

Integrated Resource Stewardship – Moku Management
Kaena Point ORMP
Draft Action Plan



Department of Land and Natural Resources
April 30, 2008

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I. Introduction

The Hawai‘i Ocean Resources Management Plan (ORMP), first published in 1991, was developed by a multi-agency, cabinet-level council which included private sector and non-governmental representatives. The ORMP set forth guiding principles and recommendations for the State of Hawai‘i to achieve comprehensive and integrated ocean and coastal resources management. In addition to overall recommendations for a new governance structure and a comprehensive management system, the Plan included a series of specific policies and implementing actions for ten resource sectors. The Legislature adopted the ORMP in 1994 and enacted legislation in 1995 to incorporate the plan into the Coastal Zone Management (CZM) Program. A review of the ORMP was conducted in 1998, revealing a need for a revised ORMP to address declining funds and personnel, changing priorities and new concerns relating to ocean resources management. Section 205A-62, Hawai‘i Revised Statutes, charges the Office of Planning (OP) with the review and periodic update of the ORMP, as well as coordination of overall implementation of the plan. On December 28, 2006, an updated ORMP was submitted to the 24th Regular Session of the Hawai‘i State Legislature in fulfillment of Senate Concurrent Resolution No. 137, H.D. 1, Regular Session of 2005, and Section 205A-62, HRS.

The Revised ORMP: A Three-Perspective Framework

The 2006 ORMP involved extensive outreach and input-gathering with participation of various stakeholder groups, government agencies, and the public over a period of eighteen months. The culmination was the December, 2006, updated ORMP. The updated Plan is an integrated, place-based approach to management of ocean resources, based on land–sea links, the role of human activities, and improved collaboration in governance. Each of the framing perspectives are accompanied by concrete management goals and strategic actions to address the goals in five-year implementation phases over the next 30 years.

Perspective 1: Connecting Land and Sea

Careful and appropriate use of the land is required to maintain the diverse array of ecological, social, cultural, and economic benefits we derive from the sea. Strategic actions recommended in the plan for Perspective 1 include reducing soil erosion and pollutant loads, developing beach management plans, and protecting priority coastal areas and communities from coastal hazards.

Perspective 2: Preserving Our Ocean Heritage

A vibrant and healthy ocean environment is the foundation for the quality of life valued in Hawai‘i and the well-being of its people, now and for generations to come. Management goals for this perspective emphasize the improvement of coastal water quality, strengthening of marine protected area management, enhancing the ability of communities to restore and operate Hawaiian fishponds, and promoting sustainable ocean-based tourism.

Perspective 3: Promoting Collaboration and Stewardship

Working together and sharing knowledge, experience, and resources will improve and sustain our efforts to care for the land and sea.

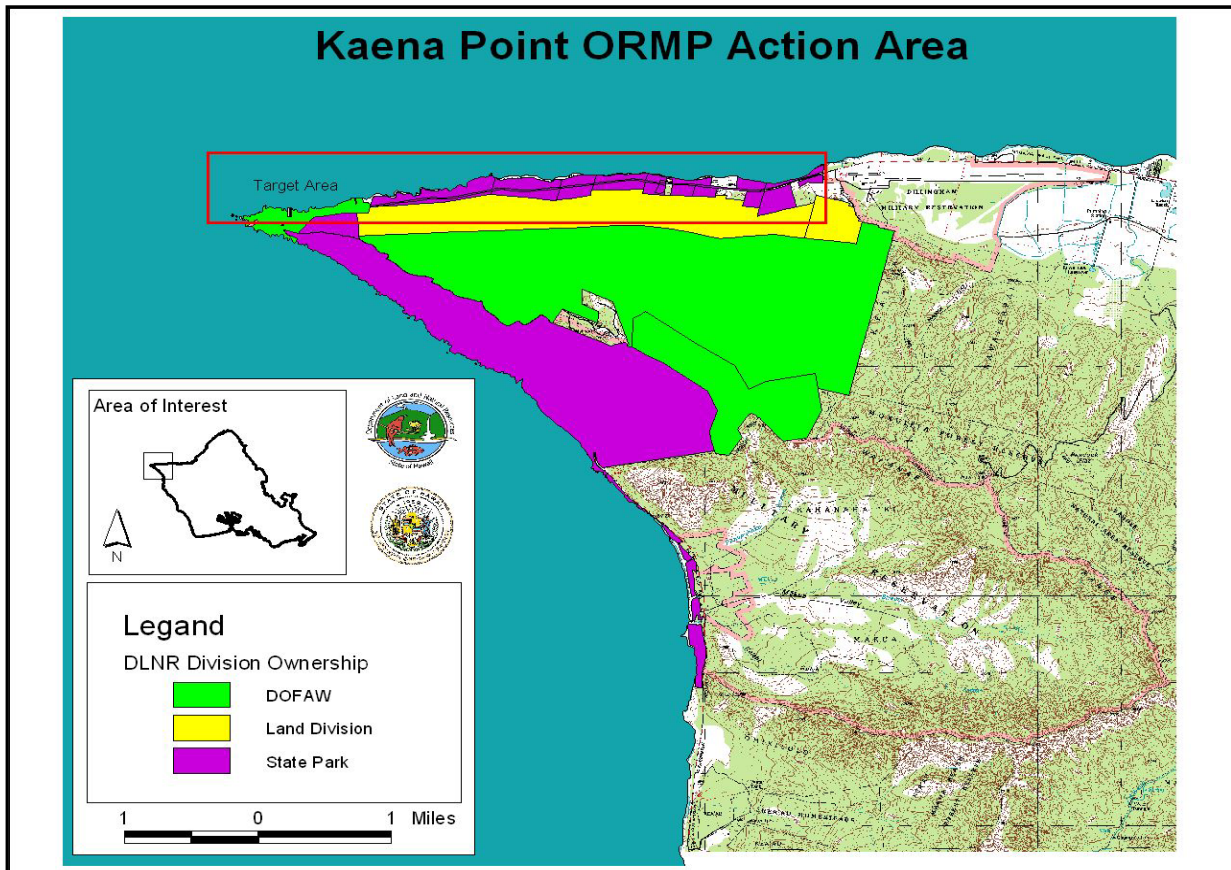
This perspective highlights the need for community participation in cultural and natural resources management and the exploration of place-based approaches, including traditional Hawaiian principles of land division such as *ahupua‘a*.

Given these varied perspectives, Laura Thielen, Chairperson of the Department of Land and Natural Resources (DLNR), has tasked the DLNR Divisions to collaboratively devise strategies to better manage four focus areas throughout the State. These areas include: Haena on Kauai, Kaena Point on Oahu, Ahihikinau on Maui, and Kealahou Bay on the island of Hawaii.

II. Scope of Plan

This management plan encompasses the western tip of the island of Oahu, including State Parks' lands starting at the end of Dillingham Air Field on the North Shore, across the Waianae Mountain Range to Kaneana Cave on the west side (including all of State Parks lands on the west side). DLNR lands encompassed in this plan include: State Parks (Kaena Point Reserve), DOFAW (Kaena Point Natural Area Reserve, Kuaokala Forest Reserve, and Kuaokala Game Management Area), and Land Division parcels (TMKs (1) 6-9-001:003 and (1) 6-9-001:004). Although this plan encompasses a large land area, a smaller subset of the area has been identified that extends from the end of Dillingham Airfield on the North Shore to Kaena Point and includes the Kaena Point State Park Reserve, Land Division TMKs (1) 6-9-001:003 and (1) 6-9-001:004, and the Kaena Point NAR. This smaller area is referred to as the "target area" (Map 1).

Map 1: Action and Target Areas



III. Applicable Hawaii Revised Statutes, Hawaii Administrative Rules and Executive Orders governing DLNR Divisions

All DLNR lands are covered by the HAR Chapter 13-7. The Division of Forestry and Wildlife follows HAR Chapter 13-208 and 209 (Natural Area Reserve System), HRS Chapter 13-183 (Forestry Reserve), HAR Chapter 13-121, 13-122, 13-123 (Game Management Area), HAR Chapter 13-124 (Threatened and Endangered Wildlife), and HAR 13-130-28 (Na Ala Hele). State Parks is regulated by HAR Chapter 13-146. Land Division follows HAR Chapter 13-221 and HRS 171-6. Historic Preservation follows HRS Chapter 6E and HAR Chapter 13-300, 13-275. Aquatic Resources follows HAR Chapter 13-124 and Conservation and Resource Enforcement follows HRS Chapter 199.

Executive Orders

The following Executive Orders (EO) pertain to the scope of this plan:

- EO 3162, dated January 12, 1983, setting aside 12.464 acres "for Natural Area Reserve ... and designated as Kaena Point Natural Area Reserve..."
- EO 3338, dated May 12, 1986, setting aside 457 acres "for State Park purposes..."
- EO 3574, dated November 20, 1992, setting aside 695.701 acres "for State Park purposes..."
- EO 4091, dated November 21, 2004, setting aside 0.24 acres together with an easement for 2,600 square feet "for addition to the Kaena Point Natural Area Reserve..."
- EO 4141, dated December 15, 2005, setting aside 341.597 acres "for State Park Reserve..."
- In addition, an EO is pending for addition to the Kaena Point Natural Area Reserve of the following parcels: TMKs (1) 6-9-002: 1, 3, 4, 5, 9 and 13.

IV. Past and Current Planning Efforts in the Action Area

Kaena Point has been the target of many planning efforts over the past 30 years. Plans initiated by the State include the 1978 Kaena Point State Park Conceptual Plan, circa 1990 Sustainability Hotspot, 1992 NARS management plan, and an interdepartmental and community group planning effort lead by DLNR Deputy Director Bob Masuda in 2006-2007. Currently, the largest scale management effort is the Kaena Point ecosystem restoration project at the NAR. In addition, the Army has included portions of this area in their Implementation Plan and a number of community groups are interested in participating in management of the area.

Many of the management goals identified in even the oldest plans remain relevant today. Common throughout all of these plans is balancing conservation of the natural and cultural resources while providing access and recreational opportunities for residents and visitors. It is the intent of this group to build upon past planning efforts and to implement many of the goals identified in these plans. Specifically, the working group will be building off the draft 2006-2007 Masuda budget for line items and funding estimates (Appendix 2).

V. Findings

It is apparent that although there is a strong interest in managing this area for the public good, the Department has had difficulty managing the area. Our working group found the following constraints have lead to the current situation in the action area:

- Lack of communication, collaboration, and resource sharing among Divisions,
- Lack of funding for staff and supplies,
- Lack of leadership in making this a priority management area, and
- Community opposition to management changes.

State Parks would like to implement major elements of the 1977 Conceptual Plan and Environmental Impact Statement but it has not had the level of funding and resources required. Achieving some of the recreational and environmental goals of the plan will require amending administrative rules (i.e., prohibit unlicensed vehicles on State Parks lands), Land Board action, (i.e., designate wilderness camping in park), and established procedures for special use permits particular to this park (i.e., allows oversight of recreation uses and use number when warranted). Community opposition to enforcement actions and suspicion of change have inhibited State Parks from moving forward with many actions proposed in the 1977 Plan. ORV use in State Parks parcels currently occurs with few constraints and only periodic enforcement of off-road vehicle regulations.

The number of park users and types of uses (fisherman, hikers, recreation vehicles, picnicking, sight-seeing, etc.) have increased significantly since 1977 and their cumulative impacts continue to degrade the park's natural resources (native plants, soil cover, shoreline geological features, and sand dunes) and have left its cultural resources vulnerable (cultural deposits, burial sites, fishing shrines, traditional cultural properties, salt-collecting features, and canoe landings). The recreational experience of park users will continue to diminish in quality as these uses intensify and become increasing incompatible.

DOCARE has experienced a conflict in management direction for enforcement of the off-road-vehicle issue. Officers have successfully enforced ORV use, however, management has directed officers to not enforce those rules. It is unclear what the reasoning behind this direction was, however, it creates an untenable situation. The working group would like clarification and buy in from leadership in enforcing ORV use in this area. In addition, DOCARE is severely limited by lack of staff resources.

DOFAW feels that there is a lack of appreciation and understanding of the natural resources that occur between the end of the paved road and the NAR boundary. DOFAW is interested in effective management of the natural resources in the State Park because the area acts as a gateway to the NAR. DOFAW can contribute information about the

distribution of native and invasive species, expertise in management techniques that could be used in the State Park, and resources to maintain the access road and to protect native elements in the State Park.

Land Division plays a largely supportive role in this area. The main focus of Land Divisions' interest is in the area under lease or permit, and hazard mitigation (rock fall, fire). The following major easements impact the designated roadway leading to Kaena Point from Mokuleia: LOD28400 is a 58 year term easement, from August 11, 1970 to August 10, 2028, originally issued to Hawaiian Telephone Company and American Telephone and Telegraph Company. The easement is 10 feet wide and runs generally along the mauka length of the designated roadway. Corporate name changes and sales affecting the easement holder have occurred over the years; a formal consent to assignment of the easement by the Department is pending as of this writing.

The Division of Aquatic Resources has developed shallow-water benthic habitat maps; however, Aquatic Resources (DAR) has a lack of information regarding the marine resources and the limiting factors in this area. Ocean conditions in this area make in-water assessments difficult and DAR has prioritized Oahu resource assessments within and near marine managed areas. DAR is interested in conducting surveys in the Kaena Point area to gain a better understanding of the existing resources and threats.

Historic Preservation Division (SHPD) has a regulatory and support function in addressing management of the focus area. SHPD must be given the opportunity to review all proposed actions that may affect historic properties in the area and give its written concurrence before these actions can proceed (§6E-8, HRS, and chapter 13-275, HAR). It is also the official repository of the State's inventory of historic properties and of archaeological and historical documents prepared to fulfill the requirements of the State's historic preservation law. As such, SHPD's records can provide valuable background information on the known and probable distribution of historic sites and culturally important places within or near the focus area. SHPD needs to be notified immediately if any burial sites or human remains are uncovered by natural forces or

during improvement or restoration projects and will determine the disposition and long-term treatment of any that are over 50 years old.

The working group found that unrestricted off-road-vehicle (ORV) use is currently the source of the greatest negative impact to the environment and other park users. Therefore, limiting and regulating such activity is the highest priority of this plan. The current state of the access road inhibits land managers and authorized vehicles from implementing management actions in this area. Repair of the road is the second highest priority of this plan. Other high priority actions include: implementing surveys and monitoring for current historic site/natural resource protection and future restoration; and developing community support, information base, and financial means to improve low impact recreational opportunities for the area.

As no single Division contains all of the skills or authorities to carry out all of the proposed goals of this plan, sustained coordination and collaboration between the Divisions is essential to the successful implementation of this multi-jurisdictional plan. Each Division will identify a contact person on staff to coordinate its interest in implementation of this plan. The Divisions will collaborate to seek funding for plan implementation.

VI. Integrated Management Goals

The mission and goals developed by the Kaena Point working group seek to fulfill the three goals of the ORMP: connecting land and sea, preserving our ocean heritage, and promoting collaboration and stewardship. The ORMP goals that this Action Plan most directly addresses are as follows:

Perspective 1:

- Improve coastal water quality by reducing land based sources of pollution;

Perspective 2:

- Improve the health of coral reef resources for sustainable traditional, subsistence, recreational, and commercial uses;

- Enhance public access and appropriate coastal-dependent uses of the shoreline;
- Promote appropriate and responsible ocean recreation and tourism that provide culturally informed and environmentally sustainable uses for visitors and residents; and

Perspective 3:

- Apply integrated and place-based approaches to the management of natural and cultural resources; and
- Improve the existing legal, regulatory, and intuitional framework for integrated natural resources management based on scientific data, traditional knowledge, and field experience.

The group also sought to keep the three overarching priorities of the Department (resource protection, recreation, and commercial use) as a guide to prioritize actions. The Divisions are in agreement that the following mission and goals require immediate attention.

Mission Statement:

To better utilize integrated natural and cultural resources management approaches to increase protection and restoration of coastal areas at Kaena Point while supporting sustainable, low impact recreational opportunities for the public that retain the natural feel of the area and honors its cultural significance.

Goals:

In an effort to develop a plan that has a high likelihood of successful implementation, the working group divided the goals into short-term (0-2 years), mid-term (0-5 years) and long-term (5-15 years) timeframes. Goals for each time period listed below are in order of priority.

Short-term (0-2 years):

Short-term goals focus on addressing immediate negative human impacts and basic management infrastructure needs of the area.

- 1) Initiate public outreach;
- 2) Delineate the primary and shoreline access roads;
- 3) Control off road vehicle use;
- 4) Increase DOCARE presence and enforcement (surge);
- 5) Hire a ranger assigned to the Kaena Point area;
- 6) Repair the primary access road;
- 7) Install informational signage on appropriate use of the area;
- 8) Initiate emergency erosion control measures; and
- 9) Identify land jurisdictional issues

Measures of success for short-term goals:

- 1) Number of outreach events and efforts;
- 2) Length of road delineated and barricaded;
- 3) Reduction in number of vehicles observed off road;
- 4) Number of citations issued, individuals counseled, number of hours of officer presence;
- 5) Ranger hired;
- 6) Length of road repaired;
- 7) Number of signs installed;
- 8) Area of ground mitigated for erosion; and
- 9) Number of land jurisdictional issues addressed.

Mid-term (0-5 years):

Mid-term goals will be initiated concurrently with short-term goals. These goals focus on basic natural and cultural resources management and recreational needs of the public.

- 1) Establish State Park recreational vehicle access and camping permits;
- 2) Conduct natural and cultural resources surveys (terrestrial and marine) and identify management units;

- 3) Designate primitive campsites and alternate trail;
- 4) Conduct threat abatement and restoration in high priority active management units and continue erosion control;
- 5) Install high priority interpretive materials; and
- 6) Establish a volunteer management program with partner organizations and community groups.

Measures of success for mid-term goals:

- 1) Permit system in place, permits being issued;
- 2) Number of surveys conducted and land area covered, and Management Units identified;
- 3) Number of campsites designated and length of trail established;
- 4) Area covered by threat abatement activities, number of Management Units actively managed;
- 5) Number of interpretive materials installed; and
- 6) Number of volunteer events and efforts.

Long-term (5-20 years)

Larger and/or more involved infrastructure improvements, resource management, public recreation, and commercial activity goals are included in this section. As these goals are long term in nature, measures of success were not identified in this plan.

- 1) Establish an access control point and baseyard between the western end of Dillingham Airfield and Camp Erdman;
- 2) Expand threat abatement and restoration to all management units;
- 3) Expand interpretive material installation;
- 4) Reroute the access road so as to not bisect Camp Erdman;
- 5) Consider commercial use and fee based activities in order to support management needs; and
- 6) Develop an educational center.

VII. Action Plan Matrix

The table below describes management actions, agency leads, and estimated costs associated with the above stated goals divided by timeline.

Goal	Priority/Timeline S = Short 0-2 yrs, M = Mid 0-5 yrs, L = Long 5-20 yrs	Agency Lead	Action	Estimated Cost
Initiate public outreach				
	1/S	SP/DOFAW	Expand on and maintain public outreach effort started with the predator fence project to devise and implement an effective outreach strategy.	\$10,000
	1/S	SP/DOFAW	Present management planning efforts at Neighborhood Board meetings	In house
	1/S	SP/DOFAW	Post informational signs at key locations (i.e., end of pavement and beginning of NAR)	\$5,000
	1/S	SP/DOFAW/ DOCARE	Issue standard talking points to on-the-ground staff	In house
	1/S	SP/DOFAW	Issue public information bulletins via our outreach staff.	\$1,000
Delineate the primary and shoreline access roads				
	2/S	SP/DOFAW/ LD	Delineate road corridors with visual markers	\$50,000
	2/S	SP/DOFAW/ LD	Initiate installation of road barriers with rocks/pilings along road corridors	\$300,000

Goal	Priority/Timeline S = Short 0-2 yrs, M = Mid 0-5 yrs, L = Long 5-20 yrs	Agency Lead	Action	Estimated Cost
	2/S	SP	Establish designated spur roads and pull outs with input from recreational users for authorized 4WD vehicle use (i.e., fishing and camping) with community input.	\$200,000
Control off road vehicle use				
	3/S	SP/DOCARE	Control vehicular access from the end of the paved road.	In house
Increase DOCARE presence and enforcement				
	4/S	DOCARE	Seek additional funding to support increase in staffing (5 additional for 11 officers total- \$60,000/ea)	\$300,000/yr
	4/S	DOCARE	Seek additional funding to support new staff positions.	\$200,000 start up; 10,000/yr
	4/S	DOCARE/LD /SP	Review and amend existing rules and laws so that they are more 'enforceable', i.e., include criminal sanctions (Senate Bill 1891 S.D. 1 makes violation of chapter 171, relating to public lands and rules adopted thereunder a petty misdemeanor.)	In house
	4/S	DOCARE/LD /SP	Examine existing laws and identify changes or new laws (i.e., SP/LD adopt Na Ala Hele Trail's HAR 13-130-28 to address unlicensed off road vehicles)..	In house
	4/S	SP/DOFAW	Consider adding road and trail to Na Ala Hele inventory	In house
	4/S	SP	Amend and/or harmonize existing laws related to the action area	In house
Hire a ranger assigned to the Kaena Point area				
	5/S	SP	Seek funding and fill two positions (ranger and caretaker)	\$114,000/yr
	5/S	SP	Support costs for ranger and caretaker positions.	\$43,800 start up \$20,000/yr

Goal	Priority/Timeline S = Short 0-2 yrs, M = Mid 0-5 yrs, L = Long 5-20 yrs	Agency Lead	Action	Estimated Cost
Repair the primary access road				
	6/S	SP	Design and environmental compliance for road and trail repair, construction and maintenance.	In house
	6/S	SP/DOFAW/ LD	Repair and maintain road (scrape and repair pot holes) <ul style="list-style-type: none"> • Remove lock from existing gate (In house Feb. 08) • Identify pot holes to be repaired (In house) • Reserve heavy equipment for 2 weeks at a time (In house) • Find gravel/hauling from Makakilo (possibly free) • Price quote on rock material from quarries • Reserve Forestry heavy equipment operator (In house) • In-house Engineering heavy equipment operator (In house) 	\$500,000
Install informational signage on appropriate use of the area				
	7/S	SP	Print and install signs	\$25,000
Initiate emergency erosion control measures				
	8/S	SP/DOCARE	Limit human activities that cause erosion	In house
	8/S	SP/DOFAW	Consider erosion control devices (mats, logs, etc.) and restore target areas with native vegetation	\$100,000
Identify land jurisdictional issues				
	9/S	SP/DOFAW/ LD	Consider revising the land use designations through the EO process (i.e., set aside currently unencumbered land to SP or DOFAW),	In house
	9/S	SP/DOFAW/ LD	Complete the executive order process for TMKs (1) 6-9-002: 1, 3, 4, 5, 9 and 13, and pursue purchase of privately owned land in-holdings	In house

Goal	Priority/Timeline S = Short 0-2 yrs, M = Mid 0-5 yrs, L = Long 5-20 yrs	Agency Lead	Action	Estimated Cost
	9/S	SP	Characterize ceded lands within project area	In house
	9/S	SP/DOFAW	Pursue land purchase of in-holdings (4 parcels) Randy/Brent???	\$200,000
	9/S	LD	Identify/describe all easements (HECO, and military water line) and explore options for assistance.	In house
Establish State Park recreational vehicle access and camping permits				
	1/M	SP	Develop and issue permit system	In house
Conduct natural and cultural resources surveys (terrestrial and marine) and identify management units				
	2/M	SP/DOFAW	Conduct biological inventory survey	In house
	2/M	SP/DOFAW	Identify areas for habitat protection.	In house
	2/M	SP/DOFAW	Plant common native plant species in protected areas.	\$100,000
	2/M	SP/DOFAW	Protect nesting areas as bird colony expands.	\$10,000
	2/M	SP/DOFAW	Monitor habitat to track environmental changes.	In house
	2/M	SP	Identify known historic and cultural sites and areas of high probability	In house
	2/M	SP/DOFAW	Conduct resource surveys	In house
	2/M	SP	Identify cultural resource locations by conducting literature research and interviews.	In house
	2/M	SP/DOFAW	Protect sites and sensitive areas by limiting access and delineating use areas.	\$10,000
	2/M	SP/DOFAW	Seek input from cultural practitioners on ways to manage cultural resources appropriately.	In house

Goal	Priority/Timeline S = Short 0-2 yrs, M = Mid 0-5 yrs, L = Long 5-20 yrs	Agency Lead	Action	Estimated Cost
Designate primitive campsites and alternate trail				
	3/M	SP	Establish a separate hiking trail from the parking lot at the end of the paved road to the NAR with input from park users.	\$300,000
	3/M	SP	Establish designated primitive campsites at appropriate locations with input from park users.	\$10,000
Conduct threat abatement and restoration in high priority active management units and continue erosion control				
	4/M	SP/DOFAW	Expand Wildlife Services contract to include the SP up to Manini Gulch.	\$5,000
	4/M	SP/DOFAW	Establish a new rock barrier near the end of the NAR	\$20,000
	4/M	SP/DOFAW	Implement fire suppression activities along road corridor (readiness planning and fire breaks).	In house
Install high priority interpretive materials				
	5/M	SP	Develop and install interpretive materials (i.e., guide book/pamphlet, signs) at scenic overlooks and points of interest along the hiking trail.	\$50,000
Establish a volunteer management program with partner organizations and community groups				
	6/M	SP/DOFAW/ LD/ DOCARE	Work with community groups to form and implement volunteer programs.	In house
Establish an access control point and baseyard between the western end of Dillingham Airfield and Camp Erdman				
	1/L	SP	Build access control point.	\$15,000

Goal	Priority/Timeline S = Short 0-2 yrs, M = Mid 0-5 yrs, L = Long 5-20 yrs	Agency Lead	Action	Estimated Cost
Expand threat abatement and restoration to all management units				
	2/L	SP/DOFAW/ LD/ DOCARE	Explore and promote options for establishing alternative 4WD recreation areas on Oahu.	In house
	2/L	SP/DOFAW	Conduct vertebrate control from the end of the paved road through the NAR.	\$40,000
	2/L	SP/DOFAW	Monitor for ecosystem modifying weeds.	In house
	2/L	SP/DOFAW	Control target weed species working from the NAR towards the pavement.	In house
	2/L	SP/DOFAW	Control incipient populations of target weed species throughout target area.	In house
Expand interpretive material installation				
Reroute the access road so as to not bisect Camp Erdman				
	4/L	SP	Survey and install new road corridor.	TBD
	4/L	SP	Establish a permitting system for vehicular access to the target area. Examine rules to accommodate this issue.	In house
Consider commercial use and fee based activities in order to support management needs				
	5/L	SP	Determine if commercial activities are appropriate for the area. If so, establish proactive guidelines for the appropriate commercial activities (guided hikes, food vendors, leased campsites, other permitted activities).	In house

Goal	Priority/Timeline S = Short 0-2 yrs, M = Mid 0-5 yrs, L = Long 5-20 yrs	Agency Lead	Action	Estimated Cost
Develop an educational center				
	6/L	SP/DOFAW/ LD/ DOCARE	Design, seek funding, and build visitor orientation/ interpretive center and ranger station.	\$1,000,000

Appendix 1

Staff Contact List

Name	Division	Phone	E-Mail
<i>Thomas Tanaka</i>	DOCARE	587-0077	Thomas.M.Tanaka@hawaii.gov
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Appendix 2

**DRAFT Ka'ena Coastal Reserve Estimated
Development Costs Breakdown**

Description	Quantity	Units	Unit Price	Amount
1. Design and Permit Processing				\$100,000
2. Land purchase of in-holding	5	parcels		\$200,000
3. Trail, Road and Drainage Improvements				
Trail, Unpaved Roads/Spur Roads and Parking Areas		LF		\$100,000
Drainage Improvements, including siltation basins, headwalls, culverts				100,000
Main park Gates	2	units		\$15,000
Barrier Installation (blue rock walls)	600	LF	\$60	\$36,000
4. Mini-Baseyard including grading, paving, fencing, structure with toilets, electricity, and water. Old quarry behind Dillingham is a possible site.				\$200,000
Caretakers residence				\$100,000
5. Restoration of native coastal vegetation				\$500,000
6. Safety Improvements				
Emergency Helipad (near baseyard) 10,000 sq. Ft graded, 900 sq. ft. Hardened				
Emergency Cell Telephones	3	units	\$10,000	\$30,000
Barriers at Railroad Bridge Abutments	10?	units	\$1,000	\$10,000
7. Signage & Interpretation				
Park Entrance Sign	3(1+2 backups)	signs	\$2,000	\$6,000
Information Kiosk	1	unit	\$15,000	\$15,000

**DRAFT Ka'ena Coastal Reserve Estimated
Development Costs Breakdown
(continued)**

Park Brochures (design and printing)	5000	brochure	\$2,500	\$2,500
Interpretive Signage	5	signs	\$1,000	\$5,000
ADA Equipment				\$10,000
8. Operating equipment				
Vehicles				
4 x 4 Half-Ton Lift Gate P/U	1	unit	\$25,000	\$25,000
One Ton Dump Truck	1	unit	\$30,000	\$30,000
Equipment				
Weedeaters	2	units	\$450	\$900
Chainsaws	2	unit	\$400	\$800
Misc. Hand Tools				\$1000
9. Comfort Station	1	unit		\$30,000
Clivis decomposing toilet.	2	units	\$10,000	\$20,000
TOTAL DEVELOPMENT AND START-UP COSTS				\$1,537,200

**DRAFT Ka'ena Coastal Reserve Estimated
Operating Costs Breakdown**

Item	Number	Monthly Costs	Annual Total
1. Personnel			
Reserve Ambassador	1	\$2,916	\$34,992
Reserve Caretaker II	1	\$2,518	\$30,222
Overtime		\$900	\$10,800
	Total	\$5,434	\$76,014
2. Equipment			
Weedeaters	2	\$200	\$2,400
Chainsaw	1	\$50	\$600
Misc. Hand Tools	total	\$100	\$1,200
	Total	\$350	\$4,200
3. Vehicles			
4 x 4 Half Ton Lift Gate P/U	1	\$200	\$2,400
One ton Dump Truck	1	\$200	\$2,400
4. ADA Equipment Maintenance	2	\$200	\$2,400
	Total	\$600	\$7,200
5. Garbage pickup		\$400	\$4,800
6. Utilities			
Electricity		\$500	\$6,000
Water		\$500	\$6,000
Sewage Treatment	pump	\$500	\$6,000
	Total	\$1500	\$18,000
7. Repair and maintenance		\$1,000	\$12,000
	TOTALS	\$10,184	\$122,214