via Hobron Avenue, Amala Place and Alahao Street. Traffic from Hana Highway must follow Hobron Avenue followed by Amala Place through an area of industrial activity near Kahului Harbor prior to accessing the beach park along the coastline from Amala Place and Alahao Street. From Hobron Avenue, Amala Place runs along the coastline past the Wailuku-Kahului Wastewater Reclamation Facility towards Ka'a Point, whereupon the roadway becomes Alahao Street. A series of improved and unimproved designated ingress/egress points along both Amala Place and Alahao Street provide access to Kanaha Beach Park. Refer to Figure III-81 and Figure III-82.

For the purposes of this study, Kanaha Beach Park has been divided into an undeveloped portion and a developed portion, according to the extent and quality of park facilities that exist within each of these defined areas. Definitions relating to the extent of both the undeveloped and developed portions of Kanaha Beach Park are outlined below in Table III-31.

Posted hours of operation at both the undeveloped and developed portions of the park are from 7:00 a.m. to 8:00 p.m. County of Maui OSOs are available at Kanaha Beach Park between the hours of 8:00 a.m. and 4:30 p.m. to ensure the ocean safety of park users. The OSO lookout tower and associated buildings utilized for equipment storage and office functions are all located within the developed portion of Kanaha Beach Park. It is noted that there are no OSO functions within the undeveloped portions of the park.
### Table III-31

<table>
<thead>
<tr>
<th>Portion of Park</th>
<th>TMK</th>
<th>Defined Area</th>
<th>Roadway Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undeveloped</td>
<td>3-8-01:19(por.)</td>
<td>Areas of the park located between the Wailuku-Kahului Wastewater Reclamation Facility and Ka’a Point</td>
<td>Amala Place</td>
</tr>
<tr>
<td>Developed</td>
<td>3-8-01:119</td>
<td>Areas of the park located between Ka’a Point and Kook's beach</td>
<td>Alahao Street</td>
</tr>
</tbody>
</table>

**Facility Assessment**

Individual facility assessments for both the undeveloped and developed portions are presented herein.

- **Undeveloped Portion**

  The undeveloped portion of Kanaha Beach Park stretches from the Wailuku-Kahului Wastewater Reclamation Facility up to Ka’a Point. Refer to Figure III-81. The area encompasses a beach area known by local residents as "Kite Beach", a relatively steep, moderately coarse sandy beach that has been named in accordance to its popularity with the kiteboarding community on Maui. A series of unimproved gated access points located along Amala Place between the Wailuku-Kahului Wastewater Reclamation Facility and Ka’a Point provides entry via dirt roads to several small unimproved parking areas within the undeveloped portion of the park. The parking lot at Kite Beach was noted to be the largest in
the undeveloped section, providing capacity for approximately 25 vehicles. Refer to Figure III-81.

Facilities within the undeveloped portion of Kanaha Beach Park are limited to two (2) portable toilets located in the unpaved parking lot at the Kite Beach parking lot. See Figure III-83. No internal surface or subsurface drainage improvements currently exist within the undeveloped portion of Kanaha Beach Park. It is noted, however, that a large drainage channel, Kalialinui Gulch, is situated between the easternmost extent of Kite Beach and Ka‘a Point. Refer to Figure III-81 and Figure III-83. This drainage channel conveys flows from various upland areas located across the slopes of Haleakala into the ocean.

**Developed Portion**

The developed portion of Kanaha Beach Park encompasses three (3) main beach areas (hereafter referred to as the "west", "central" and "east" beaches) and three (3) main parking areas (hereafter referred to as "west", "central" and "east" parking areas) which are located between Ka‘a Point and Kook’s Beach and accessible via four (4) designated access points off Alahao Street. Refer to Figure III-82.

The "west" beach nearest Ka‘a Point accommodates a designated campground and contains facilities such as portable toilets, a shower area, water taps, picnic tables, BBQ grills, and a small unpaved parking area with capacity for approximately 10 vehicles. See Figure III-84. Direct access is provided to this unpaved parking area (the "west" parking area) through the first designated access point in the developed portion of the park along Alahao Street. Camping is allowed within this designated area of the Kanaha Beach Park by permit only. Refer to Figure III-82.
View of Kite Beach Towards Kahului Wastewater Treatment Facility

View of Unimproved Dirt Parking Area at Kite Beach

View of Ingress/Egress Point and Portable Toilets at Kite Beach

View of Ka‘a Point From Kite Beach

View of Unpaved Parking Area at Ka‘a Point

View of Kalialinui Gulch Drainage Way Between Kite Beach and Ka‘a Point

Figure III-83 Commercial Ocean Recreational Activity (CORA) Study
Kanaha Beach Park (Undeveloped) Facilities and Resources

Prepared for: County of Maui, Dept. of Parks and Recreation

MUNEKIYO & HIRAGA, INC.
Figure III-84  Commercial Ocean Recreational Activity (CORA) Study
Kanaha Beach Park (Developed Portion) Facilities and Resources

Prepared for: County of Maui, Dept. of Parks and Recreation
The "central" and "eastern" beach areas and respective parking areas are located between the "west" beach and Kook's beach towards the Sprecklesville residential development. Refer to Figure III-82. An OSO lookout station is situated adjacent to a designated swimming area towards the eastern end of "central" beach. Access to the "central" beach area is provided from the "central" paved parking area which contains approximately 55 designated parking stalls, including ADA-compliant stalls, with additional roadside parking capacity. The "central" parking area is accessible through the second and third of the four (4) designated vehicle access points along Alahao Street. A canoe hale and a number of beach volleyball courts are situated between the "central" beach shoreline and the "central" parking area. Permanent structures in this area of the park include a restroom facility and an OSO office and equipment storage building. Refer to Figure III-84.

Access to a third ("east") parking area, containing approximately 134 stalls, is provided through the fourth and final designated access point along Alahao Street and consists of a series of gravel and paved parking lots. Refer to Figure III-82 and Figure III-84. Access to both the "central" and "east" beaches is provided from the "east" parking area. While additional parking capacity is possible along the internal access roads within the "central" and "east" parking areas, it is noted that public roadside parking along Alahao Street is currently not available. Grassy recreational areas, containing large numbers of Kiawe and Ironwood trees, are available for public use and are located between the "central" and "east" parking areas and the shoreline. Refer to Figure III-82.

Facilities available in and around the "central" and "east" parking areas consist of the aforementioned grassy and heavily wooded
recreational open space areas, two (2) permanent restroom buildings, two (2) designated shower areas, scattered picnic and BBQ facilities, public telephones, water taps and numerous small and large trash receptacles. Lockable, internal access gates in both the "central" and "east" parking areas allow County of Maui OSO and maintenance staff vehicular access to the interior areas of the beach park.

**Activity Assessment**

Visitor demographics at Kanaha Beach Park differ slightly from those of parks situated at other locations around the Maui coastline. Despite its relatively large size and close proximity to Kahului Airport, the park does not attract significant volumes of tourists as it is situated a considerable distance from the main tourist resorts in South and West Maui. Furthermore, visitors traveling to and from the Kahului Airport may be unaware of Kanaha Beach Park due to the lack of signage from Keolani Place, Haleakala and Hana Highways. Strong prevailing winds are common along the north shore, especially during the summer months, a fact which may also limit tourist presence at Kanaha Beach Park.

Visitors to Kanaha Beach Park, therefore, tend to fall in one (1) of two (2) general categories; these being local residents and activity-focused user groups engaging in activities such as windsurfing, kiteboarding, spearfishing and occasionally surfing and scuba diving.

According to 2005/2006 permit data, there are currently 11 CORA operators permitted to conduct a total of 22 activities at Kanaha Beach Park. It is noted that CORA operators may possess permits for more than one (1) activity. CORA permits have been issued for surfing (5 permits), scuba diving (2 permits), snorkeling (1 permit), windsurfing (5 permits), kiteboarding (8 permits) and kayaking (1 permit). Table III-32 summarizes the names of the permitted CORA operators at Kanaha Beach Park.
### Table III-32

<table>
<thead>
<tr>
<th><strong>KANAJHA BEACH PARK CORA OPERATORS</strong></th>
<th><strong>CORA Operators</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Action Sports Maui</td>
<td></td>
</tr>
<tr>
<td>Aqua Sports Maui</td>
<td></td>
</tr>
<tr>
<td>Hawaii Sailboarding Techniques</td>
<td></td>
</tr>
<tr>
<td>Hula Surf, LLC</td>
<td></td>
</tr>
<tr>
<td>Kiteboarding School of Maui</td>
<td></td>
</tr>
<tr>
<td>Lahaina Divers, Inc.</td>
<td></td>
</tr>
<tr>
<td>Maui Kiteboarding Lessons</td>
<td></td>
</tr>
<tr>
<td>Maui Sports Unlimited</td>
<td></td>
</tr>
<tr>
<td>My Splash LLC</td>
<td></td>
</tr>
<tr>
<td>South Pacific Kayaks</td>
<td></td>
</tr>
<tr>
<td>Windsurfing School of Maui</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Based on 2005/2006 Permit Data from the Department of Parks and Recreation.*

Ocean recreational activity occurs in the waters fronting both the undeveloped and developed portions of Kanaha Beach Park. Summaries of the main activities taking place in each area are presented below.

- **Undeveloped Portion**

  The main beach area adjacent to the undeveloped portion of Kanaha Beach Park, situated east of the Wailuku-Kahului Wastewater Reclamation Facility, is world-renowned for the kiteboarding community that it supports. Commonly referred to as “Kite Beach”, the wind and ocean conditions combine to offer unique year-round opportunities for the enjoyment of the relatively new sport of kiteboarding on both commercial and non-commercial levels. It is noted that
kiteboarding is heavily dependent on wind conditions.

A designated kiteboarding ocean entry/exit zone exists along the entire undeveloped coastline of Kanaha Beach Park west of Kaa Point. Refer to Figure III-81. Kiteboard launching and landing are also permitted within a small portion of the developed coastline of Kanaha Beach Park between Kaa Point and the canoe hale. Refer to Figure III-82.

Signage posted within this limited area designates hours for kiteboard launching and landing as follows:

No kiteboard launching or landing from the beach between the canoe hale and Ka'a Point before 11:00 a.m. and after 3:00 p.m. in September and May or at anytime in June, July and August.

It is noted that the remainder of the developed portion of the Kanaha Beach Park coastline is off-limits to kiteboarding due to Federal Aviation Administration (FAA) air traffic safety concerns.

As outlined previously, facilities within the undeveloped portion of Kanaha Beach Park are limited to just portable toilets. The undeveloped portion, encompassing Kite Beach, thus does not attract significant volumes of visitors other than those wishing to engage in kiteboarding activities. Non-kiteboarding visitors that do access the undeveloped portions of the park tend to do so only for short periods of time, often to enjoy the view or take a stroll along the beach. Ka'a Point to the east of Kite Beach, however, is a more popular location among local residents for family picnics and fishing.
• **Developed Portion**

As outlined previously, three (3) sandy beach areas are directly accessible from the developed portion of Kanaha Beach Park. Refer to Figure III-82. The waters fronting these beach areas provide conditions suitable for a number of ocean-based recreational opportunities including windsurfing, canoeing, kayaking, swimming, spearfishing and scuba diving. While conditions off the coast of the developed portion of Kanaha Beach Park may be deemed suitable for kiteboarding activities, it is again noted that a number of safety considerations exist for the sport at this location due to the presence of arriving/departing air traffic associated with Kahului Airport.

The developed portion receives the vast majority of visitors to Kanaha Beach Park. The park is renowned as one of the world's optimal locations for windsurfing. Windsurfing is, therefore, by far the most prevalent activity within the developed portion of Kanaha Beach Park. It is noted at this point, however, that the number of participants engaging in windsurfing activities fluctuates according to both the season and the daily wind conditions. The busiest season for windsurfing at Kanaha Beach Park is summer, which is when the northeast prevailing winds are at their strongest. It is noted that a number of windsurfing competitions take place along the east beach of the developed portion of Kanaha Beach Park during the summer months.

Launching of windsurfing equipment is predominantly confined to the shoreline area of the "east" beach. Title 13, Subtitle 11, Part III of the Hawaii Administrative Rules (HAR) prohibits the launching of windsurfing equipment, except by beginners, prior to 11:00 a.m. each day:
No person shall launch a sailboard from Kanaha Beach Park prior to 11:00 a.m., except that windsurfing instruction and beginning windsurfing may be conducted within three hundred feet of the shoreline between swimming zones A and B after 9.00 a.m. (HAR 13-256-130)

As indicated by HAR 13-256-130, swimming is also popular at Kanaha Beach Park, especially around the "central" beach area. The "central" beach represents the safest and most suitable place for swimming due to the presence of OSOs and the designation of a series of swimming zones, identifiable by a buoy system. Spearfishing at the beach park is another popular activity and generally takes place in the early mornings prior to 11:00 a.m., when ocean conditions are calmer and the waters not being utilized for windsurfing activities.

Although opportunities exist for sunbathing along the beaches of Kanaha Beach Park, the presence of strong onshore prevailing winds, particularly during the summer months, appears to deter sunbathers. The lighter winds associated with the onset of winter makes for more suitable sunbathing conditions at the park. Grassy recreational areas contained within the park are, however, partially protected from the wind by vegetation such as Kiawe and Ironwood trees and may be utilized year round for land-based recreational activities. Due to these grassy recreational areas, Kanaha Beach Park is, therefore, also utilized for a range of land-based recreational activities such as picnics, BBQs, walking and park games.

Peak usage in the developed portion of Kanaha Beach Park during the winter months generally occurs at the weekend and on
holidays. However, visitor volumes remain consistently high throughout the week during the summer months when strong prevailing onshore winds attract high numbers of windsurfers and spectators, particularly during events/competitions.

In summary, Kanaha Beach Park is utilized for a variety of land-based and ocean-based activities including camping, picnics, BBQs, walking/jogging, dog walking, fishing, spearfishing, canoeing, kiteboarding, windsurfing, kayaking and scuba diving. Kiteboarding and windsurfing are the main ocean-based activities taking place in the ocean adjacent to the respective shorelines fronting the undeveloped and developed portions of Kanaha Beach Park. Safety concerns regarding kiteboarding equipment and air traffic, as well as the regulations contained within the HAR and the presence of OSOs, appear to maintain an equitable and safe geographical division between ocean recreational user groups at Kanaha Beach Park.

**Environmental Analysis**

During the completion of the beach park assessment for Kanaha Beach Park, the following considerations were deemed particularly noteworthy.

- **Water Quality Considerations**

  A high potential for water quality deterioration in coastal waters near Ka’a Point was noted due to the presence of a major channelized storm drain to the east of Kite Beach. Refer to Figure III-81 and Figure III-83. The Kalialinui Gulch drainageway conveys drainage flows from urban and agricultural lands situated across the slopes of Haleakala into the ocean at Kanaha Beach Park.

  The drainageway is relatively inactive during low flow conditions and does not reach the shoreline, partly due to the existence of a sand plug at the mouth of the drainage channel. See Figure III-85. Evidence suggests,
Figure III-85 Commercial Ocean Recreational Activity (CORA) Study
Kanaha Beach Park (Undeveloped)
Site-Specific Considerations

Prepared for: County of Maui, Dept. of Parks and Recreation
however, that ocean discharge occurs both during and following periods of significant rainfall when drainage flows become high enough to breach the sand plug, with flows directly entering the ocean.

The presence of this drainageway and its potential for intermittent discharge of stormwater runoff from upland areas would indicate periods of marine water quality degradation and associated turbidity fluctuations in the vicinity of Kite Beach and Ka' a Point.

A reduction in the availability and viability of ocean recreational resources in these localized waters could, therefore, potentially be experienced both during and in the immediate aftermath of high rainfall events. Furthermore, the waters around the drainage channel outlet are relatively calm and are protected from ocean currents by the headland of Ka' a Point. Refer to Figure III-81. As such, the dispersal of pollutants from the waters around the gulch head following storm events may be slower in comparison to other discharge points around the Maui coastline.

- Park Access Considerations

Vehicular access to Ka' a Point is made possible by way of a gated access point located along Alahao Street next to the Kalialinui Drainageway. An unpaved, dirt access drive connects the shoreline area of Ka' a Point to the roadway and runs directly adjacent to the path of the storm drain. Refer to Figure III-82. The surface of this dirt access road was observed to be particularly sensitive to ponding following high rainfall and is currently in a poor state of repair. Refer to Figure III-85. A hazardous undulation near the access point at Alahao Street is deemed particularly noteworthy as it effectively limits access to vehicles with sufficient height.
clearance. Furthermore, upon entrance through the access gate, vehicles are also required to negotiate an elevated sidewalk which passes over the drainage channel and crosses the access road leading to Ka'a Point. Refer to Figure III-85. Access to Ka'a Point is, therefore, deemed difficult especially during and following wet weather conditions.

• **Internal Drainage Considerations**

A general lack of surface and subsurface drainage improvements was noted in both the developed and undeveloped portions of Kanaha Beach Park.

While possible water quality fluctuations associated with discharge from the Kalialinui Gulch drainageway have been previously highlighted, the drainageway does not appear to pose a flash flooding threat to the surrounding areas of the undeveloped portion of the park. From Kahului Airport to the ocean, the concrete channel has been designed to accommodate high drainage flows commonly associated with larger storm events. Refer to Figure III-82 and Figure III-85.

Internal drainage considerations were most noteworthy within the developed portion of the park and included observed ponding conditions around designated shower areas. Accumulation of sand deposits over time around the base of showers appears to be significantly restricting the drainage efficiency of these facilities. See Figure III-86.

Furthermore, certain low-lying areas within the developed portion of the park appear to be sensitive to localized ponding and waterlogging of soils, particularly the grassy recreational areas surrounding the small pond near the canoe hale.

Based on the foregoing analysis regarding
Sand Deposit Accumulation and Associated Drainage Problems Around Designated Shower Areas

Kiawe and Ironwood Trees In Grassy Recreations Areas

Degradation of Dune Systems Along Beach Areas

Figure III-86 Commercial Ocean Recreational Activity (CORA) Study
Kanaha Beach Park (Developed Portion) Site-Specific Considerations

Prepared for: County of Maui, Dept. of Parks and Recreation
internal drainage issues, elevated rates of both natural and visitor-related erosion would be reasonably expected within the developed portions of Kanaha Beach Park both during and following rainfall events.

- **Public Safety Considerations**

As outlined previously, the FAA has expressed concern recently over the safety of kiteboarding activities within waters fronting the developed portion of Kanaha Beach Park. The principal issue relates to the use of kites connected with long lines in close proximity to the flight path taken by air traffic taking off from and landing at Kahului Airport. Refer to Figure III-80 and Figure III-82. As outlined in the foregoing activity assessment section, a voluntary agreement by the kiteboarding community has resulted in the development of a designated kiteboarding area west of the canoe hale around Kite Beach. Refer to Figure III-82. At present, this self-regulation by kiteboarding enthusiasts appears to be working effectively and has actually resulted in an equitable separation of the two (2) main user groups, the latter being the windsurfing community. Nevertheless, this safety consideration should be acknowledged as an integral element of the overall future management plan for Kanaha Beach Park.

As noted previously, a large number of Kiawe and Ironwood trees are present in the grassy recreational areas between the "central" and "east" parking lots. Refer to Figure III-86. Areas of Kanaha Beach Park are often closed off to the public during storm and high wave conditions due to a perceived threat to public safety from falling trees. The initiation of a regular tree maintenance program would reduce this risk of injury to park users and would, therefore, limit the need to close the park during the aforementioned meteorological conditions.
• **Coastal Erosion Considerations**

Evidence of erosion, coastal retreat, and associated vegetation loss was observed along the shoreline adjacent to both the developed and undeveloped portions of Kanaha Beach Park. Refer to Figure III-86. While it is acknowledged that a variety of natural processes play an important role in the overall degradation process and retreat of coastal terraces, visitor traffic is highlighted as a potential contributor to the overall rate of loss at Kanaha Beach Park.

Numerous undesignated pathways caused by visitor foot traffic were identified across much of the dune system between the "central" beach area and the mauka portion of the park. Refer to Figure III-86. The proliferation of these dirt tracks by visitors attempting to gain the quickest route from the parking areas to the beach appears to be further aggravating deterioration of dune systems within the park boundary. The installation of moveable dune walkways at various points along the shoreline of the "central" beach would provide the public with a variety of beach access points while achieving the overall goal of reducing the impact of visitor foot traffic across dune systems in the area.

Signs of erosion were also observed around picnic tables and other areas within the grassy recreational areas in the developed portion of Kanaha Beach Park, although erosion in these areas is not deemed significant due to the presence of both permanent and temporary pathways linking internal areas within the park. Refer to Figure III-86.

Visitor-led erosion in the form of numerous interconnected dirt tracks was noted within the undeveloped portion of Kanaha Beach Park, a trend that seems to also be attributable to the lack of pathways and facilities within these
areas. Refer to Figure III-81. A general decrease in the severity of this kind of erosion would be expected with the implementation of various park management tools, such as the installation of certain basic facilities and the designation of permanent footpaths linking the parking areas along the undeveloped portion of Kanaha Beach Park with the beach area known as "Kite Beach".

4. **Hana Community Plan Region**
   
   One (1) of the 17 beach parks included in this study, Hana Bay Beach Park, falls within the limits of the Hana Community Plan region. See Figure III-87.

   As outlined at the beginning of this report, the section (a) which follows provides a general socio-economic summary of the Hana Community Plan region. An assessment of general beach park conditions within the region then follows in the second section (b). A detailed summary for Hana Bay Beach Park, comprising a park overview, facility/activity assessment, and pertinent environmental analysis considerations is presented in the final section (c). A discussion of the main site-specific opportunities and challenges relating to the management of Hana Bay Beach Park is also addressed in the individual assessment summary.

   a. **Regional Overview**

   The Hana Community Plan region covers approximately 145,000 acres of land in East Maui. Population in the region is predominantly focused around Hana Town, located on the easternmost shoreline of Maui. The Hana region also includes the rural settlements of Nahiku, Keanae, Kipahulu, and Kaupo, all of which are situated along the coastline.
Figure III-87
Commercial Ocean Recreational Activity (CORA) Study
Hana Community Plan Map

Source: County of Maui, Dept. of Planning
Prepared for: County of Maui, Dept. of Parks and Recreation
The population of the Hana Community Plan region grew rapidly during the 1970s and 1980s, increasing from 969 in 1970 to 1,895 in 1990. Since then, Hana's population has remained constant with 1,897 people residing in the area as of the year 2000. Population is projected to reach 2,180 in 2010 (SMS, 2002).

The vast majority of the lands within the Hana Community Plan region are State designated as "Agricultural" and "Conservation". The economy of the region is largely based on diversified agriculture including ranching, tropical fruit, flower and foliage, and taro cultivation.

The visitor industry also contributes significantly to the economy in East Maui. Visitors are drawn to the region because of the numerous scenic attractions that line the Hana Highway, the only paved transportation route linking Hana to areas in Central Maui. A limited range of visitor accommodations are available within the State designated "Urban" lands of Hana Town. The Hotel Hana-Maui represents the largest provider of visitor accommodations in East Maui.
b. **General Beach Park Conditions**

The Hana Community Plan region contains approximately nine (9) County parks, of which two (2) are beach parks situated along Maui’s southern coastline. While specific environmental conditions vary between individual locations, beach parks in the region also exhibit a number of similar character traits. A discussion of the general environmental conditions at the Hana Bay Beach Park is presented herein. This section will be followed by an assessment for Hana Bay Beach Park that addresses specific environmental parameters in the context of the CORA study.

(1) **Surrounding Land Uses**

Hana Bay Beach Park is surrounded by the State designated “Urban” lands associated with Hana Town. The beach park is located on the northern boundary of Hana Town, which includes single-family residential units, the Hotel Hana-Maui, and Luana Spa Resort. Helene Hall, the community center for Hana Town, is located along the mauka side of the Hana Beach Park access roadway.

Table III-33 provides a brief summary of the State Land Use designations and surrounding land uses for the CORA study park in the Hana Community Plan region.
Table III-33

<table>
<thead>
<tr>
<th>Beach Park</th>
<th>State Land Use Designation(s) of Beach Park</th>
<th>State Land Use Designation(s) of Neighboring Areas</th>
<th>Neighboring Land Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hana Bay</td>
<td>Urban</td>
<td>Urban</td>
<td>Helene Hall Community Center, various single-family residential units, Hotel Hana-Maui</td>
</tr>
</tbody>
</table>

(2) **Flora and Fauna**
Species of flora observed at Hana Bay Beach Park include palm trees, false Kamane trees and mixed grasses. Mammal species commonly found in the area include mice, rats, cats, dogs, and mongoose. Avifauna typical of the area include mynahs, spotted doves, house sparrows, finches, and cardinals (Munekiyo and Hiraga, Inc., 2004).

(3) **Topography and Soils**
The United States Department of Agriculture Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai (1972) classifies land with soil associations, which each include different soil types. Hana Bay Beach Park falls under the Hana-Makaalae-Kailua Association which is characterized by moderately deep to deep, gently sloping to steep, well-drained soils that have a moderately fine textured subsoil or underlying material.
Table III-34 provides a brief summary of the soil association and classification for the Hana Bay Beach Park.

Table III-34

<table>
<thead>
<tr>
<th>Beach Park</th>
<th>General Soil Association</th>
<th>Association Characteristics</th>
<th>Specific Soil Type</th>
<th>Type Characteristic(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hana Bay</td>
<td>Hana-Makaalae-Kailua</td>
<td>Moderately deep to deep, gently sloping to steep, well-drained soils that have a moderately fine textured subsoil or underlying material</td>
<td>Hana silty clay loam, moderately deep variant, 3 to 15% slopes (HKNC)</td>
<td>A non-stony and moderately deep surface with slow to medium runoff and a slight to moderate erosion hazard</td>
</tr>
</tbody>
</table>


(4) **Shoreline Geology and Physiographical Features**

While much of Maui's eastern coastline is characterized by rocky cliffs, Hana Bay Beach Park has a sand beach of predominantly calcareous (reef rock) material.

The *Maui Shoreline Atlas* (University of Hawaii, SOEST, 2003), which was used to analyze erosion patterns at beach parks in the Wailuku-Kahului, Kihei-Makena, and West Maui Community Plan regions, did not provide erosion data for East Maui.
However, it is noted that the Hana coast is exposed to wind and waves approaching from the north, east, and south, making the dynamic hazards associated with storms and waves relatively severe (U.S. Department of the Interior, 2002).

One of the highest flood heights recorded on Maui occurred during the 1946 tsunami in Hana Bay, where it was measured at 28 feet. Although erosion hazards are ranked as moderately low along most of the Hana coastline because of the rocky cliffs that face the ocean, the erosion hazard at Hana Bay is high because of its low sloping beach areas (U.S. Department of the Interior, 2002).

(5) **Offshore Bottom Type**

Beaches along the coastline of the Hana Community Plan region are composed mostly of basalt cobbles and boulders, except at Hana Bay where there is a black sand beach (U.S. Department of the Interior, 2002). The shoreline fronting Hana Bay Beach Park is dominated by areas of sand bottom without significant portions of limestone rock. Areas of solid rock bottom can be found further offshore (AECOS, 1981). See Table III-35.
Table III-35

<table>
<thead>
<tr>
<th>Beach Park</th>
<th>Offshore Bottom Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hana Bay</td>
<td>rb, sc</td>
</tr>
</tbody>
</table>

rb - sand or hard bottom; a massive rock surface
sc - areas of sand bottom without significant proportions of limestone rock


(6) **Stream Hydrology and Surface Drainage Characteristics**

Within the Hana Community Plan region, numerous streams flow into the ocean, cutting small ravines and gulches through the young Hana series lavas (U.S. Department of the Interior, 2002).

Hana Bay Beach Park is located within an area of 100-year coastal flood with velocity wave action and a tsunami-evacuation zone. The stream flooding threat at Hana Bay is ranked high because it is located where the coastal slope is low and a number of streams empty into the ocean (U.S. Department of the Interior, 2002).

Table III-36 provides a summary of the flood zoning and drainage characteristics for Hana Bay Beach Park.
Table III-36

STREAM HYDROLOGY AND SURFACE DRAINAGE CHARACTERISTICS FOR HANA COMMUNITY PLAN BEACH PARKS

<table>
<thead>
<tr>
<th>Beach Park</th>
<th>Flood Zone</th>
<th>Major Gulches/Streams</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hana Bay</td>
<td>V29</td>
<td>Kawaipapa Stream, Holoinawahae Stream</td>
<td>Kawaipapa and Holoinawahae Streams both discharge into Hana Bay to the north of the beach park</td>
</tr>
</tbody>
</table>

V - An area of 100-year coastal flood with wave action.

Source: Federal Emergency Management Agency (FEMA), Flood Insurance Rate Maps (FIRM), Maui County, Hawaii

(7) **Marine Biology**

Though not present in the waters directly fronting the beach park, coral reef ecosystems can be found at various locations around Kau‘iki Head to the east. Marine life observed in waters off of Hana Bay Beach Park include surgeonfish, goatfish, wrasse, snapper, and butterfly fish (The Reef Environmental Education Foundation, 2001).

(8) **Water Quality**

Under the State of Hawaii Water Quality Standards Classification, marine waters (embayments, open coastal, or ocean waters), are classified into two (2) categories - Class A and Class AA. Class A waters are for recreational purposes and aesthetic enjoyment so long as it is compatible with the protection and propagation of fish, shellfish, and wildlife. Class AA
waters are waters that should remain in their natural pristine state as nearly as possible with an absolute minimum of pollution or water quality alteration from human sources. Waters off of Hana Bay are classified as Class AA marine waters.

Water quality at beach parks is primarily affected by drainage characteristics and surrounding land uses. A high potential for temporary water quality fluctuations was noted for the Hana Bay area due to the presence of discharges from Kawaipapa and Holoinawawae Gulches during high rainfall conditions. The channelization of gulch courses in recent years has improved drainage efficiency for Hana Town but has also increased the sensitivity of bay water to turbidity and other water quality fluctuations during storms.

(9) Archaeological/Cultural Resources and Practices
As a former population center and loci of political development, the Hana Community Plan region is rich in cultural history. Prior to the unification of the island of Maui in the 1500s, Hana was the ruling center of East Maui. Because of its strategic location and the productivity of the land, many ali'i resided in Hana (Chaffee and Dega, 2004). At least 104 heiau have been documented in the 90 ahupua'a within the Hana Community Plan region, indicating the significance of Hana to ali'i (County of Maui, 1994).
During the Great Mahele, the division of lands in the late 1840s, over 11,000 acres of Land Commission Awards (LCAs) and land grants were distributed throughout Hana. Many LCAs and land grants were used for habitation and wet and dry agriculture. While larger portions of land were reserved for ranching, sweet potato, sugar, coconut, and pigs were raised on small LCAs, reflecting a continuance of traditional activities in a post-contact time frame (Chaffee and Dega, 2004).

(10) **Air Quality**

Due to its relatively undeveloped characteristics and high proportion of vegetation, air quality within the Hana Community Plan region is deemed excellent. Though Hana Town completely surrounds Hana Bay Beach Park, no point sources of air pollution currently exist. The region is also consistently exposed to tradewinds which contributes to the exceptional air quality. As such, air quality impacts at Hana Bay Beach Park are assumed to be negligible.

(11) **Noise**

Noise levels with the Hana Community Plan region are generally characteristic of the region’s rural atmosphere. The primary source of noise at Hana Bay Beach Park is vehicular traffic along Uakea Road. Secondary noise generators include park visitors and natural sources such as wind and waves.
(12) **Scenic and Open Space Resources**

The Hana Community Plan region is famous for the scenic and open space resources available from the Hana Highway. Such resources include rugged coastlines, tropical rainforests and waterfalls. With respect to Hana Bay Beach Park specifically, scenic and open space resources are limited by the steep cliffs and hills that surround the park behind Helene Hall. Views of the opposite side of the Bay and the Pacific Ocean are, however, available to visitors at the beach park.

c. **Site-Specific Beach Park Conditions**

As previously noted, one (1) beach park, Hana Bay Beach Park, was selected for inclusion in the scope of this study in order to ensure sufficient regional representation around Maui island. Refer to Figure III-87. The assessment for Hana Bay Beach Park follows:

(1) **Hana Bay Beach Park**

*Park Overview*

Hana Bay Beach Park is a 0.51-acre (22,200 square feet) County-owned facility located on Maui's east shore along the northern boundary of Hana Town. See Figure III-88. The beach park boundary is identified by TMK (2) 1-4-04:06, 07, 09, 10 and 32. See Figure III-89.

The lands belonging to Hana Bay Beach Park are State designated “Urban” lands, while surrounding lands are also classified as “Urban”. Hana Wharf is located east of and adjacent to the beach park at the end of the access road, while Helene Hall, a local community center, is situated on the mauka side of the access road near the center of the park.
Figure III-88  Commercial Ocean Recreational Activity (CORA) Study
Hana Bay Beach Park
Regional Location Map

Prepared for: County of Maui, Dept. of Parks and Recreation
Figure III-89
Commercial Ocean Recreational Activity (CORA) Study
Hana Bay Beach Park Boundary Map

Prepared for: County of Maui, Dept. of Parks and Recreation


NOT TO SCALE
Visitor access to the beach park is provided by way of a paved access road that connects to Uakea Road approximately 350 yards north of the Hana Community Center. A small paved parking area is available near the park access point, while additional parking is located on both sides further along the access road leading to Helene Hall. See Figure III-90. Onsite facilities available for use at Hana Bay Beach Park include the aforementioned parking areas, one (1) shower, a paved pavilion, a grassy recreational area, picnic tables, BBQ grills, and trash cans. Park hours of operation are posted and are from 6:00 a.m. to 10:00 p.m. OSOs are assigned to Hana Bay Beach Park by the County of Maui during summer months only.

**Facility Assessment**

As stated previously, parking is available both in a small designated parking area and along the side of the access road. The designated parking area is a paved lot consisting of approximately 20 unmarked stalls and it is located immediately adjacent to the park hours sign near the access point to the park. See Figure III-91. Unmarked parking is also available along both paved shoulders of the access road and provides additional capacity for approximately 100 vehicles. A fence forms a boundary between the access road and the grassy recreational area that exists opposite Helene Hall. A low stone and cement retaining wall separates this higher-elevation recreational area from the shoreline, while a couple of stairways provide shoreline access to park visitors. Refer to Figure III-91.

Picnic tables are located in the grassy recreational area and are arranged parallel to the wall that separates the beach park from the shoreline. Additional picnic tables are located in a covered pavilion near the access road. Refer to Figure III-91. A shower and a canoe club/storage unit/changing room can be found adjacent to the aforementioned picnic pavilion. BBQ facilities and trash receptacles are located at various points around Hana Bay Beach Park. ADA-accessible toilet facilities, a small snack
Commercial Ocean Recreational Activity (CORA) Study
Hana Bay Beach Park Aerial Site Photo

Figure III-90

Prepared for: County of Maui, Dept. of Parks and Recreation
Figure III-91  Commercial Ocean Recreational Activity (CORA) Study

Hana Bay Beach Park Facilities and Resources

Prepared for: County of Maui, Dept. of Parks and Recreation

MUREKIYO & HIRAGA, INC.
shop, and a public telephone are available for use by park visitors at Helene Hall located across from the grassy recreational area. Refer to Figure III-91.

**Activities Assessment**

Hana Bay Beach Park is situated in a remote location on Maui's east coast far from the main resort hubs and residential centers of the island. The various scenic attractions offered by Hana, however, attract a consistently high number of tourists. The main user group of Hana Bay Beach Park is, therefore, local East Maui residents, supplemented by a steady flow of visitors/tourists traveling through the East Maui region.

With its quiet location, BBQ facilities, grassy recreational area and abundant picnic tables, Hana Bay Beach Park is conducive to BBQs and picnicking, as well as a variety of other land-based recreational activities. With regard to ocean-based activities, the beach park is popular with and often used by local canoe paddlers, who utilize the ramp area adjacent to the covered pavilion. Under the prevailing calm conditions, Hana Bay is also well suited for swimming and kayaking, while periodic swells can produce conditions suitable for surfing.

Although Hana Bay itself contains only a small amount of fringing coral reef, the waters near Kau'iki Head just southeast of Hana Bay support coral reef ecosystems. Snorkeling-based kayaking tours, therefore, represent another popular activity taking place in and around the Hana Bay area.

Hana Bay Beach Park is classified as a low-use beach park for CORA operations. According to 2005/2006 permit data, there are currently two (2) CORA operators permitted to conduct a total of three (3) activities at Hana Bay Beach Park. It is noted that CORA operators may possess permits for more than one (1) activity. CORA permits have been issued for snorkeling (1 permit) and kayaking (2 permits). Table III-37 summarizes the names of the permitted CORA operators at Hana Bay Beach Park.
Environmental Analysis

Upon completion of the environmental analysis for Hana Bay Beach Park, the following considerations were deemed particularly noteworthy.

- **Coastal Erosion Considerations**

  As noted in the regional overview for Hana Community Plan, the Maui Shoreline Atlas (University of Hawaii, SOEST, 2003) did not provide erosion data for East Maui. Despite protection from Kau‘iki Head and Nanuaele Point, however, the coastline lining Hana Bay has historically been sensitive to impacts from high waves and tsunamis. One of the highest flood heights recorded on Maui during the 1946 tsunami was in Hana Bay, where it was measured at 28 feet (U.S. Department of the Interior, 2002). Northeast trade winds and hurricane activity have resulted in wave heights ranging from 8 to 15 feet being occasionally recorded at Hana Bay Beach Park. The existence of such a level of wave activity suggests that periodic coastal erosion is occurring along the shoreline fronting Hana Bay Beach Park.

- **Internal Drainage Considerations**

  Hana Bay Beach Park is located within FEMA designated flood zone V29, an area of 100-
year coastal flood with velocity wave action. The park is also located within a tsunami evacuation zone.

Hana Bay Beach Park occupies a relatively level segment of terrain, although it is surrounded on the south and east sides by cliffs. With the exception of the shoreline, most of the open space of the beach park is either paved or covered by grasses and other plants. Refer to Figure III-91. Drainage improvements are lacking on paved surfaces and in the vicinity of the shower, while some of the groundcover in the grassy recreational area was noted as showing signs of some degree of foot traffic erosion, exposing underlying soils. As a result, ponding and waterlogging of soils is expected immediately following heavy rains, which could temporarily diminish the beach park's recreational desirability or capacity.

**Ocean Water Quality Considerations**

Under the State of Hawaii Water Quality Standards Classification, marine waters (embayments, open coastal or ocean waters) are classified into two (2) categories, Class A and Class AA. The waters off of Hana Bay are classified as Class AA marine waters.

It is noted that two (2) streams, Kawaipapa Stream and Holoinawahwae Stream, have discharge points in Hana Bay north of the beach park. See Figure III-92. A potential for temporary water quality degradation is thus anticipated during heavy rains, although prevailing currents and tidal flows likely restore water quality relatively quickly.

**Park Use Considerations**

Feedback received during the completion of the assessment for Hana Bay Beach Park indicates the frequent use of park facilities by
Figure III-92  Commercial Ocean Recreational Activity (CORA) Study
Hana Bay Beach Park
Site-Specific Considerations

Prepared for: County of Maui, Dept. of Parks and Recreation
MUNEKIYO & HIRAGA, INC.
tour buses visiting the Hana Town area. Tour bus visitors were observed during site visits purchasing food at the snack shop in Helene Hall, and using other park facilities, such as picnic tables to each lunch. While the presence of this user group is of a short duration, it is noted that the associated engagement of park resources may limit the beach park’s ability to support other users during such time.

• Archaeological/Cultural Considerations

As noted in the regional overview, the Hana Community Plan region as a whole is rich in cultural and historical resources. The land, noted to be especially fertile, represented a considerable strategic and politically important location due to its proximity to the island of Hawaii and its many resident ali‘i.

No significant surface or subsurface archaeological resources were observed in the immediate vicinity of Hana Bay Beach Park. However, it is noted that Kau‘iki Head, which lies immediately west of the beach park, was reportedly a favored residence of chiefs because of its defendable topography, plentiful awa root and productive fishponds located in the waters immediately below the promontory. Kau‘iki Head is also known as the dwelling place of Piilani, who built the great road around Maui, as well as the birthplace of Kamehameha I’s favorite wife, Kaahumanu (Munekiyo & Hiraga, Inc., 2004).

As mentioned in the facility assessment section, Hana Bay Beach Park is also a favored launching site for traditional outrigger canoes, and a canoe regatta celebrating the official beginning of the canoe season is held at the beach park each year in April.
Public Safety Considerations

During site visits, several features within and near Hana Bay Beach Park were noted as significant safety considerations.

The wharf located to the east of Hana Bay Beach Park is currently in a poor state of repair, and although posted signs indicate that it is off-limits to the general public, evidence in the form of holes in fence structures suggest that access to prohibited wharf areas is common. Refer to Figure III-92. Certain areas of the wharf are reportedly frequented by swimmers who use the structure as a diving location. While it is recognized that the wharf is State property falling within the jurisdiction of the Department of Land and Natural Resources (DLNR), the public safety concern posed by its proximity to the beach park is deemed an important park management consideration. Refer to Figure III-92.

Meanwhile, at the north end of the beach park, a series of old pillars begins at the low water mark and continues out into the water for approximately 100 feet. Refer to Figure III-92. Much like the wharf, the pillars are reportedly utilized by beach park users as a diving platform. It is noted that all of the pillars are suffering the effects of age. A number have completely toppled over while others are crumbling away, exposing sharp and rusted metal rods. Refer to Figure III-92. The presence of these aging pillars and their use by visitors is noted as a safety issue at Hana Bay Beach Park.

The steep slope that forms the northern side of Kau'iki Head was also deemed a safety consideration during analysis of Hana Bay Beach Park. Refer to Figure III-92. Although the frequency of rockslides is not known, evidence of past falling rock events across the slopes between Helene Hall and Kau'iiki Head
was observed during site visits to Hana Bay Beach Park. The incline of the land was noted to be particularly steep in those locations where remnants of fallen rock were observed. The potential for future rockslides is, therefore, highlighted as a park management issue worthy of further consideration.

C. SUMMARY OF SITE-SPECIFIC CONCERNS

The following section contains individual assessment summaries for each of the beach parks included in the CORA study. Summaries, organized according to community plan region, have been presented to highlight the pertinent characteristics and management challenges associated with each park.

1. Kihei-Makena Community Plan Beach Parks
   a. Memorial Beach Park

Memorial (also known as Mai Poina Oe Iau) Beach Park occupies a long, thin strip of land on Maui’s south shore between the Kihei Civic Center to the north and the Maui Lu to the south. Due to its location near the major residential settlement of Kihei and main roads connecting residential and resort areas in South, Central and West Maui, the user demographic at the beach park includes tourists and residents both from Kihei and elsewhere on the island.

Ocean-based activities at Memorial Beach Park include fishing, canoeing, kayaking, snorkeling, and swimming, as well as windsurfing and kiteboarding during Kona winds. Land-based activities consist mainly of sunbathing, park games, walking and jogging.
Facilities and resources available to beach park users include a paved parking area, gravel and dirt parking surfaces along the shoulder of South Kihei Road, a small grassy recreational area, a covered pavilion, a comfort station, a portable toilet, one (1) shower, picnic tables, trash receptacles, a water tap, and a public telephone.

During the environmental analysis of Memorial Beach Park, it was noted that the usability of certain beach park facilities was limited by sand encroachment and tree overgrowth, while restroom facilities showed signs of deferred maintenance. On the other hand, beach park facility improvements are anticipated in connection with the neighboring Kai Makani multi-family residential development due to a County-mandated park assessment contribution from developers.

Several other considerations were highlighted in the environmental analysis of the Memorial Beach Park, the most significant of which are summarized below.

Coastal erosion was noted to be a serious park management issue at the park. In addition to natural factors such as wind and wave action, pedestrian traffic was observed to contribute substantially to the erosion of dune systems. Designated walkways and fencing associated with the dune restoration project appears to cover an insufficient length of the beach park and has had limited success in preventing visitors following the shortest and quickest route from the recreational area to the shoreline. Evidence of
coastal retreat is widespread, consisting of a receding vegetation line, dead and dying plants, and significant undercutting of dune structures.

Other notable park management concerns are represented by shallow reef structures near the shoreline, which indicate both an elevated coral sensitivity to user impacts and a potential for user injury. The proximity of South Kihei Road also presents a safety concern particularly to small children, insofar as the grassy recreational area is directly adjacent to and inadequately fenced off from the road. Furthermore, the limited distance separating the shoreline and South Kihei Road suggests additional hazards to kiteboarder safety. In particular, the existence of overhead powerlines along South Kihei Road were identified as posing a number of safety risks to kiteboarding enthusiasts using medium to long kite lines.

b. **Waipuilani Beach Park**

Waipuilani Beach Park is situated in north Kihei adjacent to the Maui Sunset Condominium and a mixture of single- and multi-family residential housing. Because of its location and a lack of signage from South Kihei Road, beach park users consist primarily of local residents and tourists staying at the Maui Sunset and other transient vacation rentals within walking distance of the park.

Popular ocean-based activities at Waipuilani Beach Park include seaweed gathering, fishing, swimming, snorkeling, surfing and kiteboarding, while land-based activities include
tennis, volleyball, walking, and pursuits associated with a croquet club.

Facilities at Waipuilani Beach Park include a small paved parking lot, one (1) comfort station, six (6) tennis courts, a volleyball net, a large grassy recreational area and trash receptacles. It is noted that the comfort station was observed to be in a poor state of repair and in need of some renovations.

Remains of ancient fishponds contained in nearshore waters off of Waipuilani Beach Park represent an important historic and cultural resource that might require additional consideration should visitor volumes at the park increase in the future.

An important aesthetic consideration is presented by the accumulation of large amounts of nonnative seaweed along the shoreline fronting Waipuilani Beach Park. The seaweed creates unpleasant odors and limits the beach park’s full recreational potential, while the mechanized digger currently used to remove the seaweed and piles of plowed seaweed awaiting removal creates significant negative visual and noise impacts.

Other park management issues highlighted in the assessment include both visitor- and vehicle-led erosion of dune systems and associated loss of vegetation, as well as the possible temporary deterioration of ocean water quality due to intermittent discharges of storm runoff from the two
gulches located in the park. It is noted that runoff dispersal at Waipuilani Beach Park is slowed by prevailing onshore wind conditions and shallow waters associated with the fishpond remnants.

c. **Kalama Beach Park**

Kalama Beach Park is located in the central Kihei area on Maui’s south shore between the Kihei Fire Station and Cove Park along South Kihei Road. Due to its central location in a densely settled area, the beach park is characterized by high visitor use and well-developed facilities.

Beach park users are predominantly Kihei residents and CORA participants, although some tourists also utilize park facilities. Primary ocean-based recreational activities consist of surfing, swimming and canoeing, while extensive land-based ocean recreational facilities support a wide range of land-based recreational activities, such as picnics, tennis, volleyball, skating, skateboarding, basketball, baseball and softball. Numerous signs inform beach park users that CORA operations are prohibited in the southern portion of Kalama Beach Park by County ordinance.

Facilities at Kalama Beach Park include four (4) paved parking lots, five (5) restrooms and three (3) shower facilities, small and large trash receptacles, two (2) recreational pavilions, a gazebo, a playground, large grassy recreational areas, BBQ grills, several water taps and fountains, and three (3) public phones, as well as various sports facilities related to the aforementioned activities.
Several park management considerations exist at Kalama Beach Park. Ocean access ramps that cross the rocky revetment at intervals are slippery and lack rails, presenting a public safety concern, while the lack of designated turning lanes near parking lot ingress and egress points presents traffic safety and efficiency issues in consideration of the heavy traffic along South Kihei Road. Drainage concerns exist in areas where visitor traffic has worn away groundcover, such as along the coastal revetment, and near taps that lack drainage improvements. Periodic deterioration of water quality and a temporary decrease in ocean recreational capability is also expected during high rain events due to the presence of a drainage channel that runs through the center of the beach park.

d. Keawakapu (I and II) Beach Park

Keawakapu (I and II) Beach Park is located on Maui's south shore between Kihei and Wailea adjacent to a relatively busy segment of South Kihei Road. Surrounding land uses include condominiums, single-family residences and the Mana Kai Resort, which forms the north boundary of the shoreline.

County-owned portions of the beach park comprise the two (2) sets of designated parking lots and access points, the first of which is located at the intersection of South Kihei Road and Kilohana Drive, while the second is situated at the southern terminus of South Kihei Road.

Due to its location between a densely settled residential
area and the Wailea Resort tourist hub, Keawakapu Beach Park is frequented by tourists, local residents, and CORA participants, as well as guests of neighboring condominiums and the Mana Kai Resort. Main activities occurring at the beach park include swimming, snorkeling, scuba diving, fishing, spearfishing, and small ocean craft activities.

Facilities available to beach park users consist of the designated access points and improved parking lots, as well as additional unimproved roadside parking, two (2) shower facilities, and one (1) portable toilet.

Several safety considerations exist in relation to these access points and parking lots. The stairway at the south access point is narrow and made slippery by the presence of a shower, creating a safety concern and considerably restricting the number of visitors who can access the beach at any given time. The locations of the north parking lot and access point require beach park users to use a designated pedestrian crosswalk in order to navigate South Kihei Road in a location of heavy and occasionally fast-moving traffic, creating another safety consideration particularly for families with small children.

Restroom facilities and the capacity of the south parking lot were also noted to be less than adequate for current park usage volumes, especially on weekends and holidays. While restroom capacity could be improved by adding a comfort station near the south access point, it is suggested that pressure on the south parking lot could be eased by
e. **Ulua/Mokapu Beach Park**

Ulua/Mokapu Beach Park is located on Maui’s south shore in Wailea between the Wailea Elua Village and Renaissance Wailea Beach Resort.

Because of its surroundings, Ulua/Mokapu Beach Park receives considerable use from tourists who access the park from adjoining shoreline lateral access paths. At the same time, the beach park is popular with both CORA operators and local residents who utilize parking facilities off Wailea Alanui Drive. Consequently, Ulua/Mokapu Beach Park experiences consistently high visitor volumes, particularly on weekends and holidays, and parking capacity is often inadequate.

Beach park users engage in a variety of activities including picnicking, swimming, snorkeling, scuba diving and bodysurfing.

Facilities available at Ulua/Mokapu Beach Park include two (2) interconnected designated parking areas, a comfort station and adjoining shower facility, several trash receptacles, and signs informing visitors of the potential for hazardous ocean conditions as well as boundaries between public and private walkways.

The beach park also possesses marine life resources linked
to the presence of rocky outcrops and fringing coral reefs near beach areas. The sensitive relationship between coral reef ecosystems and visitor use is thus highlighted as an important management issue for Ulua/Mokapu Beach Park.

Other secondary park management considerations include some visitor-led erosion on and near the grassy knoll makai of the shower and restroom facilities, and a marginal potential for temporary water quality degradation during high rain events due to the presence of two (2) grass-covered drainage channels located on the north and south sides of the beach park. The effect of storm run-off on coral reef ecosystems is, therefore, also acknowledge as an important management issue for Ulua/Mokapu Beach Park.

f. Palauea Beach Park

Palauea Beach Park occupies a relatively quiet location along the South Maui coastline just south of the Wailea Resort tourist hub. The beach park is undeveloped and no facilities currently exist, although limited parking is available along the unimproved shoulder of Makena-Keoneoio Road.

Because of its relatively secluded setting, Palauea Beach Park is mainly utilized by tourists staying in nearby accommodations and local residents for a variety of activities including swimming, scuba diving, snorkeling, kayaking, bodysurfing, and sunbathing. Visitor volumes are relatively low during the week, with slightly higher numbers of park users on weekends and holidays.
While the seclusion of the beach park and low concentration of users can be viewed as a major park asset, it may also be a factor that promotes car break-ins and vandalism in the area. Increasing development in the area, however, will likely diminish this seclusion, as well as its associated assets and liabilities, in the future.

It was observed that the lack of designated paths between the shoreline and Makena-Keoneolio Road has led to the proliferation of visitor-led footpaths and the gradual retreat of vegetation, especially Kiawe trees, while the unimproved nature of most roadside parking has resulted in some erosion and undercutting of the roadway surface. These concerns are currently deemed marginal due to low visitor use, but could increase in significance if the park experiences future growth in visitor volumes, leading to greater risk of coastal erosion and drainage issues. It is noted that the increasing development of the area will likely result in increased visitor use of Palauea Beach Park.

g.  **Makena Landing Beach Park**

Makena Landing Beach Park is situated on Maui's south shore approximately two-and-a-half (2.5) miles south of Wailea and one (1) mile north of La Perouse. The beach park is bordered on the mauka and south sides by undeveloped lands and single-family residences to the north.

Although not far south of the Wailea Resort tourist hub, Makena Landing Beach Park is relatively isolated and remote from other resort areas. The main beach park user
groups consist, therefore, of local residents and commercial operators and their patrons. Land-based activities are largely limited to picnicking due to the absence of flat, open recreational spaces and facilities, but the beach park is a popular spot for a wide variety of ocean activities including swimming, fishing, kayaking, scuba diving and snorkeling. The latter activity is made especially popular by the area of fringing coral reef in nearshore water known as "Five Caves/Graves."

Facilities and resources at the beach park consist of a paved parking area, unimproved roadside parking, a historic landing area and ramp still used to launch recreational ocean craft, trash receptacles, restrooms, and shower facilities. It is noted, however, that the restroom and shower facilities show signs of heavy use and are in a poor state of repair.

Several especially noteworthy considerations were observed at Makena Landing Beach Park during the environmental analysis and are summarized below.

Evidence of erosion was observed mainly in two (2) locations of the beach park: along the landing ramp and in the area between the landing and the Honoiki-Makena Road intersection. Portions of the park and much of the land mauka of the road occupy a relatively barren slope that tends to produce large amounts of runoff during rain, which causes significant erosion. However, evidence suggests that visitor- and vehicle-led erosion also play significant roles...
in both locations.

Although no gulches are present near the beach park, the relatively steep grade and lack of internal surface and subsurface drainage improvements was noted to facilitate rapid overland sheet flows of runoff during heavy rains, which could lead to temporary degradation of ocean water quality and a reduction of the beach park’s recreational capacity. Increased development on adjoining, privately-owned properties could place additional pressure on parking facilities, which already appear inadequate during high use periods.

Also noted during site observations were safety issues related to traffic and broken glass. The pedestrian route from the paved parking area to the landing ramp and beach areas presently lacks a designated pedestrian walkway, which often leaves visitors little option but to walk with limited sight distance along the road. Broken glass in the parking lot and other park areas, presumably the effect of drinking after park hours, also poses a hazard to beach park users, but could probably be reduced by locking the existing parking lot gate at night.

h. Maluaka Beach Park

Maluaka Beach Park is situated south of the Wailea Resort tourist hub and adjacent to the Maui Prince Resort and neighboring single-family homes.

On account of its relatively isolated location and a lack of
signage identifying the beach park, the main user demographic consists of Maui Prince Resort guests, as well as local residents who frequent the beach park mainly on weekends and holidays. Beach park users engage primarily in the following activities: snorkeling, scuba diving, swimming, kayaking, picnicking, sunbathing, and beach walking.

On-site facilities at Maluaka Beach Park include three (3) designated parking areas, two (2) loading zones, two (2) access points, a designated main walkway connecting pedestrian traffic between the loading zones and designated shoreline access points, two (2) comfort stations, two (2) shower facilities, a small grassy recreational area, picnic tables, trash receptacles, and a water faucet. The shoreline fronting Maluaka Beach Park is characterized by a wide sandy beach, rocky outcrops, and scattered areas of fringing coral reefs.

Park management considerations at Maluaka Beach Park are not as sizeable as those present at some other beach parks featured in the present study, but two (2) are nonetheless significant. Visitor-led erosion is occurring due to apparent pedestrian and vehicle traffic at several locations along the dune system fronting the shoreline despite the presence of loading zones and designated walkways nearby. This erosion is dispersed over a relatively large dune structure, however, and consequently the dune system fronting the shoreline is considered healthy overall.
A second consideration is posed by the shower facility located in the north parking lot, which is prone to overflow because of heavy use by park visitors as well as patrons of Makena ("Big") Beach. Due to the lack of drainage improvements, excess water from the shower currently flows across Makena-Keoneoio Road towards a single residence neighboring the Keawalai Congregational Church.

2. West Maui Community Plan Beach Parks
   a. Papalaua Beach Park

   Papalaua Beach Park, located in a prominent location along the West Maui coastline, is a park popular with both local residents and tourists alike.

   Facilities at Papalaua Beach Park are extremely limited. Traffic ingress/egress conditions at Honoapiilani Highway are of potential concern, as well as vehicle-led and visitor-led erosional impacts.

   Erosion along the shoreline at the beach park is a major issue as it directly affects the condition of available park land. Presence of deadwood and dying vegetation along the beach, and lack of designated beach pedestrian access points are other areas of potential concern.

   b. Ukumehame Beach Park

   Ukumehame Beach Park is a popular park occupying a prominent location along the West Maui coastline. Popular with tourists, local residents and surf/scuba enthusiasts, the beach park infrastructure is utilized on a regular basis,
particularly on weekends.

Facilities at Ukumehame Beach Park are limited and traffic ingress/egress conditions at Honoapiilani Highway are of potential concern.

Coastal erosion at the beach park is a major issue as it directly affects the condition of available park lands and facilities, particularly picnic benches. The presence of deadwood and dying vegetation along the beach, and lack of a designated beach pedestrian access points are other areas of potential concern.

c. **Kamehameha Iki Beach Park**
Kamehameha Iki Beach Park is a popular park located off Front Street near the center of historic Lahaina Town. Popular with tourists, local residents, surf enthusiasts and traditional Hawaiian canoe interest groups, the beach park is utilized on a regular basis throughout weekdays and on weekends. As such, potential for conflicts between these user groups is considered high, especially in light of the recent increase in both commercial and non-commercial visitor volumes at the park.

Facilities at Kamehameha Iki Beach Park are limited and it is evident that certain improvements will be required should there be a significant increase in the number of commercial and non-commercial park users in the future.

Loss of dune structure and visitor led erosion along the
shoreline fronting the park represent the main environmental management considerations at the beach park.

d. **Wahikuli Wayside Beach Park**

Wahikuli Wayside Beach Park is a popular park located on Honoapiilani Highway between historic Lahaina Town and the Kaanapali Resort. Popular with tourists, local residents and scuba enthusiasts, the beach park infrastructure is utilized on a regular basis throughout weekdays and on weekends. Potential for conflicts among these park user groups occur during peak use periods when demand for facilities, especially parking, can be high.

Facilities at Wahikuli Wayside Beach Park are considered excellent in comparison to other beach parks included within the study. It is evident that certain improvements will be required should there be a significant increase in the number of commercial and non-commercial park users in the future.

Visitor-led/drainage erosion and stormflow water quality fluctuations represent the main environmental concerns at the beach park.

e. **Hanakao'o Beach Park**

Hanakao'o Beach Park, located south of and adjacent to the Kaanapali Resort, is considered an urban beach park for the purposes of this study. Popular with a variety of interest groups, such as canoe paddlers, scuba divers, tourists and residents, visitor use at the park tends to be high throughout the week and particularly on weekends and holidays. Due
to the usage characteristics at the park, County of Maui OSOs are present at the beach park between the hours of 8:00 a.m. and 4:30 p.m. to ensure public safety.

Swimming, scuba, canoe paddling and kayaking represent the main ocean recreational activities at Hanakao'o Beach Park. The park also provides ample opportunities for land-based recreational activities, such as sunbathing, walking, jogging, beach/park games, as well as picnics, BBQs and larger functions.

A variety of relatively well-maintained facilities exist within the park, such as designated parking areas, restrooms, showers, picnic pavilions and BBQ grills.

The proximity of archaeological/cultural resources, such as Hanakao'o Cemetery, the Hoana Grinding Stones, and a canoe hale, are recognized as important park management considerations. Internal drainage conditions and water quality fluctuations associated with runoff from the converged flow of the Hahakea/Wahikuli Gulches represent other environmental considerations at Hanakao'o Beach Park.

f. **D.T. Fleming Beach Park**

D.T. Fleming Beach is considered a rural beach park for the purposes of this study due to its relatively secluded location along the coastline past the major tourist areas of Lahaina, Kaanapali, Kahana/Napili and Kapalua. The Ritz-Carlton Kapalua Resort occupies the majority of the adjacent
shoreline land and is situated to the east of the beach park. The impact of the Ritz-Carlton Kapalua Resort on solitude experiences, however, is lessened by the fact that the main buildings have been set back a considerable distance from the beach due to the presence of ancient Hawaiian burial grounds along the shoreline.

The long stretch of sandy beach fronting both the park and The Ritz-Carlton Kapalua Resort is considered one of the healthiest beaches in West Maui due to the lack of shoreline armoring along the localized coastline. The beach is viewed as highly attractive to both tourists staying at the neighboring resort areas, as well as local residents utilizing parking and other facilities within D.T. Fleming Beach Park.

A variety of relatively well-maintained facilities exist within D.T. Fleming Beach Park including two (2) large paved parking areas, restroom, showers, trash receptacles, and a grassy recreational area containing scattered picnic tables and BBQ grills.

Overall usage at the park appears to be relatively high, particularly during weekends and holidays due to the large capacity of parking areas, the availability of picnic and BBQ facilities, and the presence of a good quality sandy beach. County of Maui OSOs are assigned at the beach park between the hours of 8:00 a.m. to 4:30 p.m. due to a high potential for dangerous ocean conditions along the shoreline.
Swimming, bodyboarding, surfing and kayaking represent the most popular ocean recreational activities at D.T. Fleming Beach Park. The park and beach areas also provide ample opportunities for land-based recreational activities, such as sunbathing, walking, jogging, beach/park games, as well as picnics, BBQs and larger functions such as parties.

One of the main concerns identified at D.T. Fleming Beach Park relates to impacts associated with the erosion of previously vegetated sloped areas between the park and the beach area, particularly those areas nearest the toilets. While contributions from natural mechanisms are acknowledged as influential, user-led degradation appears to aggravate the overall erosion process along these slopes. Flooding, water quality and erosion problems associated with the presence of drainage gulches were also highlighted as potential areas of concern during completion of the beach park assessment. Furthermore, OSO interview responses relating to public safety indicate that there is a high potential for user-ocean and user-user associated injuries due to the frequent generation of dangerous shorebreak wave conditions along the shoreline. The use of the waters fronting the beach park for swimming and equipment-intensive activities, such as bodyboarding, surfing and kayaking, suggests an increased probability of user-user related accidents during high wave conditions along the shoreline.
3. **Waikiki-Kahului Community Plan Beach Parks**

a. **Waihee Beach Park**

Waihee Beach Park is considered a rural beach park for the purposes of this study due to its relatively secluded location along an undeveloped section of Maui's north shore.

Facilities at the park are limited to a small-paved parking area, a restroom, a shower area and a grassy recreational area containing eight (8) picnic tables. No BBQ facilities exist at Waihee Beach Park.

Overall usage at the park during the week appears to be relatively low. The park, however, appears to attract larger volumes of park visitors during weekends and holidays. The vast majority of visitors to Waihee Beach Park tend to be local residents from the surrounding Waiehu and Waihee areas. County of Maui OSOs are currently not assigned to the beach park.

Spear fishing, fishing and surfing represents the most popular ocean recreational activities at Waihee Beach Park. Limited opportunities for land-based recreational activities exist along the narrow beach area mainly due to the presence of deadwood and the steep coastal cliff that is located between the beach and the grassy recreational area of the park. The grassy recreational area within the park appears to be mainly utilized for picnics and other small functions.

The main concerns identified at Waihee Beach Park relate
to impacts associated with the erosion of the dune system and cliff area between the park and the beach area. While contributions from natural mechanisms are acknowledged as influential, the gradual proliferation of undesignated beach access points and pathways created by visitor traffic appear to be accelerating the overall erosion process along the shoreline fronting the beach park.

Safety concerns associated with the presence of the fringing coral reef in shallow waters fronting the park were also highlighted as potential areas of concern during completion of the beach park assessment. The sensitivity of these coral reef ecosystems to visitor impacts, such as trampling, was also noted as one particular area requiring consideration. The presence of long-term campers was also identified as a noteworthy park management consideration at Waihee Beach Park.

b. **Kanaha Beach Park**

Kanaha Beach Park is a large County-owned facility situated on Maui's north shore approximately one-and-a-half (1.5) to two (2) miles east of Kahului Harbor between the Wailuku-Kahului Wastewater Reclamation Facility on the west side, the Kahului Airport and Kanaha Wildlife Refuge on the south side, and Kook's Beach near the Spreckelsville residential subdivision to the east.

Although located adjacent to the airport, the beach park receives little use from tourists due to the lack of signage and its position, which is well-removed from the main arterial
roads. Beach park users thus tend to be local residents and/or members of activity-focused groups.

Prevailing wind and ocean conditions make Kanaha Beach Park an excellent setting for kiteboarding and windsurfing, while other popular ocean activities include canoeing, kayaking, swimming, fishing, and spearfishing. Limited opportunities for surfing and scuba diving also exist under certain conditions, while park facilities and the large amount of open space make the beach park ideal for BBQs, picnics and walking.

Facilities within the "undeveloped" portion of the park, which stretches from the Kahului Wastewater Reclamation Facility to Ka'a Point, are limited to dirt roads, an unimproved parking area, and two (2) portable toilets. By contrast, the "developed" section of the park, which extends east from Ka'a Point to Kook's Beach, features three (3) designated parking lots, restrooms, showers, an OSO lookout station, an OSO office and equipment storage building, grassy recreational areas, a canoe hale, volleyball nets, BBQ facilities, water taps, trash receptacles, and public phones.

Within the environmental analysis of Kanaha Beach Park, several issues were highlighted as meriting special consideration. A high potential for water quality degradation during heavy rainfall was noted due to the presence of the Kalialinui Gulch drainageway discharge point near Ka'a Point, which drains lands situated on the slopes of Haleakala.
Park access and management issues were also noted during the site observations conducted at the beach park. Vehicle access to the undeveloped section of the beach park was observed to be impeded by ponding on unimproved road surfaces as well as undulations and a raised sidewalk across the road that created clearance issues for vehicles. In the developed portion, poor drainage around shower facilities, the canoe hale and OSO structures resulted in notable ponding, while trees were noted to be in need of more regular maintenance. Visitor-led erosion was also noted as having a significant impact on Kanaha Beach Park as a whole, which could be mitigated through the installation of moveable dune walkways and other basic facilities.

An important safety consideration highlighted in the environmental analysis was the potential hazard posed to kiteboarders utilizing long lines in the developed portions of the park by air traffic taking off from and landing at nearby Kahului Airport. It is noted, however, that kiteboarding activities predominantly occur in the ocean area fronting Kite Beach in the undeveloped portion of the beach park, which is located further away from the flight paths associated with Kahului Airport.

4. Hana Community Plan Beach Park
   a. Hana Bay Beach Park

Hana Bay Beach Park is located on the northern boundary of Hana Town approximately 350 yards north of the Hana Community Center. Due to its location on the shores of
East Maui far from the main tourist resort areas and major residential settlements, the beach park is primarily utilized by local Hana residents, although it also receives a steady stream of visitors traveling between various sightseeing destinations in East Maui along the Hana Highway.

Hana Bay Beach Park is deemed suitable for a variety of ocean activities including swimming, canoeing, and kayaking. Abundant marine life in waters off of nearby Kau’iki Head also provides appropriate conditions for snorkeling. Picnics and BBQs can be held in a paved pavilion or a grassy recreational area, both of which contain picnic tables, BBQ grills and trash receptacles. Other facilities available to beach park users include a small paved parking area, improved roadside parking, restroom and shower facilities, and a small storage/changing structure associated with the Hana Bay canoe club.

Several considerations were deemed significant during the environmental analysis of Hana Bay Beach Park. Most notably, the presence and use of an aging State-owned wharf and the crumbling concrete foundations of an old pier raised a number of ocean safety concerns for users of the beach park, which are further heightened by evidence of past rockslides across the steep slopes of Kau’iki Head.

A potential for ocean water quality degradation was also noted as a park management issue due to the proximity of the Holoinawawae and Kawaipapa gulch discharge points into Hana Bay, while a lack of drainage improvements near
shower areas and the temporary occupation of the beach park by tour bus visitors were highlighted as facility considerations.