



Construct Memorial to Commemorate Kalaupapa Patients

Environmental Assessment



Ben Pea (left) met David Kupele at the Old Baldwin Home in 1915 when they were teenagers. They became life-long friends. Five generations of David Kupele's family will be listed on the Kalaupapa Memorial. *Photo by Anwei Law.*

November 23, 2010

United States Department of the Interior • National Park Service • Kalaupapa National Historical Park

EXECUTIVE SUMMARY

On March 30, 2009, President Barack Obama signed Senate Bill 22, Section 7108, the Omnibus Public Land Management Act that contained legislation which authorized Ka 'Ohana O Kalaupapa to establish the Kalaupapa Memorial within the boundaries of Kalaupapa National Historical Park (Attachment A). The Memorial would list the names of the estimated 8,000 people who were taken from their families and sent to Kalaupapa due to government policies regarding leprosy, now also called Hansen's disease. Hawaii's isolation policy for people affected by leprosy lasted from 1866 to 1969.

The National Park Service (NPS) is working with Ka 'Ohana O Kalaupapa to establish the Kalaupapa Memorial through a General Agreement.

Ka 'Ohana O Kalaupapa ('Ohana) is a 501-c-3 nonprofit organization made up of Kalaupapa residents, family members and descendants of individuals sent to Kalaupapa, professionals involved in preserving the history of Kalaupapa, and longtime friends of the community. When the 'Ohana was established in August, 2003, the Kalaupapa community asked that the Memorial be a priority.

Less than 1,000 of the individuals who died at Kalaupapa still have a marked grave that can be identified. More than 7,000 people who were sent to Kalaupapa lie in unmarked graves and their names are no longer part of the landscape where they lived together and built a community under the most difficult of circumstances. The Memorial would serve as a tombstone for these thousands of people, more than 90 percent of whom were Native Hawaiians, to ensure that they are an integral part of the history that they helped to create. The Memorial would also provide family members with a fitting place to pay tribute to their ancestors and find pride and healing.

Kalaupapa National Historical Park was established in 1980, as a result of the initiative of members of the Kalaupapa community, to preserve the history and allow the current residents to live out their lives in their home. In the bill signed by President Jimmy Carter, Public Law 96-565, Congress outlined the "principal purposes" of Kalaupapa National Historical Park with the first being "to preserve and interpret the Kalaupapa settlement for the education and inspiration of present and future generations". The lives of the current residents and the compelling history of the thousands who died at Kalaupapa are the primary reason Kalaupapa National Historical Park was created.

The names of the estimated 8,000 individuals that would be listed on the Kalaupapa Memorial are being compiled by Ka 'Ohana O Kalaupapa in consultation with the Hawai'i State Archives, the Hawai'i State Department of Health, Kalaupapa residents, family members and Hawaiian language specialists to ensure that all relevant privacy laws are followed and spellings are as accurate as possible. Multiple historical sources are being used to cross-check information and ensure accuracy.

This Environmental Assessment has been prepared to satisfy the requirements of the National Environmental Policy Act (NEPA) of 1969 (Public Law 91-190, 42 U.S. C. 4321-4347, as amended), including the Council on Environmental Quality (CEQ)

regulations found at 40 CFR 1500 -1508 and other applicable laws, National Park Service Management Policies (2006) and management directives. This Environmental Assessment also contains information on compliance with Section 106 of the National Historic Preservation Act and Section 7 of the Endangered Species Act.

There are three alternatives proposed in this EA, including a no-action alternative. Both action alternatives are located within the site of the former Old Baldwin Boys Home which operated in the original settlement of Kalawao from 1894 to 1932 and has been mostly unused space ever since. Alternative 1 is the no-action alternative representing current management. Alternative 2 is located in the south/southwestern portion of the complex and Alternative 3 is located on the west side of the complex. A summary of other alternatives considered but not fully analyzed is also provided. The preferred alternative is Alternative 2.

The action alternatives (Alternatives 2 and 3) are based on the purpose and need for the project and conformance to the Senate Bill 22, Section 7108, Omnibus Public Land Management Act, signed into law by President Barack Obama on March 30, 2009.

A General Management Plan for Kalaupapa National Historical Park is currently underway. The Kalaupapa Memorial would be an “existing condition” within the General Management Plan. The General Management Plan will serve as a roadmap for future development and management of the park over the next 25 years.

If reviewers do not identify significant environmental impacts, this Environmental Assessment will be used to prepare a Finding of No Significant Impact (FONSI), which will be sent to the National Park Service Pacific West Regional Director for approval. Implementation of the selected action will then follow soon after.

Contents

I INTRODUCTION	8
II PURPOSE AND NEED	9
Project Area Location	10
Related Laws, Legislation, NPS Policy and Planning Documents	13
Authorities.....	13
Resource Protection Laws.....	14
Policies.....	15
Other National Park Service Management Policies.....	16
Agreements	17
Memorandum of Agreement between National Park Service and Ka `Ohana O Kalaupapa Implementing Section 7108 of Public Law 111-11 Omnibus Public Land Management Act of 2009 (in progress).	17
Plans.....	17
III IMPACT TOPICS.....	18
Impact Topics Analyzed in this Document.....	18
Natural Resources	18
Park Operations.....	20
Impact Topics Dismissed From Further Analysis	20
Prime and Unique Farmlands.....	20
Museum Objects	21
Wilderness.....	21
Socioeconomics	21
Environmental Justice.....	21
Wetlands	22
Air Quality	22
IV DESCRIPTION OF ALTERNATIVES	23
Alternatives Considered But Rejected.....	24
Alternatives Retained.....	25
Alternative 1: No Action (Continue Current Management)	25
Alternative 2: Construct Memorial At Old Baldwin Boys Home, Kalawao, South/Southwest Area (Preferred)	25
Alternative 3: Construct Memorial At Old Baldwin Boys Home, Kalawao, West Area.....	25
The Environmentally Preferred Alternative.....	26
Actions Common To Alternatives 2 And 3	27
V AFFECTED ENVIRONMENT	31
Natural Resources	31
Geology/Soils/ Geologic and Associated Hazards	31
Water Resources	31
Floodplain	31
Avifauna.....	34
Mammals.....	35
Reptiles and Amphibians	37
Insects and Invertebrates.....	37

Special Status Species.....	37
Cultural Resources	42
Historic Overview	42
National Historic Landmark and National Register of Historic Places Status	44
Pre-contact and Historic Archeological Resources.....	44
Archeological Sites In the Area of Potential Effect.....	45
Archeological Sites in the Vicinity of the Project Area.....	46
Cultural Landscapes, Buildings and Structures	47
Ethnographic Resources and Traditional Communities	52
Scenic Resources	57
Park Operations.....	58
Visitor Experience	58
Maintenance.....	58
Safety and Security	58
Methodology	59
Type of Impact.....	59
Intensity (except Special Status Species, Cultural and Ethnographic Resources)....	60
Special Status Species Intensity.....	60
Cultural and Ethnographic Resources Intensity.....	61
Duration of Impact.....	62
Area of Impact	62
Cumulative Impacts	63
Mitigation.....	66
Impairment Summary Statement	66
The localized nature of the project does not cause impairment.....	67
Environmental Consequences.....	67
Natural Resources	67
Cultural Resources	75
Scenic Values.....	81
Park Operations.....	83
Public Involvement	88
LIST OF PREPARERS.....	89
CONSULTATION AND COORDINATION	90
REFERENCES	92
APPENDIX A.....	99
APPENDIX B	101
APPENDIX C	104
APPENDIX D.....	106
APPENDIX E	109
APPENDIX F.....	116
APPENDIX G.....	120

List of Tables

Table 1. Alternative Comparison.

Table 2. Special Status Species (plants, birds, mammals, and invertebrates) thought to Occur within Kalaupapa National Historical Park.

Table 3. Descriptive terms defining impacts to cultural resources.

Table 4. Cumulative Actions and Potentially Affected Resources.

Table 5. Resource Impairment Assessment.

Table 6. Environmental Consequences Comparison

List of Figures

Figure 1. Kalaupapa National Historical Park location

Figure 2. Project area in the context of the local ahupua'a .

Figure 3. Potential Memorial locations examined during the public scoping process.

Figure 4. Proposed alternatives within the Baldwin Boys Home area.

Figure 5. Major watersheds of Kalaupapa NHP.

Figure 6. Terrestrial habitats of Kalaupapa NHP.

Figure 7. Project area.

Hawaiian Words Used in Text

ahupua'a – A major land division usually extending from the uplands to the sea, so called because the boundary was marked by a heap (ahu) of stones surmounted by an image of a pig (pua'a) or because a pig or some other tribute was laid on the altar as a tax to the chief.

ʻaina – The living earth.

hāʻukeuke – Edible variety of sea urchin.

heʻe -- Octopus

heiau – Hawaiian temple platform; used for many purposes (agricultural prosperity, fishing, surfing, *hula*, etc).

hīhīwai – Grainy snail (*Neritina graposa*), in both fresh and brackish water, eaten cooked or raw.

hōʻiʻo – A large native fern with subdivided fronds.

ʻiliʻili – Pebbles.

imu – Underground oven.

kamaʻaina – Native born Hawaiian; person familiar from childhood with any locality; in modern usage it refers to all long-time residents.

kanaka maoli – Full-blooded Hawaiian person.

kīkānia – Plant of tomato family bearing red/orange fruit used for making lei.

kōkua¹ – “Pulling with the back,” pitching in to help, helper, volunteering.

kuleana – Responsibility, implied reciprocity; plot of land from Mahele era

lāʻau lapaʻau – Medicine.

lānai – Porch, roofed construction with open sides near a house.

lau kī – Ti leaf

lei – Wreath, necklace of flowers.

limu – edible seaweeds.

lūʻau – Hawaiian feast named for the taro tops served at such occasions.

maile – A native vine with shiny fragrant leaves used for decorations and leis.

makai – Toward the sea; at the coast.

mauka – Towards the mountains.

mauka-makai – Refers to trails that run from the mountains to the sea.

ʻohana – Family, relative, kin group.

ʻoʻopu – General name for fishes included in the families Eleotriade, Gobiidae, Blennidae

ʻopihi – Several species of limpets (*Cellana spp.*).

pali – A cliff or precipice.

poi – Made from cooked taro corms pounded and thinned with water.

wana – edible Sea urchin.

¹ While kokua of historic times were unpaid, patients currently use the same term for salaried federal and state

employees. Most “kokua” today feel they are making a sacrifice to support the patient community - living apart from families while tolerating limited supplies & access to the outside world.

I INTRODUCTION

Ka ‘Ohana O Kalaupapa was authorized by Congress to establish a Memorial at a suitable location or locations approved by the Secretary of the Interior at Kalawao or Kalaupapa within Kalaupapa National Historical Park. The memorial would commemorate the lives of the approximately 8,000 people who were relocated by the government to Kalaupapa between 1866 and 1969.

This Environmental Assessment (EA) describes the impacts associated with the proposed construction of a Memorial. The authority to establish this Memorial is found in Senate Bill 22, Section 7108, Omnibus Public Land Management Act, signed into law by President Barack Obama on March 30, 2009 (Appendix A). With the No Action Alternative (Alternative 1), no Memorial would be constructed and Kalaupapa National Historical Park management practices and operations would continue as in the recent past. Both action alternatives are located within the historic Old Baldwin Boys Home complex in the settlement of Kalawao. Alternative 2 is located in the south/southwestern portion of the complex and Alternative 3 is located on the west side of the complex. A summary of other alternatives considered but not fully analyzed is also provided within this document.

This EA analyzes impacts of the project alternatives on the natural, human, and cultural environments. It outlines project alternatives, describes existing conditions in the project area, and analyzes the effects of each project alternative on the environment.

II PURPOSE AND NEED

The purpose of this Environmental Assessment is to identify, evaluate and document the potential effects (adverse and beneficial) of the proposed construction of the Kalaupapa Memorial.

An estimated 8,000 individuals were forcibly separated from their families and sent to the Kalaupapa peninsula between 1866 and 1968 because of the government's isolation policies regarding leprosy. Over the decades, many of these individuals succumbed to the disease, and died. Of these individuals, only 951 have marked gravesites. An additional 279 gravesites have been identified by the National Park Service, but are listed as "unknown." Consequently, the graves of more than 87% of those sent to Kalaupapa remain unidentified.

The Memorial would be located about 500 feet from a vast cemetery next to St. Philomena Church that, according to Joseph Dutton, contains at least 2,000 unmarked burials (Daws, 1973). Many of these individuals were among the early residents of Kalawao. Locating the Kalaupapa Memorial at Kalawao, in close proximity to this large concentration of unmarked graves, follows NPS guidelines by ensuring that the commemorative work is located in surroundings relevant to its subject.

Since these graves are unmarked, the area has not been held sacred over the years. The area was used as a cattle pen in the past and continues to be damaged by pigs and deer. With the addition of the Memorial, more attention and respect will be given to these unmarked burials and return the cemetery to a place of dignity.

For many years, members of the Kalaupapa community have discussed the need for a Memorial honoring everyone exiled to the settlement. At the same time, family members continue to search for information about their loved ones who were sent to Kalaupapa. Since discussions of a Memorial began at Kalaupapa, many residents have favored locating the Memorial within the grounds of the former Old Baldwin Home.

The Memorial will return all of these individuals to their rightful places in their family histories as well as the history of Kalaupapa and will provide a place of dignity where family members can find healing and closure.

The names of the patients who will be listed on the Kalaupapa Memorial are primarily being compiled from Kalaupapa admission registers in the public domain at the Hawaii State Archives for those admitted prior to 1931. These names are being cross-checked with other historical records, both in Hawaii and on the mainland, including correspondence, petitions, vital statistics, and family genealogy records. The names of people admitted since 1931 (8%) will be compiled through the assistance of family members, correspondence, petitions, newspaper articles, and other documents that are part of the public record. The engagement of family members is necessary to ensure compliance to the Health Insurance Portability and Accountability Act of 1996 (HIPAA) Privacy and Security Rules.

An interdisciplinary team comprised of National Park Service staff, including natural and cultural resource professionals, and supported by members of Ka 'Ohana O Kalaupapa, a non-profit organization, determined the purpose and need for the project. Ka 'Ohana O Kalaupapa is made up of residents, family members, descendents, longtime friends and professionals who have worked towards the preservation of Kalaupapa's history. The National Park Service resource professionals identified the potential beneficial and adverse effects of the proposed actions compared to existing conditions as documented herein.

The National Park Service and the 'Ohana have mutually agreed that most forms of human activity that takes place within the 10,000 acres of Kalaupapa National Historical Park has some degree of effect on resources and values, but that does not mean the impact is unacceptable or that the Memorial must be disallowed.

Time is of the essence for this project as there are not many Kalaupapa patient residents remaining. The small remaining population is elderly. It would be ideal to establish the Memorial so that the patient residents can see it become a reality.

Project Area Location

Kalaupapa National Historical Park is located midway along the north coast of the island of Moloka'i in the State of Hawai'i. The island is approximately in the center of the eight major islands in the Hawaiian Island chain. Moloka'i ranks fifth in size, contains about 259 square miles of land, and is roughly 38 miles long and six to ten miles wide (Figure1). Kalaupapa National Historical Park includes the relatively flat peninsula on the north shore of the island, three deeply carved valleys whose steep slopes rise from 1,600 to more than 3,000 feet to include the rim of the cliffs. The National Park boundaries extend one-quarter mile offshore and encompass the islands of Huelo and 'Okala.

Kalaupapa National Historical Park differs significantly from most other national parks in that nearly all of the 8,725 acres of land, 2,000 acres of water, and improvements within the authorized boundary may remain in non-Federal ownership to be managed by the National Park Service through cooperative agreements. Land and facilities within the National Historical Park boundaries are administered by the State of Hawai'i, Departments of Health, Land and Natural Resources, Transportation, and Hawaiian Home Lands; and small private holdings at the top of the cliffs. The National Park Service owns only 23 acres that includes two historic houses and four outbuildings that surround the Moloka'i Light Station.

Kalaupapa National Historical Park became a unit of the National Park System in 1980. The primary story being told at Kalaupapa National Historical Park is the forced relocation from 1866 until 1969 of people from Hawai'i who had leprosy (now officially called Hansen's disease in Hawaii) on this remote peninsula on the island of Moloka'i. The settlement began on the eastern or windward side of the peninsula in the area of Kalawao. The primary surviving structures here are two churches: the 1866 Siloama Church (Protestant) and the 1872 St. Philomena Church (Catholic). St. Philomena is

associated with Saint Damien who worked with the residents of the Settlement, contracted leprosy and died in 1889. Saint Damien was canonized on October 11, 2009.

By the 1890's, the population and facilities were shifting from Kalawao to the warmer Kalaupapa area on the southwestern, leeward shore of the peninsula; today it is still home for patients who have long been cured of the disease, but have chosen to remain in Kalaupapa because it is their home. The residences and support structures of the Kalaupapa settlement, housing for State and NPS employees and State and NPS offices and maintenance yards are all located in Kalaupapa.

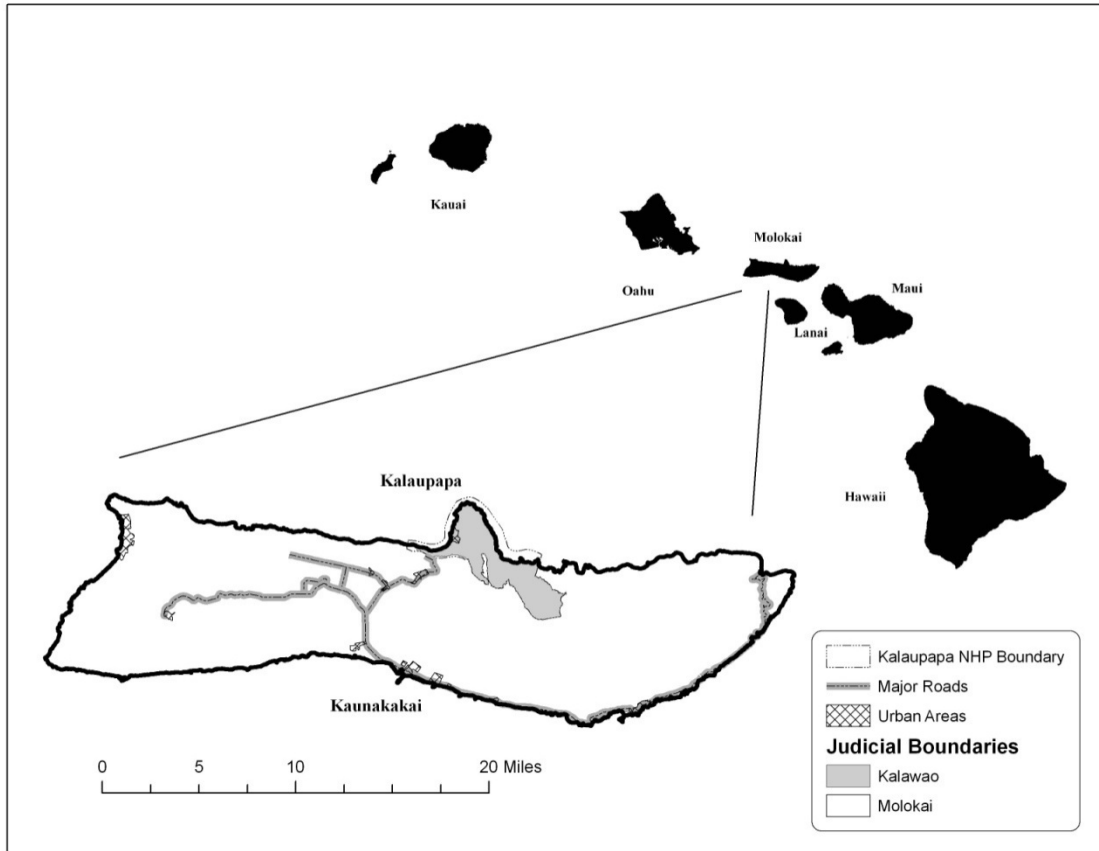


Figure 1. Kalaupapa National Historical Park location

The park is situated within Kalawao County, which is governed by the Director of the State Department of Health. The director may adopt such rules and regulations as considered necessary to manage the community.

There is no vehicle access from the park to the rest of Molokaʻi, referred to locally as “Topside”. Pedestrian and equestrian access is via a steep, multi-switchback trail that starts on the top of the cliffs in Palaʻau State Park and enters the peninsula between the Kalaupapa Settlement and Black Sand beach to the west. A mule train descends six days a week bringing tourists. The park is also served several times a day, weather permitting, by twin-engine, flag-stop air taxis landing at the airstrip at the northwestern tip of the peninsula. A barge lands once a year in the lee of the trade winds at the Kalaupapa pier bringing building materials, machinery, freight and non-perishable food items.

The Kalaupapa Leprosy Settlement was designated a National Historic Landmark (NHL) in 1976; and the park is listed on the National Register. The boundary of the park and the NHL are virtually the same. The Molokaʻi lighthouse is also listed in the National Register as a separate historic property. Many other areas of the park have special designations reflecting unique resources found within the park boundaries. The NPS has designated eight Special Ecological Areas (SEAs) within the park that support rare species, many of which are listed as threatened or endangered under the Endangered Species Act. The 27,100-acre North Shore Cliffs National Natural Landmark established in 1972 and covers 27,100 acres from Kalaupapa to the eastern end of Molokaʻi at Cape Halawa. The portion of the park within the National Natural Landmark includes the Waihanau, Waiʻaleʻia and Waikolu Valleys and the sheer cliffs rising above them.

The peninsula is divided into ahupuaʻa -- an ancient Hawaiian land division still used in land descriptions today. As is typical of Hawaiian land ownership, the ahupuaʻa extend from mountain (mauka) to sea (makai) (Figure 2). With the exception of landmass of Nihoa, which is part of Maui County, the ahupuaʻa of the park comprise Kalawao County, a standalone county in the State under the direct management of the Director of the Hawaii State Department of Health. The proposed project is within the Kalawao ahupuaʻa. This ahupuaʻa is 1,982 acres in extent and encompasses the first formal ‘leprosy’ settlement area, east side of peninsula. Resources within the ahupuaʻa include remnant structures, roads, and spatial relationships related to the original Kalawao settlement, historic churches, cemeteries, archaeological resources, Coastal Spray Zone vegetation and rare species, and marine habitat.

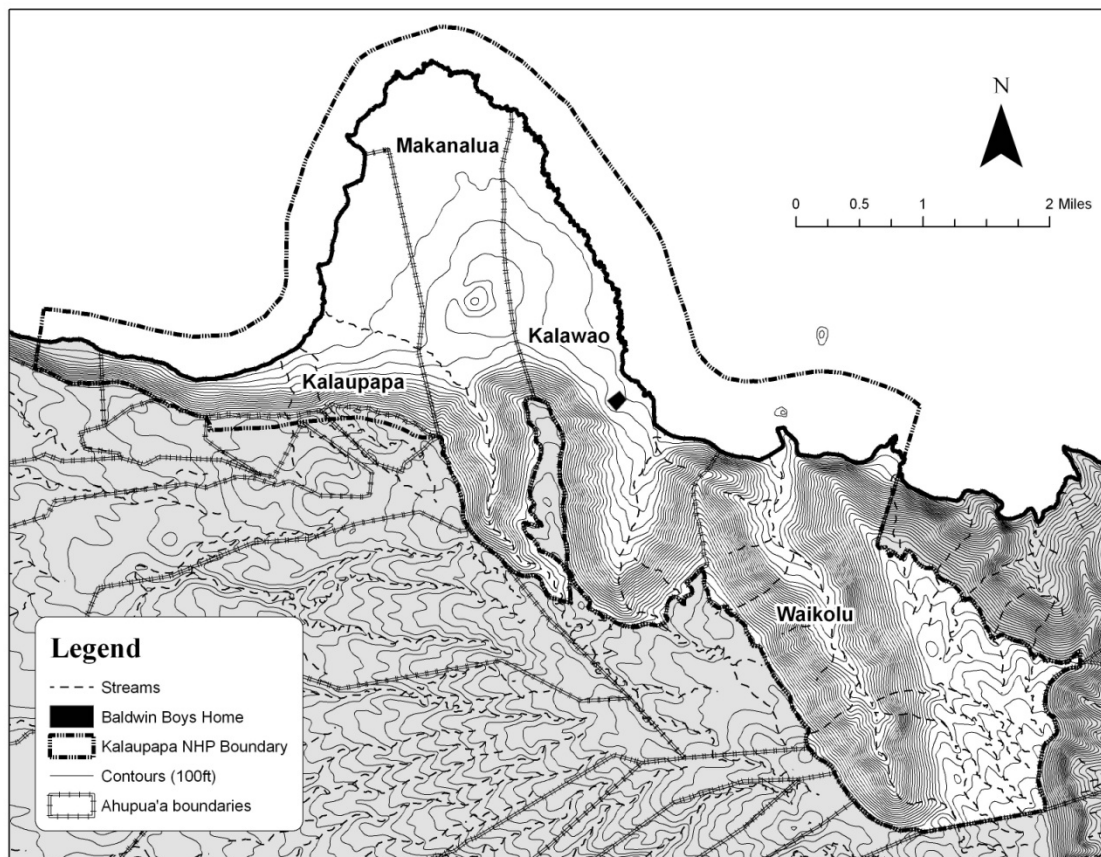


Figure 2. Project area in the context of the local ahupua'a.

Related Laws, Legislation, NPS Policy and Planning Documents

Authorities

1916 National Park Service Organic Act

The key provision of the legislation establishing the National Park Service, referred to as the 1916 Organic Act is: “The National Park Service shall promote and regulate the use of the Federal areas known as national parks, monuments, and reservations hereinafter specified . . . by such means and measures as conform to the fundamental purpose of the said parks, monuments, and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations (16 USC 1).”

1970 National Park Service General Authorities Act (as amended in 1978 – Redwood Amendment)

This act prohibits the National Park Service from allowing any activities that would cause degradation of the values and purposes for which the parks have been established (except as directly and specifically provided by Congress in the enabling legislation for the

parks). Therefore, all units are to be managed as national parks, based on their enabling legislation and without regard for their individual titles.

1980 Kalaupapa National Historical Park Enabling Legislation

The 1980 legislation that established the park directs the NPS to provide for the preservation of the unique nationally and internationally significant cultural, historic, educational, and scenic resources of the Kalaupapa peninsula (Public Law 96-565).

2009 Evaluating Climate change Impacts in Management Planning (Department of the Interior Secretarial Order 3289) This Order provides guidance to bureaus and offices within the Department of the Interior (DOI) on how to provide leadership by developing timely responses to emerging climate change issues.

Omnibus Public Land Management Act of 2009. Sec. 7108 Kalaupapa National Historical Park (full text in Appendix A)

This act authorizes the Ka `Ohana O Kalaupapa, a non-profit organization consisting of patient residents at Kalaupapa National Historical Park, and their family members and friends, to establish a Memorial at a suitable location or locations approved by the Secretary at Kalawao or Kalaupapa within the boundaries of Kalaupapa National Historical Park located on the island of Moloka`i, in the State of Hawaii, to honor and perpetuate the memory of those individuals who were forcibly relocated to Kalaupapa Peninsula from 1866 to 1969.

Resource Protection Laws

National Environmental Policy Act (NEPA) 42 USC 4341 *et seq.*)

NEPA requires the identification and documentation of the environmental consequences of federal actions. Regulations implementing NEPA are set for by the President's Council on Environmental Quality (40 CFR Parts 1500-1508). CEQ regulations establish the requirements and process for agencies to fulfill their obligations under NEPA.

Clean Water Act (33 USC 1241 *et seq.*)

Under this act, it is a national policy to restore and maintain the chemical, physical, and biological integrity of the nation's waters, to enhance the quality of water resources, and to prevent, and control, and abate water pollution. Section 401 of the Clean Water Act as well as NPS policy requires analysis of impacts on water quality. NPS Management Policies provide direction for the preservation, use, and quality of water in national parks.

Endangered Species Act (16 USC 1531 *et seq.*)

The Endangered Species Act (ESA) requires federal agencies, in consultation with the Secretary of the Interior, to use their authorities in the furtherance of the purposes of the act and to carry out programs for the conservation of listed, endangered, and threatened species (16 USC 1535 Section 7(a)(1)). The ESA also directs federal agencies, in consultation with the Secretary of the Interior, to ensure that any action authorized, funded, or carried out by an agency is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat (16 USC 1535 Section 7(a)(2)). Consultation with the

United States Fish and Wildlife Service (USFWS) is required if there is likely to be an effect.

National Historic Preservation Act (1966 as amended) (16 USC 470)

Sections 106 and 110 of the National Historic Preservation Act (NHPA) directs federal agencies to take into account the effect of any undertaking [a federally funded or assisted project] on historic properties. "Historic property" is any district, building, structure, site, or object that is eligible for listing in the National Register of Historic Places because the property is significant at the national, state, or local level in American history, architecture, archeology, engineering, or culture. This section also provides the Advisory Council on Historic Preservation and the State Historic Preservation Officer (SHPO) an opportunity to comment on the undertaking. The 1992 amendments to the act have further defined the roles of American Indian Tribes and the affected public in the Section 106 process.

Policies

National Park Service Management Policies (2006)

Management Policies governs the way park managers make decisions on a wide range of issues that come before them. National Park Service Management Policy 9.6 -- Commemorative Works and Plaques is relevant to this project and repeated below.

Commemorative Works and Plaques (9.6)

General (9.6.1). For the purpose of this section, the term “commemorative work” means any statue, monument, sculpture, Memorial, plaque, or other structure or landscape feature, including a garden or Memorial grove, designed to perpetuate in a permanent manner the memory of a person, group, event, or other significant element of history... the Commemorative Works Act prohibits the establishment of commemorative works unless specifically authorized by an act of Congress. Outside of the District of Columbia and its environs, commemorative works will not be established unless authorized by Congress or approved by the Director (36 CFR 2.62). The consultation process required by section 106 of the National Historic Preservation Act must be completed before the Director will make a decision to approve a commemorative work.

To be permanently commemorated in a national park is a high honor, affording a degree of recognition that implies national importance. At the same time, the excessive or inappropriate use of commemorative works—especially commemorative naming—diminishes its value as a tool for recognizing people or events that are truly noteworthy. This situation can also divert attention from the important resources and values that park visitors need to learn about. Therefore, the National Park Service will discourage and curtail the use and proliferation of commemorative works except when

Congress has specifically authorized their placement; or there is compelling justification for the recognition, and the commemorative work is the best way to

express the association between the park and the person, group, event, or other subject being commemorated.

In general, compelling justification for a commemorative work will not be considered unless the association between the park and the person, group, or event is of exceptional importance; and in cases where a person or event is proposed for commemoration, at least five years have elapsed since the death of the person (or the last member of a group), or at least 25 years have elapsed since the event.

Interpretive Works That Commemorate (9.6.2). The primary function of some commemorative works—most often in the form of a plaque presented by an outside organization—is to describe, explain, or otherwise attest to the significance of a park’s resources. These devices are not always the most appropriate medium for their intended purpose, and their permanent installation may not be in the best long-term interests of the park. Therefore, permanent installations of this nature will not be allowed unless it can be clearly demonstrated that the work will substantially increase visitors’ appreciation of the significance of park resources or values, and do so more effectively than other interpretive media.

In those parks where there is legislative authorization to erect commemorative works, superintendents will prepare a plan to control their size, location, materials, and other factors necessary to protect the overall integrity of the park. The plan may include a requirement for an endowment to cover the costs of maintaining the commemorative work.

Approval of Commemorative Works (9.6.3). Before being approved, a determination must be made, based on consultation with qualified professionals that the proposed commemorative work will: be designed and sited to avoid disturbance of natural and cultural resources and values; be located in surroundings relevant to its subject; be constructed of materials suitable to and compatible with the local environment; meet NPS design and maintenance standards; not encroach on any other preexisting work or be esthetically intrusive; not interfere significantly with open space and existing public use; not divert attention from a park’s primary interpretive theme; and not be affixed to the historic fabric of a structure.

The Director may order the removal or modification of commemorative works that were installed without proper authorization, or that are inconsistent with the policies in this section. Temporary forms of in-park recognition, and permanent forms that will not be installed within park boundaries, do not require the Director’s approval.

Other National Park Service Management Policies

Specific National Park Service Management Policies relevant to this project include policies relating to General Park Facilities (9.1), Facility Planning and Design (9.1.1), Integration of Facilities into the Park Environment (9.1.1.2), Protection of Cultural

Values (9.1.1.3), and Revegetation and Landscaping (9.1.1.4). Full descriptions of the policies are available in Appendix B.

Agreements

Memorandum of Agreement between National Park Service and Ka `Ohana O Kalaupapa Implementing Section 7108 of Public Law 111-11 Omnibus Public Land Management Act of 2009 (in progress).

Plans

Cultural Landscape Inventory Kalaupapa and Kalawao Settlement, Kalaupapa National Historical Park (2005)

The Cultural Landscapes Inventory is a comprehensive inventory of historically significant landscapes within the Kalaupapa National Historical Park. The inventory identifies and documents the location, physical development, significance, National Register of Historic Places eligibility, condition, as well as other valuable information for park management.

Assessment of Natural Resources and Watershed Conditions for Kalaupapa National Historical Park

This report collates current natural resource conditions within the Kalaupapa National Historic Park including: 1) condition/ecological status of the terrestrial, freshwater, and marine resources at the park based on available surveys; 2) existing and emerging threats or stressors that act on those resources; and 3) important information gaps and recommended future studies that address additional information needs.

Kalaupapa NHP General Management Plan and EIS (in progress)

The National Park Service is undertaking a conservation planning and environmental impact analysis process for developing a General Management Plan (GMP) for Kalaupapa National Historical Park. The GMP is intended to set forth the basic management philosophy for this unit of the National Park System and provide the strategies for addressing issues and achieving identified management objectives. This proposed Memorial would be common-to-all alternatives developed during the GMP process.

III IMPACT TOPICS

Specific impact topics were developed to address potential natural, cultural, recreational, and park operations impacts that might result from the proposed alternatives as identified by the public, NPS, and other agencies, and to address federal laws, regulations and orders, and NPS policy. During public scoping, topics of interest included preservation of cultural resources, vegetation management and visitor experience. A brief rationale for the selection or non-selection of each impact topic is given below and addressed more fully.

Impact Topics Analyzed in this Document

Impacts of the alternatives on the following topics are presented in this Environmental Assessment:

Natural Resources

Geology/Soils/ Geologic and Associated Hazards

Management Policies (NPS 2006) require the NPS to prevent, to the extent possible the unnatural erosion, physical removal, or contamination of the soil or alteration of geological resources. In addition, geological hazards should be analyzed should they be present. Steep topography, landslides, and floods constitute major hazards of the Kalawao landscape.

Water Resources

The 1972 Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977, is a national policy to restore and maintain the chemical, physical, and biological integrity of the nation's waters, to enhance the quality of water resources, and to prevent, and control, and abate water pollution. NPS Management Policies provide direction for the preservation, use, and quality of water in national parks.

Floodplain Management

Executive Order 11988 requires an examination of impacts to floodplains and potential risk involved in placing facilities within floodplains. The site of the alternatives are not within a recognized floodplain, however the historic description of a flood prompts further analysis of this impact topic.

Vegetation

The National Environmental Policy Act (NEPA) calls for examination of the impacts on the components of affected ecosystems. NPS policy is to protect the natural abundance and diversity of park native species and communities, including avoiding, minimizing or mitigating potential impacts from proposed projects.

Wildlife and Fish

The National Environmental Policy Act (NEPA) calls for examination of the impacts on the components of affected ecosystems. NPS policy is to protect the natural abundance and diversity of park native species and communities, including avoiding, minimizing or mitigating potential impacts from proposed projects.

Special Status Species

The Endangered Species Act (ESA) requires an examination of impacts to all federally listed threatened or endangered species. NPS policy also requires an analysis of impacts to state-listed threatened or endangered species and federal candidate species. Under the ESA, the NPS is mandated to promote the conservation of all federal threatened and endangered species and their critical habitats within the park boundary. Management Policies include the additional stipulation to conserve and manage species proposed for listing.

Scenic Resources

Management Policies and the NPS Organic Act identify the need to protect the scenic values of parks.

Cultural Resources

NPS Management Policies categorizes cultural resources as archeological resources, cultural landscapes, structures/buildings, museum objects, and ethnographic resources.

National Historic Landmark

National Historic Landmarks (NHL) are nationally significant historic places designated by the Secretary of the Interior because they possess exceptional value or quality in illustrating or interpreting the heritage of the United States. Today, fewer than 2,500 historic places bear this national distinction. The National Historic Landmark boundary encompasses the entire park and the project area is within one of the contributing sites.

Pre-contact and Historic Archeological Resources

Conformance with the Archeological Resources Protection Act in protecting known or undiscovered archeological resources is necessary. Documented archeological sites are located within the proposed project area listed or eligible to be listed on the National Register of Historic Places.

Cultural Landscapes

The National Park Service defines a cultural landscape as, “a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values.” (NPS - 28, Cultural Resource Management Guideline). The project area is within a designated Cultural Landscape. Heritage plants are considered a component of the cultural landscape. Heritage plants includes trees, shrubs, and herbaceous plants established by historic and pre-contact inhabitants of the Old Baldwin Boys Home area.

Historic Buildings and Structures

The National Park Service defines buildings and structures as, “an enclosed structure with walls and a roof, consciously created to serve some residential, industrial, commercial, agricultural, or other human use,” and “a constructed work, usually immovable by nature or design, consciously created to serve some human activity. Examples are buildings of various kinds, monuments, dams, roads, railroad tracks, canals, millraces, bridges, tunnels, locomotives, nautical vessels, stockades, forts and associated earthworks, Indian mounds, ruins, fences, and outdoor sculpture. In the National Register program "structure" is limited to functional constructions other than buildings,” respectively (NPS- 28, Cultural Resource Management Guideline).

Ethnographic Resources

In addition to the current and past patient community affiliations and values associated with Kalaupapa, Native Hawaiians also have a long history of use on the peninsula. Analysis of impacts to known resources is important under the National Historic Preservation Act and other laws. The National Park Service defines ethnographic resources as any “site, structure, object, landscape, or natural resource feature assigned traditional legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it” (NPS-28, Cultural Resource Management Guideline).

Park Operations

Visitor Experience

Providing for visitor enjoyment is one of the fundamental missions of the NPS, according to the Organic Act of 1916 and Management Policies (NPS 2006). Dependent on the selected alternative, impacts to visitor use and/or interpretive programming may occur.

Maintenance

Impacts to maintenance and visitor services are often considered in project plans to disclose the degree to which proposed actions would change park management strategies and methods.

Safety/Security

Safety is critical to a positive visitor experience. Accurate directional and information signs, reasonable grades, and warning about natural hazards such as fallen trees and uneven surfaces, all increase visitor safety and can mean the difference between a pleasant visitor experience or one remembered negatively. Providing for the safety and security of visitors and resources alike is one of the fundamental missions of the NPS.

Impact Topics Dismissed From Further Analysis

The topics listed below either would not be affected or would be affected only negligibly by the alternatives evaluated in this process for selecting an alternative. Therefore, these topics have been dismissed from further analysis. Negligible effects are localized effects that would not be detectable over existing conditions.

Prime and Unique Farmlands

No prime or unique agricultural soils are believed to exist at Kalaupapa. Therefore, this topic was eliminated from further consideration.

National Wild and Scenic Rivers

The National Wild and Scenic Rivers Act requires analysis of impacts to designated, eligible or proposed National Wild and Scenic Rivers. There are no designated wild and scenic rivers at Kalaupapa. Therefore, this topic was dismissed from further analysis.

Museum Objects

Requirements for proper management of museum objects are defined in 36 CFR 79 and promulgated in the NPS Museum Handbook. Management Policies (NPS 2006) and other cultural resources laws identify the need to evaluate effects on National Park Service Collections as applicable. No museum objects will be used for this project. Therefore, this topic was dismissed from further analysis.

Indian Trust Resources

Secretarial Order 3175 requires that any anticipated impacts to Indian trust resources from a proposed project or action by Department of Interior agencies be explicitly addressed in environmental documents. The federal Indian trust responsibility is a legally enforceable fiduciary obligation on the part of the United States to protect tribal lands, assets, resources, and treaty rights, and it represents a duty to carry out the mandates of federal law with respect to American Indian and Alaska Native tribes. There are no Indian trust resources at Kalaupapa. The lands comprising the park are not held in trust by the Secretary of the Interior for the benefit of Indians due to their status as Indians. Therefore, Indian Trust Resources were dismissed as an impact topic.

Wilderness

The Wilderness Act of 1964 requires that impacts to Wilderness be assessed. There are no designated wilderness lands within Kalaupapa National Historical Park. Therefore, wilderness was dismissed as an impact topic.

Socioeconomics

Visitation to Kalaupapa NHP is restricted to 100 people a day and visitors to Kalawao require an escort. In addition, access to Kalaupapa is limited to airplane, walking, mule ride, or boat. Due to these strict limitations, this impact topic was dismissed.

Environmental Justice

Executive Order 12898, "General Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. The proposed action would not have disproportionate health or environmental effects on minorities or low-income

populations or communities as defined in the Council for Environmental Quality's Environmental Justice Guidance (CEQ 1997). Therefore, environmental justice was dismissed as an impact topic.

Wetlands

Executive Order 11990 requires that impacts to wetlands be addressed. Lack of wetland indicators (presence of wetland plants, water ponding, soil gleying/mottling) show wetlands are not present within the analysis area; therefore, affects on wetlands were dismissed as an impact topic.

Air Quality

The Clean Air Act states that park managers have an affirmative responsibility to protect park air quality related values (including visibility, plants, animals, soils, water quality, cultural resources and visitor health) from adverse air pollution impacts. Short- term impacts from construction activities would include emissions from vehicles and generation of fugitive dust. The alternatives considered would have only negligible impacts on air quality so this topic was dismissed from further analysis.

IV DESCRIPTION OF ALTERNATIVES

This section describes the alternatives considered, including the No Action Alternative. The alternatives described in this chapter include mitigation and monitoring activities proposed to minimize or avoid environmental impacts. This section also includes a description of alternatives considered early in the planning process but later eliminated from further study; reasons for their dismissal are provided.

The alternatives were developed from collaborative analysis based on the expertise of interdisciplinary planning team members within the National Park Service and Ka ‘Ohana O Kalaupapa during joint internal and external scoping with federal, state and local agencies, and other interested organizations and individuals.

The conditions for establishing the Memorial within Kalaupapa National Historical Park provided a framework for development of the alternatives. These include:

- Adherence to NPS Management Policies
- Consider the wishes of the patients, past and present, for the Memorial
- Development and use of design criteria for the Memorial developed jointly between Ka ‘Ohana and the NPS
- Retention of the contemplative spiritual character of the site
- Assuring accessibility
- Preservation of cultural resources
- Ensuring security
- Providing long-term maintenance

After the conditions were defined, nine potential sites (Figure 3) were proposed for the Memorial and site visits were undertaken by the NPS and Ka ‘Ohana O Kalaupapa planning team to determine if they were suitable locations. The following is a list of locations that were considered by the team (not listed in order of preference or importance).

- Bandstand Area, Kalaupapa
- Historic Building —Bay View Home, Kalaupapa
- Grotto at 2nd Baldwin Boys Home, Kalaupapa
- Bishop Home, Kalaupapa
- Papaloa – field across from cemetery, Kalaupapa
- Water Tank Area – Makanalua
- 1st Baldwin Boys Home, Kalawao
- Judd Park/Waikolu Overlook, Kalawao
- Pala‘au State Park – Overlook (This site was not physically visited by the team)

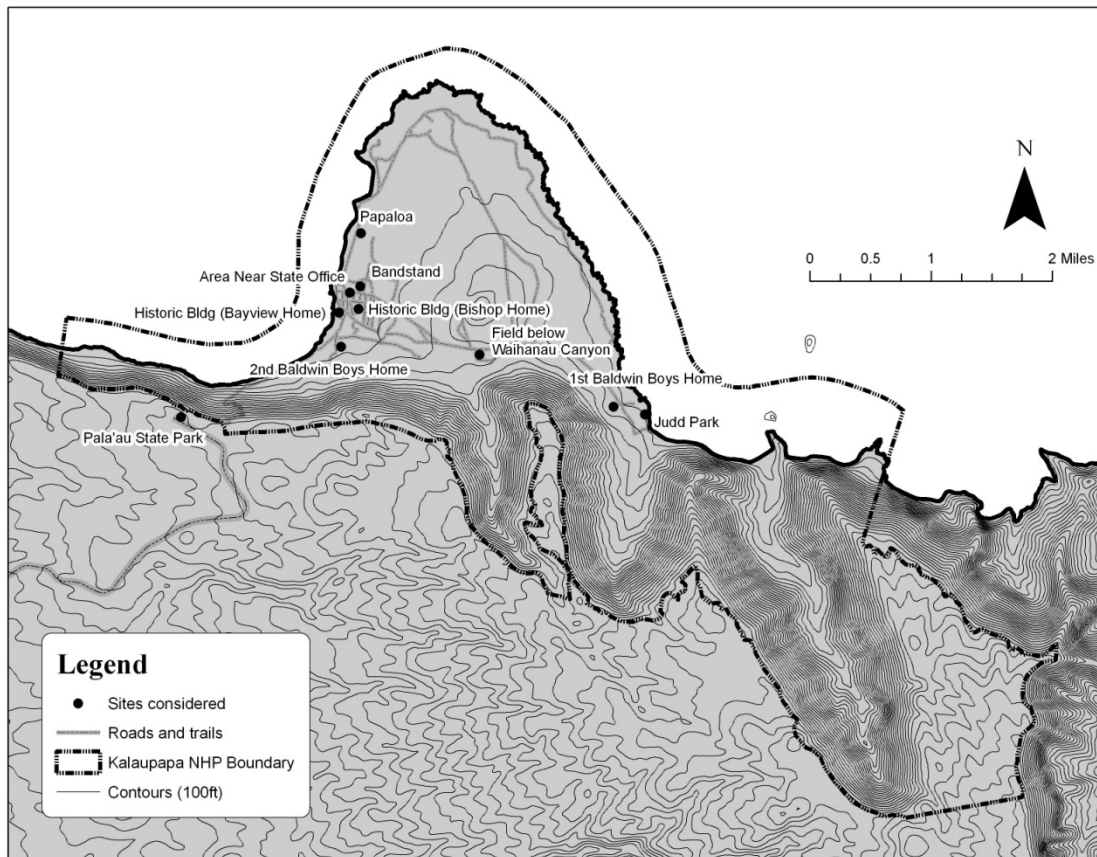


Figure 3. Potential Memorial locations examined during the public scoping process.

Site visits and discussion by the planning team resulted in many locations being rejected, and some being developed into the alternatives carried forward for further analysis.

Alternatives Considered But Rejected

Under the National Environmental Policy Act (NEPA) [40 CFR 1504.14 (a)] alternatives may be eliminated from detailed study if they:

- Are technically or economically infeasible;
- Cannot meet project objectives or resolve need for the project;
- Duplicate other less environmentally damaging alternatives;
- Conflict with an up-to-date valid plan, statement of purpose and significance, or other policy; and therefore, would require a major change in that plan or policy to implement; and
- Cause environmental impacts which are deemed too great.

Most of the alternatives initially considered for the Memorial location were rejected because they did not meet the criteria identified through internal and public scoping for this project. The Ka Ohana O Kalaupapa and the NPS, with guidance from patients and the public, rejected many of the original considered locations through consensus determination.

The bandstand area was not considered an appropriate place to site the Memorial because of its traditional use as a place of noisy celebration and the proximity of homes. Neither the Bay View Home nor the Bishop Home were considered appropriate sites because the remaining historic structures at these sites have integrity and convey their own history. Furthermore, use of the Bishop Home would detract from the story of Mother Marianne, a candidate for sainthood. The grotto at the second Baldwin Boys Home located outside of Kalaupapa is an existing shrine and the general area is considered “desecrated” by the adjacent garbage dump. Several reasons contribute to the rejection of Papaloa - the field between the settlement of Kalaupapa and the airport. The area is prone to flooding and high wind, and the busy road detracts from the natural quiet and serenity preferred for a Memorial. In addition, the use of the area for storage of construction/management equipment is considered to have desecrated the site. Furthermore, enhanced visitation to the area may disrupt the endangered monk seals on adjacent beaches. The empty field and water tank midway between the settlements of Kalaupapa and Kalawao were considered desecrated by past earth moving. While the Judd Park/Waikolu overlook and Federal Leprosy Investigation Station are within Kalawao and adjacent to the Old Baldwin Boys Home, the history of these areas is considered incongruent with the intent of the Memorial. The Pala`au State Park is rejected on the basis of being geographically removed and isolated from the settlement and its activities.

Alternatives Retained

Alternatives are summarized in Table 1.

Alternative 1: No Action (Continue Current Management)

Under this alternative, no Memorial would be constructed within Kalaupapa National Historical Park. Park management and operations would continue as currently.

Alternative 2: Construct Memorial At Old Baldwin Boys Home, Kalawao, South/Southwest Area (Preferred)

Under Alternative 2 the Memorial would be constructed within the south/southwestern area of the Old Baldwin Home (Figure 4). The Memorial would be located within the historic rock wall that delineates the former Old Baldwin Home.

Alternative 3: Construct Memorial At Old Baldwin Boys Home, Kalawao, West Area

Under Alternative 3 the Memorial would be constructed within the western area of the Old Baldwin Home site (Figure 4).

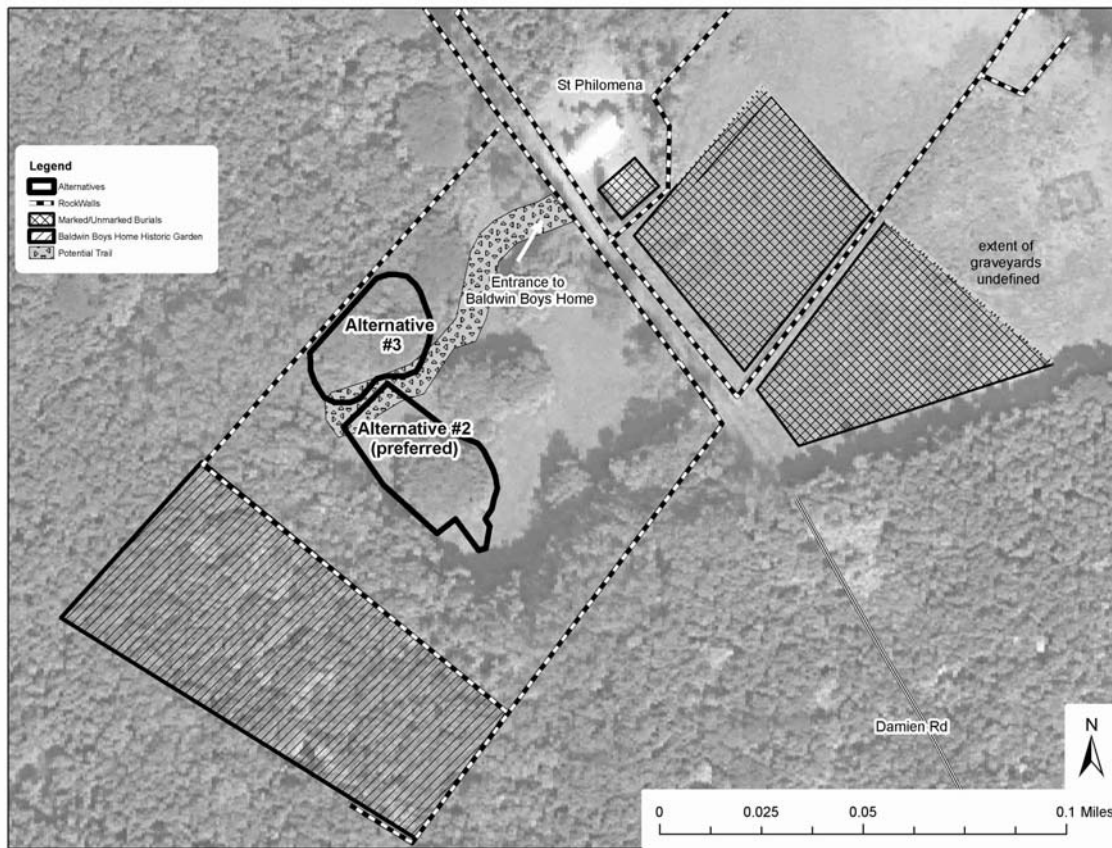


Figure 4. Proposed alternatives within the Old Baldwin Boys Home area.

The Environmentally Preferred Alternative

The Environmentally-Preferred Alternative: As described in the National Environmental Policy Act (NEPA) of 1969, the Environmentally-Preferred Alternative is the alternative that would:

1. Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
2. Ensure for all Americans, safe, healthful, productive and aesthetically and culturally pleasing surroundings;
3. Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
4. Preserve important historic, cultural and natural aspects of our natural heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice;
5. Achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities;
6. Enhance the quality of renewable resources and approach the maximum attainable recycling of deplete-able resources.

The environmentally preferred alternative is determined by applying these criteria as suggested in the National Environmental Policy Act of 1969

Although all alternatives provide some environmentally preferred benefits, the National Park Service has identified Alternative 2 as the Environmentally Preferred Alternative because it may achieve these benefits to the greatest degree.

Actions Common To Alternatives 2 And 3

The Memorial would be located within the rock wall that delineates the historic area. The footprint of the Memorial for both Alternatives 2 and 3 will not be larger than 25% of the total footprint of the area within the rock wall, and will be limited in height in order to minimize its impact on the historic scene and viewsheds. Any impacts from the Memorial may vary slightly due to the proposed locations. A pedestrian pathway would be constructed to access the Memorial from the existing Damien Road.

For all construction alternatives covered under this Environmental Assessment, the Memorial would be designed and constructed in accordance with design guidelines outlined in NPS Management Policies and the design criteria developed jointly by the Kalaupapa National Historical Park staff and Ka 'Ohana O Kalaupapa.

The following design standards are taken from NPS Management Policies 9.6.3. Approval of Commemorative Works:

Before being approved, a determination must be made, based on consultation with qualified professionals that the proposed commemorative work will: be designed and sited to avoid disturbance of natural and cultural resources and values; be located in surroundings relevant to its subject; be constructed of materials suitable to and compatible with the local environment; meet NPS design and maintenance standards; not encroach on any other preexisting work or be esthetically intrusive; not interfere significantly with open space and existing public use; not divert attention from a park's primary interpretive theme; and not be affixed to the historic fabric of a structure.

In addition to the NPS Management Policies, the project team developed design criteria and elements to be used in the design and construction of the Memorial. They are:

- The physical extent of the Memorial, as well as associated structures and landscape features such as paths, vegetation, and universal access elements should be compatible with physical remains, the natural setting, and spatial relationships defining the National Historic Landmark and cultural landscape of Kalaupapa.
- The design of the Memorial must comply with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*, and the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*.
- Additional research, site investigations and resource studies, such as archeological surveys, may lead to the development of additional criteria to mitigate potential impacts to the National Historic Landmark.

Education/interpretation Component

Consideration will be given to incorporating appropriate interpretive and educational components to the Memorial to tell the story of the Old Baldwin Boys Home. In conjunction with the Memorial, Ka 'Ohana O Kalaupapa will provide a resource document to help families/visitors locate names on the Memorial.

Pedestrian Access Pathway

The pedestrian pathway will be constructed to meet universal accessibility standards and will be designed and built to limit ground disturbance or resource disturbance. See example trail design guidelines in Appendix C.

Accessibility

As required by the Architectural Barriers Act of 1968 (P.L. 90-480), the Rehabilitation Act of 1973 (P.L. 93-112), the 1984 Uniform Federal Accessibility Standards (UFAS) (49 CFR 31528), and NPS Director's Order #42: Accessibility for Visitors with Disabilities in National Park Service Programs and Services, the Memorial will meet all standards for accessibility to persons with disabilities as outlined in the New ADA-ABA Accessibility Guidelines, effective May, 2006.

Consistency with NPS Construction Standards

Project design and construction will follow NPS design standards and guidelines as outlined in the National Park Service Management Policies section 9.1. (Appendix B).

Safety

During the construction of the Memorial, all contractors will comply with NPS Director's Order #50B: Occupational Safety and Health Program, Section 7.0, Contractor Safety, effective September 2008.

Table 1. Alternative Comparison

Action	Alternative 1 (no action) – continue current management	Alternative 2 – south/southwest area (preferred)	Alternative 3 – west area
Construct Memorial	No construction	Memorial would be constructed in the south/southwest area of the Old Baldwin Boys Home. Consistent with NPS construction standards. Potential flooding is limited because of the location in relationship to the current water flow.	Memorial would be constructed in the west area of the Old Baldwin Boys Home. Consistent with NPS construction standards. Potential flooding is possible because this location is in the current flow of water.
Memorial size	NA	The Memorial foot print will not take up more than 25% of the area identified as the alternative location.	The Memorial foot print will not take up more than 25% of the area identified as the alternative location.
Memorial design	NA	NPS Management Policies 9.6.3. The physical extent of the Memorial, as well as associated structures and landscape features such as paths, vegetation, and universal access elements should be compatible with physical remains, the natural setting, and spatial relationships defining the National Historic Landmark and cultural landscape of Kalaupapa. The design of the Memorial must comply with the <i>Secretary of the Interior's Standards for the Treatment of Historic Properties</i> , and the <i>Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes</i> .	NPS Management Policies 9.6.3. The physical extent of the Memorial, as well as associated structures and landscape features such as paths, vegetation, and universal access elements should be compatible with physical remains, the natural setting, and spatial relationships defining the National Historic Landmark and cultural landscape of Kalaupapa. The design of the Memorial must comply with the <i>Secretary of the Interior's Standards for the Treatment of Historic Properties</i> , and the <i>Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes</i> .
Access Pathway to Memorial	NA	Universally accessible pedestrian pathway to access the Memorial will be constructed. Designed for limited ground and resources disturbance.	Universally accessible pedestrian pathway to access the Memorial will be constructed. Designed for limited ground and resources disturbance.
Vegetation management	Vegetation management will continue on an intermittent basis as funding allows.	A vegetation maintenance plan will be developed for the Memorial.	A vegetation maintenance plan will be developed for the Memorial.
Education/interpretation	NA	Consideration will be given to incorporating appropriate interpretive and educational components to the Memorial to tell the story of the Old Baldwin Boys Home.	Consideration will be given to incorporating appropriate interpretive and educational components to the Memorial to tell the story of the Old Baldwin Boys Home.
Proximity to road & roadside parking	No change	500ft removed	Adjacent road & parking
Impact on visitor experience at St	No change	500 + feet from churches	May be visible from St Philomena

Philomena and Siloama			
-----------------------	--	--	--

V AFFECTED ENVIRONMENT

For the purposes of this project the discussion of the affected environment will concentrate on approximately 8 acres area that encompasses the site of the former Old Baldwin Boys Home and rear garden area.

Natural Resources

Geology/Soils/ Geologic and Associated Hazards

The soils at Kalaupapa are derived from 330,000-year old basalt flows from the Kauhako Crater (Clague et al., 1982). The soils are very rocky, silty clay loam; the typical profile consists of topsoil from 0 – 5 inches below the surface (0–13 cm) and subsoil ending at bedrock at 12 inches (30 cm) below the surface (McCoy and Hartshorn 2007).

The volcano (Kalaupapa Peninsula) resulting in the Kauhako Crater, East Molokaʻi, and West Molokaʻi (also known as Mauna Loa) are considered extinct. The steep-sided pali (cliffs) indicate the northern half of East Molokaʻi must have sunk beneath the sea - probably in a giant landslide rare even at geological time-scales. However, the high steep sided pali does constitute a current hazard in the form of rock slides and floods. Joseph Dutton (Gibson 1957) recorded a flood event that sent boulders rolling through the Old Baldwin Boys Home complex. Gullies and berms at preventing flooding are testament to these hazards as perceived by the inhabitants of the historic home for boys.

Water Resources

As shown in Figure 5, the parklands fall into three major watersheds from west to east – Waihānau, Waiʻaleʻia and Waikolu. The watersheds are named for the primary drainage within each catchment. Waikolu is considered sole perennial stream, while Waihanau and Waiʻaleʻia are intermittent streams. The proposed project is within the Waiʻaleʻia watershed.

Floodplain

While the area of analysis is not designated as a flood plain, circumstantial evidence (berms for deflecting water flow, accumulations of soil upslope of rock walls, mats of litter) and a historic account of a flood event identify the site as a water outflow area. An Easter 1927 historic account of a flood by Bertrand Dutton (Gibson 1957) identifies considerable water and flood debris movement following a severe rain event. With regard to designated floodplains, a Statement of Findings document is only required if a proposed project could adversely affect the natural resources and functions of floodplains or increase flood risks. A Statement of Findings has not been prepared since the Memorial construction is unlikely to affect natural resources or increase flooding.

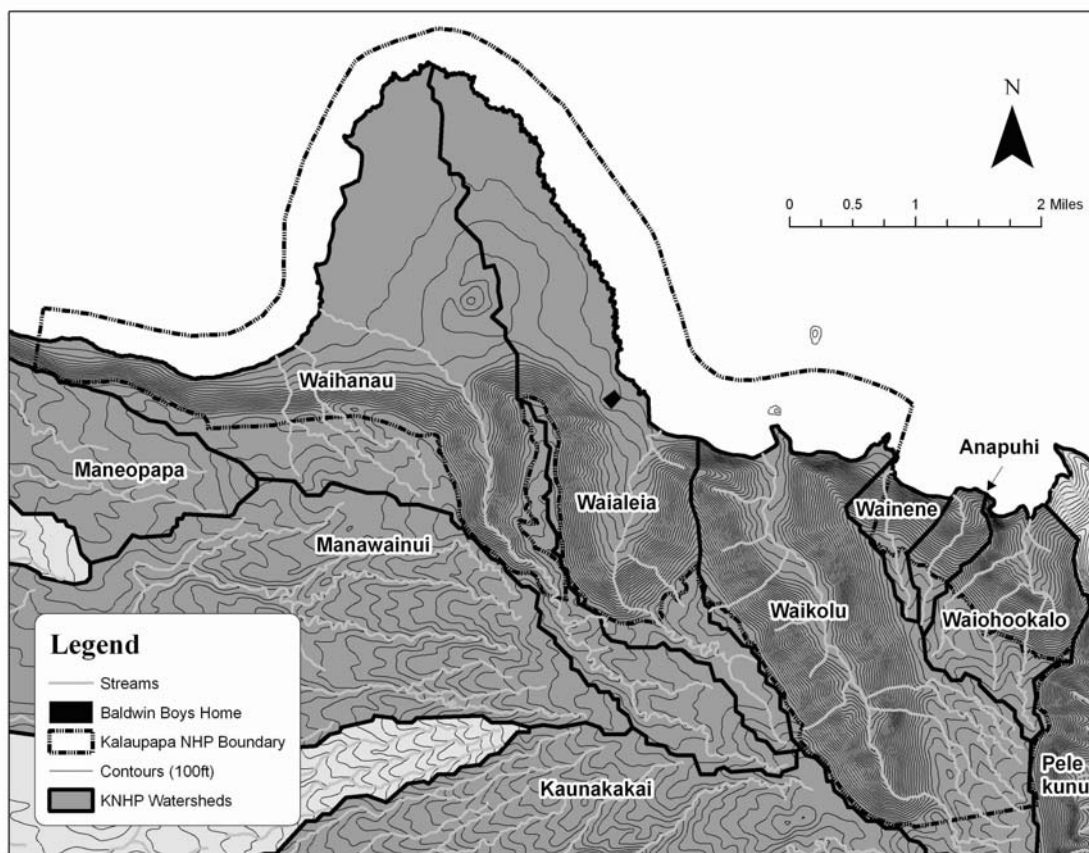


Figure 5. Major watersheds of Kalaupapa National Historical Park.

Habitats and Special Ecological Emphasis Areas

The terrestrial environment within Kalaupapa National Historical Park is divided into seven ecological management areas: Kauhakō Crater, Coastal Spray Area, Offshore Islets, Pu‘u Ali‘i Natural Area Reserve (NAR), Moloka‘i State Forest Reserve (FR), North Shore Cliffs National Natural Landmark (NNL), and the Lowland Coastal Area (Figure 6). Subsequent discussion of natural resources is restricted to the two areas potentially impacted by the placement of the Memorial -- the Lowland Coastal Area (1,093 acres) and the Coastal Spray Area (310 acres).

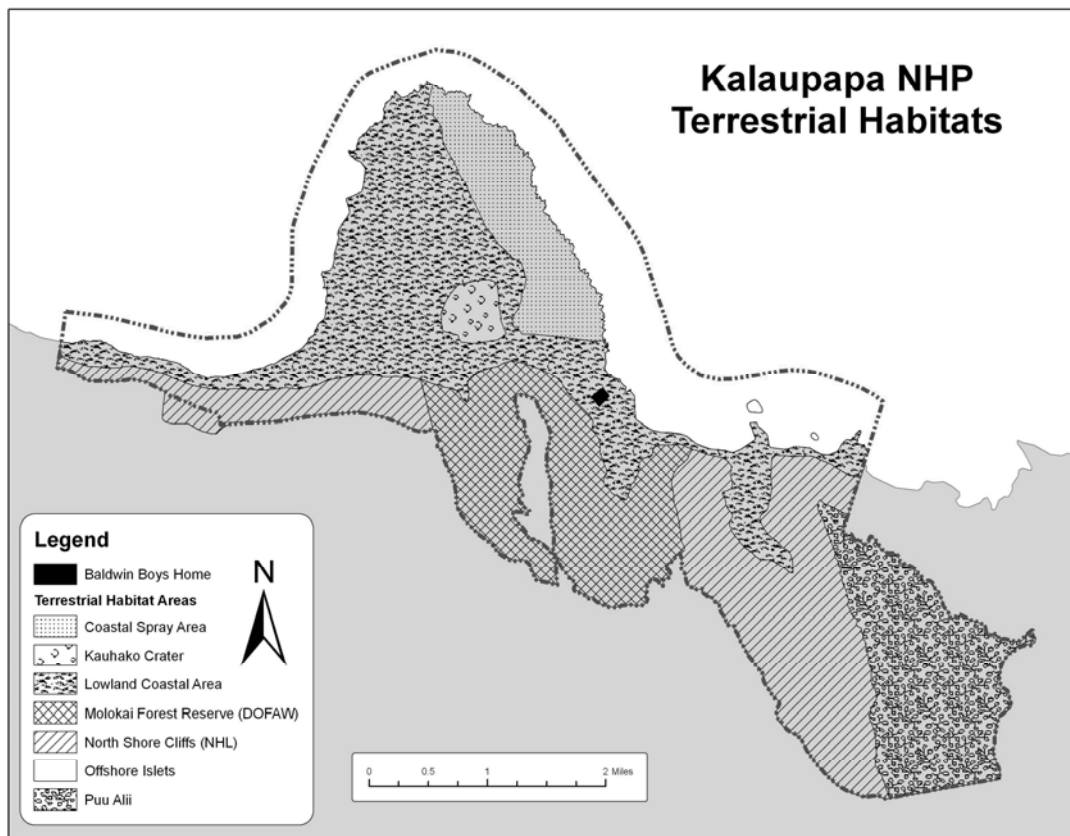


Figure 6. Terrestrial habitats of Kalaupapa National Historical Park.

Lowland Coastal Area Flora

The vegetation at Kūka‘iwa‘a provides a glimpse of what may have occurred within the project areas. The flora of Kūka‘iwa‘a peninsula is composed of approximately 76 plant taxa, of which 21 are endemic and 19 are indigenous. The remaining 36 plants species at Kūka‘iwa‘a are non-native and 4 of these are Polynesian introductions (LeGrande 2002, Wood 2008).

Two vegetation communities are identified on the Kūka‘iwa‘a peninsula. A littoral coastal vegetation community occurs in the ocean spray zone. Native salt-loving plant species that occur in this community include ‘aki‘aki (*Fimbristylis cymosa*), Faurie’s panicgrass (*Panicum fauriei* var. *carteri*), Sylva’s tetramolopium (*Tetramolopium sylvae*), ‘āhinahina (*Artemisia australis*), ko‘oko‘olau (*Bidens hillebrandiana* subsp. *polycephala*), and ‘ae‘ae (*Bacopa monnieri*). A single pistillate shrub of the rare hoawa (*Pittosporum halophilum*) also occurs in the littoral coastal vegetation community on the eastern side of the Kūka‘iwa‘a peninsula. This individual represents the only known naturally occurring plant of this species still extant on the main Island of Moloka‘i (Wood 2008).

The second vegetation community at Kūka‘iwa‘a is a relic coastal forest dominated by hala (*Pandanus tectorius*), alahe‘e (*Psydrax odorata*), and lama (*Diospyros sandwicensis*). Associated relic components occur around the back gulches and low ridges of the peninsula including native trees [ohe makai (*Reynoldsia sandwicensis*), Olopua (*Nestegis sandwicensis*, and 'ohi'a lehua (*Metrosideros polymorpha*), as well as native shrubs and herbs Ākia

(*Wikstroemia* sp.), makou (*Peucedanum sandwicense*), Moloka'i beggarticks (*Bidens molokaiensis*), and globe schiedea (*Schiedea globosa*) (LeGrande 2002, Wood 2008).

Currently, the majority of the vegetation in the Lowland Coastal Area within the area of interest is composed of non-native species. In particular, guava (*Psidium* sp.), Christmasberry (*Schinus terebinthifolius*), lantana (*Lantana camara*), and java plum (*Syzygium cumini*) are dominant. Very few native plant taxa are present within the Old Baldwin Boys Home complex area.

Coastal Spray Zone Flora

Compared to other coastal areas throughout the main Hawaiian Islands, the Coastal Spray area at Kalaupapa supports a diverse and extensive native coastal vegetation community. The relatively intact nature of this area is largely due to the minimal amount of human contact in this environment (Canfield 1990). However, grazing by ungulates, cultivation practices, the introduction of alien vegetation, and other activities have altered the vegetation that historically occurred there.

Two lichens, two ferns, and 66 flowering plant species have been identified in this zone. Of this total, 25 species are native. Non-native species comprise the largest percentage of the plants in the Coastal Spray Zone. Fourteen non-native species documented in the Coastal Spray area are considered noxious by the State Department of Agriculture. Non-native plants are concentrated along the roadsides in the area. The most abundant non-native plants in the zone are Bermudagrass (*Cynodon dactylon*) and Henry's crabgrass (*Digitaria adscendens*). 'Aki'aki (*Fimbristylis cymosa*) is the most common native species.

Canfield (1990) identified the following five plant communities within the Coastal Spray Area: 1) native dominated community on sandy strand directly in the salt spray, 2) a half native community on flat basalt with clayey soil above sea cliffs in the most intense salt spray, 3) native community on rocky strand slightly protected from salt spray, 4) small area of native-dominated prostrate shrubs on raised basalt domes, and 5) an alien-dominated grassland less influenced by spray. In addition, an adjacent non-native scrub community is present mauka of the spray zone. A total of 25 localized plant associations were defined within the five spray zone communities.

The coastal spray zone area closest to the Old Baldwin Boys Home has been heavily impacted by livestock and building construction during recent historic times. The coastal spray zone closest to the Old Baldwin Boys Home is currently dominated by non-native grasses (crab grass and Bermuda grass) and non-native shrubs (lantana and java plum).

Avifauna

Hodges (1996) documented seven seabird species within the coastal spray area. In 2005, several seabird species were observed flying over the Coastal Spray area including red-tailed tropicbird (*Phaethon rubricauda*), white-tailed tropicbird (*Phaethon lepturus*), great frigatebird (*Fregata minor*), and a booby (*Sula* sp) (Kozar et al. 2007). One of the caves in the Coastal Spray Area is a well-known resting place of noio (or black noddie, *Anous minutus*). Two migratory shorebirds - Pacific golden plover (*Pluvialis fulva*) and ruddy

turnstone (*Arenaria interpres*) - were observed in the Coastal Spray Zone during the 2005 survey (Kozar et al. 2007).

On the western side of the peninsula along the Lowland Coastal Area, Pacific golden plover were commonly seen during the 2005 survey. Wandering tattlers (*Heteroscelus incanus*) were also observed on the rocky shoreline (Kozar et al. 2007). Wedge-tailed Shearwater (*Puffinus pacificus*), Red-tailed Tropicbird (*Phaethon rubricauda*), and White-tailed Tropicbird (*Phaethon lepturus*) were observed flying over this area during the 2005 survey. Sooty Tern (*Sterna fuscata*) have previously been detected flying over the Kalaupapa Settlement and noio (*Anous minutes*) are known to nest in the rocky cliffs along the coastline (Kozar et al. 2007).

Albatross (*Diomedea immutabilis*) have been reported in the airport area. Black-crowned night heron (*Nycticorax nycticorax*) and Hawaiian short-eared owl (*Asio flammeus sandwichensis*) may occasionally forage in the airport and the surroundings (GK & Associates 1991).

Mammals

The Hawaiian hoary bat (*Lasiurus cinereus semotus*) is the only native terrestrial mammal occurring in Hawaii. While the bat has been detected in the Lowland Coastal Area in 2005, the base of the cliffs may offer better habitat.

Historically, the Coastal Spray Zone was browsed and trampled by various ungulates including horse (*Equus ferus caballus*), cattle (*Bos primigenius*), donkeys (*Equus africanus asinus*), mules (*E. caballus* x *E. asinus*), axis deer (*Axis axis*), domestic goat (*Capra hircus*), and the domestic pig (*Sus scrofa*). Rats (*Rattus sp*) and mongoose (*Herpestes auropunctatus*) add to the feral animal problem at Kalaupapa. No horse, cattle, donkey, or mule remain at Kalaupapa.

Axis deer (*Axis axis*) are medium sized (up to 200 pounds) with chestnut colored coats, white spots, and simple non-palmate antlers. Grasses making up the bulk of their diet, but they eat increased amounts of forbs during the dry season. Because axis deer rut is not confined to a particular season, herds year-round typically contain animals both in velvet and hard antler, pregnant and non-pregnant does, as well as fawns of different sizes. Axis does have been observed breeding as young as 4 months of age and typically give birth to single fawns (Graf and Nichols 1966; Gogan et al. 2001). Axis deer populations can increase rapidly, doubling every 3 years in some cases (Elliott 1973). Axis deer are common throughout the Kalaupapa peninsula. A study by Goltz et al. (2001) found that the radio-collared deer remained primarily within the Lowland Coastal Area of KALA. During the day, the deer were located in thick forest of Christmasberry or guava at the base of the cliffs. At night, the ungulates traveled a short distance to nearby open grassy areas (Goltz et al. 2001).

Axis deer can impact rare plant species directly through consumption and mechanical damage (antler thrashing and trampling). Destruction and grazing of vegetation in riparian, forest and grassland habitat from ground level to a height of 2 meters by non-native deer can adversely affect bird nesting habitat and remove food and nesting resources used by bird species.

Goats (*Capra hircus*) were introduced to the Hawaiian island in 1778 by Captain Cook. Adult females and males weigh up to 60 and 200 lb respectively. Herd sizes number between 3 and 16. Females produce 1-2 kids per year. Free-standing water is apparently not a requirement for goats and they feed on a wide variety of plants in drier habitats. Goat impacts at Kalaupapa are greatest on the pali (cliffs) where they threaten several of the cliff-dwelling Species of Concern.

The feral Pig (*Sus scrofa*), was first introduced to Hawaii 1500 years ago by Polynesians, then again in the 18th century by the Europeans (Tep and Gaines 2003). Feral pigs can occupy in variety of habitats, but prefer moist forest areas near water sources. They are opportunistic breeders, capable of breeding year round if conditions are favorable. Sows are capable of producing two litters per year, averaging seven piglets per litter. Feral pigs can cause native plant extinctions through direct consumption, soil erosion and soil compaction. Uprooting of trees and underground plant masses are common and associated disturbance favors invasion by non-native plants. Feral pigs are also known to actively disperse non-native species by transporting seeds in their digestive tracts (Diong 1982.)

There are three species of rats which have been introduced to islands throughout the world: the Norway or Brown Rat (*Rattus. norvegicus*), the ship or Black Rat (*R. rattus*), and the Pacific or Polynesian Rat (*R. exulans*). They have different dietary preferences, but all three species are omnivorous, have high reproductive rates, and can survive in a variety of habitats (Atkinson 1985). Introduced rats are responsible for an estimated 40 - 60% of all bird and reptile extinctions (ICEG Analysis of World Conservation Monitoring Centre Data, Atkinson 1985). Rats prey on seabird eggs, chicks, and adults, and are thought to be responsible for seabird extirpations and population declines, particularly on islands (Atkinson 1985).

The Indian Mongoose (*Herpestes auropunctatus*) was introduced to Hawaii in the 19th century for biological control of rats in agricultural (sugarcane) operations. Populations are well established on all islands but Kauai. They are weasel-like in appearance and up to 65 cm. long, including tail. They inhabit forest, scrub, coastal areas and cultivated lands (Baldwin et al 1952). Mongoose are active during the daytime and sleep in dens at night. Females can breed from the age of 10 months and produce two or three litters per year. Omnivorous, they feed on birds, small mammals, reptiles, insects, fruits and plants. The eggs and hatchlings of ground nesting birds and sea turtles are especially at risk.

Reptiles and Amphibians

Few surveys have been conducted to examine the distribution of reptiles and amphibians through Kalaupapa NHP. A collation of observations provides a list of reptiles and amphibians potentially inhabiting the area of interest. Kraus (2005) found only stump-toed gecko (*Gehyra mutilate*) in the crater. This non-native species is common on all the main Hawaiian Islands, typically found near warehouses, large buildings, and among debris, rocks, and fallen vegetation (McKeown 1996). During the survey of Huelo Islet, Duvall (2000) collected specimens of the moth skink (*Lipinia noctua*), which inhabits the leaf litter among the native loulu (*Pritchardia*) palms (Kraus 2005). The mourning gecko (*Lepidodactylus lugubris*) were also collected on the islet (Duvall 2000). Other reptiles and amphibians that were collected in the North Shore Cliff (NNL) include the stump-toed gecko, house gecko *Hemidactylus frenatus*, Indo-Pacific gecko (*Hemidactylus garnotii*), tree gecko (*Hemidactylus typus*), and rainbow skink (*Lampropholis delicata*). The moth skink was also collected in the NNL, but persists there only in small numbers (Kraus 2005). Cane toads (*Bufo marinus*) may also occur in the NNL (Kraus 2005). The common house gecko (*Hemidactylus frenatus*) and mourning gecko are also abundant in the Lowland Coastal Area (Kraus 2005).

Insects and Invertebrates

A taxonomic list of invertebrate species occurring in the Lowland Coastal Area does not exist. However, Legrande (2002) noted the following arthropods during her survey: a non-native ant (*Leptogenys falcigera*), brine fly (*Ephydra millbrae*), and *Haematolocha rubescens* (Trematoda: Haematoloechidae). The Xerces Society for Invertebrate Conservation has petitioned the U.S. Department of the Interior to protect seven Hawaiian bee species under the Endangered Species Act. All seven species of these are “yellow-faced bees” — *Hylaeus anthracinus*, *H. longiceps*, *H. assimulans*, *H. facilis*, *H. hiliaris*, *H. kuakea* and *H. mana*. A subset of the bees are known to exist at the northern tip of the Kalaupapa peninsula.

Special Status Species

Seven federally threatened or endangered plant species have habitat overlapping with the project area (Table 2).

The White Moloka'i Hibiscus (*Hibiscus arnottianus* ssp. *immaculatus*), which is not currently present outside of plantings, has critical habitat in the Lowland Coastal Area.

Pua'ala (*Brighamia rockii*) occurred historically along the pali, but have been decimated by the introduction of the domestic goats. Pua'ala have recently been reintroduced in protected areas at the top of the Kalaupapa Trail and at Mokio adjacent Kalawao.

Carter's panicgrass (*Panicum fauriei* var. *carteri*) individuals were documented within the coastal spray area at Kūka'iwa'a in 1992. The species was noted to grow at the edge of the cliffs likely because this area has minimal grazing and trampling pressure by non-native

ungulates and competition from non-native plants (Jessel and Agliam 1994, NPS 2000a). In 2000, a total of 457 individuals were counted along the coast of the peninsula at the previously established monitoring stations (LeGrande 2002).

The endangered 'āwiwi (*Centaurium sebaeoides*) is also known to occur in the Lowland Coastal Area. It is the only native Hawaiian gentian, and an annual with a total population of approximately 6,300 to 6,600 individuals. The population on KALA was comprised of approximately 4,020 plants in 1997 (Medeiros et al. 2000). No individuals were found on transects inside an enclosure during a more recent study. Although 'āwiwi does not currently occur in the management zone, critical habitat for this species has been designated in the Coastal Spray Area.

The threatened Dune Tetramolopium (*Tetramolopium rockii* var. *rockii*) has been observed near Kalawao. The main concentration of this species in 1990 occurred along the coast about 0.6 km (0.4 miles) to the north of Kalawao (Asherman et al. 1990).

A large patch of 'āwikiwiki (*Canavalia molokaiensis*) has been found on the east side of the mouth of Wai'ale'ia Stream between 10 and 15 m (33 and 49 ft) elevation. At least six additional plants were seen along the coast between the mouth of Wai'ale'ia Stream and Waikolu at Keanakua (Asherman et al. 1990).

Ihi (*Portulaca villosa*) (a federal Species of Concern) occurs naturally in the crater and is planted out in the Coastal Spray Zone between Kalawao and Kahi point on the northern tip of the peninsula.

The threatened Newell's Townsend's shearwater (*Puffinus auricularis newelli*) and the endangered Hawaiian petrel or 'Ua'u (*Pterodroma sandwichensis*) may fly over the Coastal Spray Zone. These species are believed to nest in the valleys of northeastern Moloka'i (Day and Cooper 2002). Lights left on at night can draw and distract birds from their usual night-time activities and have the potential of luring seabirds away from the ocean causing problems tending nests, abandonment of eggs or chicks, and increased predation.

The federally endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*) is the only extant native terrestrial mammal from the Hawaiian archipelago (USFWS 1998).

Table 2. Special Status Species (plants, birds, mammals, and invertebrates) thought to Occur Within Kalaupapa National Historical Park*.

Species Name	Common Name	Family	Date Listed	Status	Organism	Location
<i>Falco peregrinus</i>	peregrine falcon			SOC	avifauna	Pu'u Ali'i
<i>Myadestes lanaiensis</i>	Molokai thrush or oloma'o		10/13/1970	E	avifauna	Pu'u Ali'i
<i>Paroreomyza flammea</i>	Moloka'i creeper or kākāwahie		10/13/1970	E	avifauna	Pu'u Ali'i
<i>Pterodroma sandwichensis</i>	Hawaiian petrel		3/11/1967	E	avifauna	Pu'u Ali'i
<i>Puffinus auricularis newelli</i>	Newell's shearwater		10/28/1975	T	avifauna	Pu'u Ali'i
<i>Vestiaria coccinea</i>	i'iwi			SE	avifauna	Pu'u Ali'i
<i>Partulina mighelsiana</i>				SOC	invertebrate	Pu'u Ali'i
<i>Partulina proxima</i>				SOC	invertebrate	Pu'u Ali'i
<i>Partulina redfieldii</i>				SOC	invertebrate	Pu'u Ali'i
<i>Partulina tessellata</i>				SOC	invertebrate	Pu'u Ali'i
<i>Adenophorus periens</i>	pendant kihi fern	Grammitidaceae	11/10/1994	E	plant	Pu'u Ali'i
<i>Bidens wiebkei</i>	ko'oko'olau	Asteraceae	10/8/1992	E	plant	Pu'u Ali'i
<i>Brighamia rockii</i>	pua'ala	Campanulaceae	10/8/1992	E	plant	FR, islets
<i>Canavalia molokaiensis</i>	'āwikiwiki	Fabaceae	10/8/1992	E	plant	Pu'u Ali'i
<i>Centaurium sebaeoides</i>		Asteraceae		E	plant	coastalsprayzone
<i>Clermontia oblongifolia</i> ssp. <i>brevipes</i>	'oha wai	Campanulaceae	10/8/1992	E	plant	Pu'u Ali'i
<i>Cyanea dunbarii</i>		Campanulaceae		E	plant	Forest Reserve
<i>Cyanea procera</i>	haha	Campanulaceae	10/8/1992	E	plant	Pu'u Ali'i

Species Name	Common Name	Family	Date Listed	Status	Organism	Location
<i>Cyanea profuga</i>	-----	Campanulaceae	-----	SOC	plant	Pu'u Ali'i
<i>Cyanea solanaceae</i>	popolo	Campanulaceae	-----	SOC	plant	Pu'u Ali'i
<i>Cyanea solenocalyx</i>	haha	Campanulaceae	-----	SOC	plant	Pu'u Ali'i
<i>Cyrtandra halawensis</i>	ha'iwale	Gesneriaceae	-----	SOC	plant	Pu'u Ali'i
<i>Cyrtandra hematos</i>	ha'iwale	Gesneriaceae	-----	SOC	plant	Pu'u Ali'i
<i>Cyrtandra macrocalyx</i>	ha'iwale	Gesneriaceae	-----	SOC	plant	Pu'u Ali'i
<i>Cyrtandra biserrata</i>	ha'iwale	Gesneriaceae	-----	SOC	plant	Pu'u Ali'i
<i>Diellia erecta</i>	-----	Aspleniaceae	11/10/1994	E	plant	Pu'u Ali'i
<i>Eurya sandwicensis</i>	-----	Theaceae	-----	SOC	plant	Pu'u Ali'i
<i>Exocarpos gaudichaudii</i>	-----	Santalaceae	-----	SOC	plant	Pu'u Ali'i
<i>Gardenia remyi</i>	nanu	Rubiaceae	-----	SOC	plant	Pu'u Ali'i
<i>Hedyotis mannii</i>	pilo	Rubiaceae	10/8/1992	E	plant	Pu'u Ali'i
<i>Hesperomannia arborescens</i>	-----	Asteraceae	3/28/1994	E	plant	Pu'u Ali'i
<i>Hibiscus arnottianus</i> ssp. <i>immaculatus</i>		Malvaceae		E	plant	Forest Reserve
<i>Hibiscus kokio</i> ssp. <i>kokio</i>	pualoalo	Malvaceae	-----	SOC	plant	Pu'u Ali'i
<i>Joinvillea ascendens</i> ssp. <i>ascendens</i>	'ohe	Joinvilleaceae	-----	C	plant	Pu'u Ali'i
<i>Lagenifera maviensis</i>	-----	Asteraceae	-----	SOC	plant	Pu'u Ali'i
<i>Lobelia dunbarii</i> ssp. <i>dunbarii</i>	-----	Campanulaceae	-----	SOC	plant	Pu'u Ali'i
<i>Lobelia dunbarii</i> ssp. <i>paniculata</i>	-----	Campanulaceae	-----	SOC	plant	Pu'u Ali'i
<i>Melicope reflexa</i>	alani	Rutaceae	10/8/1992	E	plant	Pu'u Ali'i
<i>Peucedanum sandwicense</i>	makou	Apiaceae	2/25/1994	T	plant	islets
<i>Phyllostegia hispida</i>	-----	Lamiaceae	-----	PE	plant	Pu'u Ali'i

Species Name	Common Name	Family	Date Listed	Status	Organism	Location
<i>Phyllostegia mannii</i>	-----	Lamiaceae	10/8/1992	E	plant	Pu'u Ali'i
<i>Phyllostegia mollis</i>	-----	Lamiaceae	10/29/1991	E	plant	Pu'u Ali'i
<i>Phyllostegia stachyoides</i>	-----	Lamiaceae	-----	SOC	plant	Pu'u Ali'i
<i>Plantago princeps</i> var. <i>laxiflora</i>	kuahiwi laukahi	Plantaginaceae	11/10/1994	E	plant	Pu'u Ali'i
<i>Platanthera holochila</i>	-----	Orchidaceae	10/10/1996	E	plant	Pu'u Ali'i
<i>Ranunculus mauianus</i>	makou	Ranunculaceae	-----	C	plant	Pu'u Ali'i
<i>Scaevola coriacea</i>	dwarf naupaka	Goodeniaceae	5/16/1986	E	plant	islets
<i>Schiedea diffusa</i>	-----	Caryophyllaceae	-----	SOC	plant	Pu'u Ali'i
<i>Schiedea pubescens</i> var. <i>pubescens</i>	ma'oli'oli	Caryophyllaceae	-----	C	plant	Pu'u Ali'i
<i>Sicyos cucumerinus</i>	'anunu	Cucurbitaceae	-----	SOC	plant	Pu'u Ali'i
<i>Stenogyne bifida</i>	-----	Lamiaceae	10/9/1992	E	plant	Pu'u Ali'i
<i>Tetramolopium rockii</i> var. <i>rockii</i>		Asteraceae		T	plant	coastalsprayzone
<i>Zanthoxylum hawaiiense</i>	a'e	Rutaceae	3/4/1994	E	plant	Pu'u Ali'i

*Records collated from an “Assessment of Natural Resources and Watershed Conditions for Kalaupapa National Historical Park” (SWCA 2010).

C = Candidate species are those petitioned species that are actively being considered for listing as endangered or threatened under the Endangered Species Act, E = Endangered, T = Threatened, SE = listed as endangered by the State of Hawaii, SOC = Species of Concern are those species about which NOAA's National Marine Fisheries Service (NMFS) has some concerns regarding status and threats.

Cultural Resources

The Area of Potential Effect, or the project area, for cultural resources includes the Siloama and Saint Philomena Churches and their graveyards, an open burial field, a portion of Damien Road, and the Old Baldwin Boys Home Site including walls and the back garden terraces. An area larger than the specific project alternative locations is included in this assessment because of the potential impacts to visual resources, circulation patterns, and character of the sites and cultural landscape.

Historic Overview

On January 6, 1866, the first twelve people, nine men and three women, were sent to the Kalaupapa peninsula because they were believed to have leprosy. They were landed on the Kalaupapa side of the peninsula and walked to Kalawao, the area where the first settlement was located. They were accompanied by at least four family members who had chosen to go along as *kōkua* (helpers) (Law 2010).

These individuals were the first of an estimated 8,000 people who were forcibly taken from their families and sent to the peninsula between 1866-1949, at least 90% of whom were Native Hawaiians (Ka `Ohana O Kalaupapa 2007). Of those who lived and died on the peninsula, at least 87% lie in unmarked graves (Purnell 1991).

At least 25% of the unmarked graves are reported to lie in the large field alongside Saint Philomena Church. In 1887, Dutton commented: “The principal graveyard back of my cabin has about two thousand graves and nearly one thousand are buried elsewhere . . .”(Daws 1973:168-169). This represents the largest known concentration of unmarked graves on the peninsula. This large field of unmarked graves is located across the street from the former Old Baldwin Boys Home. Hutchison (1932) refers to this site as Moku Puakala.

Early on, Saint Damien recognized the need for a home for boys and elderly men, as well as a home for “unprotected women and girls.” According to Ambrose Hutchison, long-time resident of Kalaupapa, in mid-1879, Saint Damien built a dormitory west of his own house, to which eight boys of different ages were initially admitted (Law and Law 2009:55-56). This was followed by a larger dormitory. By mid-1885, Saint Damien was caring for 30 boys and 12 girls in a home that was supported by the Catholic Church (Hanley and Bushnell 1991: 220).

Ambrose Hutchison described how Saint Damien interested the boys in farming and they joined in the work “with a will,” clearing and planting the land, planting sweet potatoes, onions, cabbage, and bananas. They planted their vegetables and fruit in the large area across the road from St. Philomena Church that would later become the Baldwin Home for Boys (Law and Law 2009:57). This appears to be the first documented settlement-era use of the site that is now known as the Old Baldwin Home.

Mother Marianne, who was in charge of the newly established Bishop Home for women and girls noted that in November, 1888, there were about 100 boys at Saint Damien’s boys’ home. She was particularly concerned because the home and the boys’ playground were

basically located in the graveyard next to St. Philomena Church (Hanley and Bushnell 1991:324). According to Joseph Dutton, on January 1, 1889 the Board of Health assumed operations of the boys' home which was referred to at that time as the Damien Home (Case 1931:118). Shortly after Saint Damien's death, the Board of Health asked Mother Marianne to assume management of the boys' home and she officially accepted on May 2, 1889 (Hanley and Bushnell 1991:325-26). Upon her agreement, the Board of Health built a convent for the Sisters of St. Francis who would work at the Boys' Home. It was built across the road from St. Philomena Church. Mother Marianne worked with R.W. Meyer, the settlement Agent of the Board of Health, proposing various improvements for the two homes she managed (Hanley 2010, pers. comm.).

In 1892, the Board of Health began to develop an extensive complex of buildings for the Home with funds donated by Henry P. Baldwin of Maui. In 1893, Rudolph Meyer suggested that the boys' home be named after its benefactor. The home was chosen to be constructed across the road from St. Philomena Church, where the Sisters convent was located, enabling more convenience in their work (Hanley 2010, personal comm.). The Sisters' Convent was enclosed by a board fence (Hanley and Bushnell 1991: 355). When the Baldwin Home for Boys opened in 1894, it consisted of 29 structures. Ultimately the Baldwin Home would contain some 55 buildings, including a band room, a school room, and a tailor shop. One building consisted of the poi house, the boiler house, the beef room, the pantry, and the banana room, all under one roof (Case 1931:111, 115).

Once the Home's construction was completed, Mother Marianne suggested to the Board of Health that brothers be invited to teach the boys of Baldwin Home useful skills (Hanley 2010, personal comm.). In 1895, four Sacred Heart Brothers from Europe arrived at Kalawao and, at this time, Joseph Dutton, a longtime assistant with the boys, assumed management of the Baldwin Home. Sisters Crescentia, Vincentia and Irene moved to the Bishop Home for new assignments and the Brothers took up residence in what had been their Convent.

A description from the Honolulu newspaper in 1896, commented: "The dormitories, hospital, and school are arranged in a hollow square, enclosing a pretty grass plot dotted with nice shrubs and beautiful flowers. These grounds have been converted from a rocky waste by the work of the boys, one hour each day . . ." (*Damien Institute Monthly Magazine*, April 1896). Joseph Dutton later recalled: "That garden near the pali, has some rich earth, but there was a great number of big and smaller rocks over it. We dug long trenches about 15 feet wide and 15 feet deep and buried the rocks, leaving about three feet of earth on top" (Case 1931:111).

Throughout its history, the Old Baldwin Home was a site of pain, joy, and community. Upon the death of Henry Baldwin in 1911, Dutton noted that, including those who lived there at the time, 1,073 men and boys had resided at the Baldwin Home. He commented: "We aim to operate the home as a big family -- the largest on the island" (Baldwin 1915: 67). John Cambra, who lived in the Baldwin Home in 1924, recalled the friendships formed at the Baldwin Home:

I used to live in number 7 building. Then came the hall, then came number 9, then 10. That's where we would meet and play music. Every night we played

music. One played the violin, one the banjo. We had three Palakiko brothers up there -- Sam, Joe and Emmeran Palakiko. They played ukulele, double bass, and steel guitar. And we had this Joe Kepali, he had a wonderful voice -- tenor. And we had George Pununui. We had David Espinda. We had old man Kalahao. You heard about him? Old man, he used to play the violin. He's an old timer, he'd been here a long time. He'd play and all these boys we would go there. Every night we'd go over there and play music, over in number 10 building (Skinsnes 1984).

By the time the Baldwin Home was moved to Kalaupapa in December, 1932, the number of men and boys who had resided at the Baldwin Home for varying lengths of time would be significantly higher. Some of the more well-known persons in Kalaupapa's history who lived at the Baldwin Home include: Kawika Kahoeke, Pilipo Iilii, John Kiaaina, Willie Wicke, Ambrose S. Kahooalahala, Ben Pea, David Kupele, the Palakiko brothers, John Cambra, and Kenso Seki.

National Historic Landmark and National Register of Historic Places Status

The "Kalaupapa Leprosy Settlement" National Historic Landmark was designated on January 7, 1976, and subsequently listed in the National Register of Historic Places (NR #76002415). The periods of significance for the nomination are 1800-1899 and 1900 onward with a significant date of 1866. Areas of significance are identified as: prehistoric archeology, historic archeology, architecture, community planning, religion, and social/humanitarian.

Pre-contact and Historic Archeological Resources

The archaeology in Kalawao is known to be multi-layered, with historic re-use atop pre-contact archaeological sites. The archaeology has been noted in numerous reports to be difficult to delineate into formal 'sites' (Somers 1985, McCoy 2005, Stein 2010). The project area contains pre-contact and historic archeological resources.

An archaeological inventory was conducted within the project area (Stein 2010). The archaeological data from within the project area adds information to the stories and understanding the development of the Kalawao Settlement from 1866-1932. Additionally, there are several archaeological resources within the project area that pre-date 1866, adding to our knowledge of the kama'āina occupying Kalawao before the Leprosy Settlement was established. Many of the archeological sites in the project area have not been nominated for listing on the National Register of Historic Places, but may be eligible for listing on their own merit. All of the archaeology within the park boundary is a contributing feature to the NHL and is therefore listed on the National Register.

According to design criteria established by Ka 'Ohana O Kalaupapa in conjunction with the NPS, any *iwi* (bones from ancient burials), significant archaeological features or rare native plants discovered on the Site for the Memorial will remain in place.

Archeological Sites In the Area of Potential Effect

Old Baldwin Boys Home Site

The site of Old Baldwin Boys Home (SIHP# 50-60-03-2427) is listed on the National Register of Historic Places and is associated with a specific time in history, is associated with prominent people in Kalaupapa's history, including the Sisters of St. Francis, Joseph Dutton, David Kupele, Ben Pea, John Cambra, Kenso Seki and nearly 1,000 other men and boys who were separated from their families, but who resided for varying lengths of time at the Old Baldwin Home, and is likely to yield further data. Archeological testing around the Old Baldwin Boys Home Site show a scatter of subsurface historic material including metal, charcoal, ceramic, and glass. A few substantial findings that help to understand the Old Baldwin Boys Home as an archaeological site include in situ pipes and clay marbles. It is said that the boys used to play games on the lanais of the home [Greene 1985: 234]. The Old Baldwin Home was closed in 1932 when all the boys and men moved to Kalaupapa. The buildings were burned by the government in 1936 and razed in the 1950s.

Old Baldwin Home Kitchen Ruins (ARPK-0035 / MEMO-062, 063, and 064)

Research suggests that one of the two hearths in the kitchen feature may have been used for heating items to a higher temperature based on the yellowing wear of the concrete. In addition, the larger fireplace and other hearth show that the coals were likely pushed to one corner when not being used. Another chimney can be found outside of the immediate kitchen complex with the engraving 'Albert Galaspo Aug. 1910'. Artifacts in the area consist of historic bricks, glass, metal, and porcelain.

Former Old Baldwin Home Central Garden

Historic photographs and historical documentation show a garden in the center of the Old Baldwin Home complex. One newspaper account from 1896 refers to a "green rockery with fountain of water forming a centre-piece" located at the Old Baldwin Home (*Damien Institute Monthly Magazine*, 1896). Archaeological survey identified a mound with remnant ornamental plants and a large tree. The location and presence of plants suggest that this may be where the garden-feature was located. Archaeological investigations could help to positively identify what is beneath the mound.

Old Baldwin Boys Home Stone Walls

The Old Baldwin Home is bounded by a stone wall enclosure. A portion of the makai wall also contains a parallel lineal alignment. This might be curbing or associated with the water system as exhibited elsewhere on Damien Road. Also incorporated into the Old Baldwin Home walls is a terrace in the southwest corner.

Pre-Contact / Proto-Historic Archaeological Site

Based on archaeological testing, a pre-contact / proto-historic archaeological site was revealed beneath the former Old Baldwin Boys Home. Archaeological testing would need to continue in order to define the boundaries of this site; however, preliminary investigations seem to show the site being on the eastern side of the Old Baldwin Home with a notable concentration in the northeast. Materials include *ili ili* stones, charcoal,

volcanic glass flakes, basalt flakes, possible hammer stone, a possible coral fragment tool and shell midden.

Pre-Old Baldwin Home Terrace (ARPK-0038 / MEMO-783)

Prehistoric/proto-historic agricultural Historic material surrounds the terrace and it is highly disturbed by bulldozing and erosion. It is located immediately south of the proposed project area.

Damien Road

Known as Damien Road (SIHP# 50-60-03-2428), this historic road connects the Kalawao side of the peninsula to the Kalaupapa side and is partially located in the project area. Only a portion of the road is used today, and is routed past St. Philomena Church to connect with Judd Park on the far east side of Kalawao. This historic alignment of Damien Road continues until it reaches a large gulch. In portions along the entire Damien Road alignment, including some paving and other road construction features such as berms can be seen in the woods east of the Old Baldwin Boys Home. Other features associated with the Old Baldwin Boys Home site include concrete foundations, stone alignments, concrete footings and an earthen platform. Damien Road is located within the project area, but is not within either of the proposed alternative Sites.

Archeological Sites in the Vicinity of the Project Area

Catholic Rectory Site

This site (SIHP#: 50-60-03-2425) includes a large mound with a series of depressions, two roughly square-shaped depressions, and a possible outline for a third depression with a large mound to the south and a scatter of historic material including stone, mortar, and brick. A row of Ironwood trees grows near this area (Flexner n.d.). The presence and location of these remains can be matched with historic records to suggest that this is the site of the Catholic Rectory in Kalawao. The rectory site is located within the project area, but is not within either of the proposed alternative Sites.

Moku Puakala (Burial Field) Site

Many references have been made to the largest known burial field of unmarked graves dating to the time of the Kalawao Settlement (Hutchison 1932, Greene 1985, Carper et al. 1985, and Korn 1976). The burial ground is named Moku Puakala (thistles) according to Hutchison (1932: 4) and is situated “on the makai (seaward) side between the Leprosarium and the Baldwin homes”. Feral animals continue to roam through the graveyard. Moku Puakala is located within the project area, but is not within either of the proposed alternative Sites.

Mauka-Makai Federal Hospital West Wall

Partially comprising the Old Baldwin Home boundary on the east, this wall extends all the way from the makai bluff to the mauka slope against the pali. The point where it meets Damien Road has a gate post. Historic photographs and maps show this wall during the time of the Federal Leprosy Investigation Station, also known as the Federal Hospital or Federal Leprosarium. The wall is significant as it formerly separated Federal Hospital from the Kalawao Settlement and totally enclosed the Leprosarium. A few archaeological features immediately east of this long wall show evidence of being

‘robbed’ for stone, suggesting that the stones were used to compose the Mauka-Makai wall. This site is located within the project area, but is not within either of the proposed alternative Sites.

Wash House Site

Located at the very makai end of the Mauka-Makai Federal Hospital Wall and abutted to this wall is an enclosure, which once contained a wash house. The wash house can be seen in some historic photographs. The former wash house is located within the project area, but is not within either of the proposed alternative Sites.

Heiau Site (Makali`i)

Located southeast of the Wash House Site, this coastal site has been recorded as a heiau (SIHP# 50-60-03-2304). It is composed of very large boulders, many situated upright, and grooves or ‘channels’ located within the interior. It is almost exactly square and scattered material can also be observed in the area including lithic debitage and adze fragments. Through oral histories, this site has been said to be a navigational heiau (Nalaielua 2002, Personal communication with Kaohulani_McGuire.). The Heiau site is located within the project area, but is not within either of the proposed alternative Sites.

Cultural Landscapes, Buildings and Structures

The following sites, buildings and structures are contributors to the cultural landscape listing on the National Register of Historic Places and the National Historic Landmark designation. A brief description follows.

- Saint Philomena Catholic Church
- Saint Philomena Church Yard Walls and Gates
- Saint Philomena Stone Fence
- Siloama Church
- Siloama Church Stone Fence
- Siloama Restroom
- Old Baldwin Home for Boys Ruins (including stone wall surrounding non-extant complex, remnant central garden, remnant historic vegetation outside the walls, and circulation features)
- Old Baldwin Home Kitchen Ruins
- Chimney ruins
- Bakery site
- Slaughterhouse site
- U.S. Leprosy Investigation Station Ruins
- Cemeteries
- Damien Road (central road through settlement, from the east bluff linking Kalawao with Kalaupapa)
- Articulated walkways in and around the churches

Former Old Baldwin Boys Home

In 1892, philanthropist Henry P. Baldwin provided \$6,000 for construction of a new boys’ orphanage at Kalawao. The original orphanage was comprised of a few individual huts and cabins near Saint Damien’s house. These structures were replaced in 1888 by two large buildings for the children, while construction continued on a larger facility. By

late spring 1890, the first official home for boys was completed at Kalawao (Greene, 1985: 216), and by 1994, the new orphanage—known as the Baldwin Home for Boys opened across from Saint Philomena Catholic Church.

The site selected for construction of the Baldwin Boys Home was a treeless barren rocky area. Joseph Dutton and some of the boys removed the rocks to make room for the new building complex. Some of these rocks were used to add to existing rock walls enclosing the new site. Originally intended exclusively for housing and the care of the young boys (all boys under eighteen years old), when room was available, the complex also provided for older patients. The new facility was enclosed by a fence and covered approximately 2 ½ acres. Dormitories lined three sides of the enclosure and a row of housing for the brothers filled the fourth side. The Baldwin Home for Boys was a highly articulated complex with 29 new and moved structures within the fence. All buildings were spaced to prevent fire. Larger buildings were sited at the west and east sides of the complex. The western building was set apart and enclosed by a wood fence. The eastern building had an open porch facing west to the open yard, and was centrally located along the eastern row of buildings. A wooden walkway, also whitewashed, wrapped around the open common connecting individual buildings. A single row of palm trees was planted along the east perimeter of a white wood fence. Individual buildings were painted white [or whitewashed] and arranged around the perimeter of an enclosed open space planted with lawn. A small garden and water fountain were located within this space. the focus of the central garden space was a hala tree. By 1899 a large vegetable garden and plantation of banana trees were located behind (southwest) of the complex, and a windbreak along with fruit trees were planted nearby. The overall character of the Baldwin Home for Boys during this period was one of symmetry and order.

The slow transition in the settlement from Kalawao to Kalaupapa began as early as the 1870s, accelerated in the early 1900s and continued into the second decade of the 1900s. The transition was completed when Old Baldwin Home closed in 1932 (after Dutton's death in 1931) and the last of it's occupants moved over to the west side of the peninsula. The Baldwin Home however, continued to operate and improvements also continued. A new sewer system was installed in 1909, a new dispensary building with concrete floors was added in 1919 along with one hundred feet of picket fence with a new gate. Indeed into the 1920s, the Baldwin Home remained a large and fully self-sustaining operation at the complex.

Documentation indicates that at its peak, about 55 buildings comprised the Baldwin Home structural complex. Some of the existing structures were improved, and some uses changed. Near Damien Road, the brothers' house (across the road from Saint Damien's former house) was a simple building with an open yard in front. Near the edge of the garden was the large recreation hall (60 x 34 feet) with a verandah. Two dormitories, each 20 x 36 feet were located on either side of the hall (Greene, 1985: 230).

On the west side of the complex were six more dormitories evenly spaced in a single row. Below the dorms was an office, shoe shop, and saddle room connecting to a bathhouse and dressing rooms by way of a 10-foot wide verandahs lined with benches where patients could sit or visit or play cards. (Greene, 1985: 234). An open area about 50 feet in length (adjacent to the central garden) stretched in front of the office all the way to the

front gate located opposite the church. A work area for shops included a boiler house, beef room, pantry, machinery buildings, wood shed, coal room, kitchen, and dining room. A storage house for housekeeping fronted the road. On the south side of the complex, along the garden wire fence, a row of coconut trees extend behind the dorms and tailor shop.

In addition to the coconut palms from Samoa, Dutton describes the planted vegetation to include: 45 Japanese plum trees, about 50 eucalyptus trees, and about 500 alligator pear (avocado) trees. He also noted that they planted a *lauhala* tree in the very center of the playground and also described “countless plants, now small trees of the Croton family” as well as a date palm that was planted near the center of the Home. In addition, some 2,000 banana trees were planted in the garden near the pali (Case 1931: 110-111). A similar list of plants by Greene (1985: 302). includes hibiscus and pomegranate. The collective plantings contributing to make the Baldwin Homes for Boys one of the most beautiful places in the settlement (Greene, 1985: 302).

The home continued to serve the patients until 1932, by which time all of the facilities were relocated to Kalaupapa. In 1936, the remaining buildings in the Baldwin Home complex were in very poor condition. Within the year, remaining structures at the site were dismantled and demolished and the garden areas, tree plantations, and introduced vegetation throughout the complex, were largely abandoned.

Remaining Cultural Landscape Resources in Kalawao

A variety of individual historic features associated with the early development of Kalawao remain and contribute to the character of the cultural landscape. A few individual buildings also remain with a high level of integrity--such as Siloama Church [reconstructed] and Saint Philomena Catholic Church. Although individual buildings historically comprising the Baldwin Home for Boys and the Federal Hospital no longer remain, many of the building foundations, rock walls, spatial organization, and circulation patterns do remain from these developments. The Siloama Church and Saint Philomena Catholic Churches are located within the project area, but not within either of the proposed Alternative Sites.

This last category is used to identify the aggregate composition of remnant features that holistically represent historic development of the landscape. The relationship and patterns among these individual features spatially define the cultural landscape remaining in Kalawao. Collectively, these patterns and features are significant for the degree to which they convey meaning and define historic patterns of use and development associated with the settlement at Kalawao.

Buildings and Structures

The patterns, types, size, and architectural character of buildings historically constructed in the Kalaupapa and Kalawao Settlements (now almost entirely represented by the extant structures at Kalaupapa), were historically based on three factors: the needs and requirements of the patients; operation of the facility; and stylistic trends (evidenced in Kalaupapa) associated with construction during the 1930s. The form, materials, and stylistic features of most of these buildings are similar despite their varied historical uses. Although there are exceptions, the architectural cohesiveness of buildings historically

associated with the settlements is a reflection of the consistent use of form, material, and style.

Early use and adaptation of existing homes and structures on the peninsula was common as early residents did their best to survive with little support or infrastructure to help them. Many of these houses were small, constructed of available materials, and utilitarian in character. Adaptations to these structures during the early years focused on alterations to house and shelter as many as possible. The type and character of the structures in Kalawao changed dramatically after the government began making improvements. This was true of both individual buildings, and the orientation and concentration of buildings. Most of the development after 1866 focused construction along access routes such as Damien Road, and around the churches. Other buildings were largely sited in complexes or functional clusters organized around central open spaces.

A fairly large settlement associated with sufferers of Hansen's disease existed at Kalawao from the 1870s onwards. Remains associated with early buildings may still exist throughout the settlement landscape, but are largely obscured by the invasive vegetation and the thick growth of lantana, Christmas berry, and other introduced plants. Remnant structures dating from the early Kalawao settlement period have the potential to enhance our understanding of construction methods or material culture with information from additional archeological investigation. Some of the potential sites for this information within the cultural landscape include the hospital compound; foundations of individual houses for those who had leprosy; other structures lying outside the hospital compound, such as the physician's house, dispensary, and guest house; the settlement store; the site of two Mormon churches, one on either side of Damien road; the site of Damien's cottages-- the first evidently located east of Saint Philomena, a later one west of the church that was ultimately moved east again; and the location of the Boys' Home next to St. Philomena. The exact location of the Baldwin Home, the slaughterhouse, a bakery, and the stone reservoir are known from visible remains and include the following.

Old Baldwin Boys Home Site

Located across Damien Road from St. Philomena Church is the site of the Henry P. Baldwin Home for Boys. The concrete entrance posts built in 1919 are visible as are some stone walls historically surrounding the compound, the remains of a possible garden feature under the monkeypod tree, and the remnants of a ten-foot-tall red brick fireplace. A few other building remnants have been identified through archaeological investigations. The remaining portion of the site is largely overgrown. All structures remaining at the time of abandonment were burned around 1935-36. As a result, the site today has little above-ground physical evidence of the buildings present historically.

Churches

Siloama was originally constructed in 1871 at Kalawao by the United Church of Christ and has undergone a number of successive alterations including being rebuilt in 1880 and completely reconstructed in 1966. This austere structure was the first Protestant church erected by the residents of the settlement. The white wood-frame structure rests on concrete pilings, and is one story with a gabled portico over a concrete slab, six double-hung windows, small steeple, corrugated gable metal roof, horizontal channel siding and corner boards. Despite its complicated history, Siloama remains highly significant to the

settlement population for its historical and symbolic associations with the early trials of the first leprosy patients, and the importance of spirituality to the earliest residents of Kalawao.

St. Philomena built near the Siloama Church in 1872, was the first Catholic Church on the peninsula. Constructed in successive stages in a simple gothic style it has both stone and wood walls, with foundations at grade and on wooden posts. The church has a bell tower and hipped roof. Double hung windows are on the older portion to the rear and eight triple hung windows in gothic arch recesses line the sides. Its construction was "remarkable for the difficulties involved in acquiring building materials and for the scarcity of professional building expertise available" (Greene, 1985, p. 578). The building is closely associated with Saint Damien, who built and made architectural improvements to most of the building, and preached in the church throughout his tenure at Kalaupapa.

Cemeteries

Many of the cemeteries on the Kalaupapa peninsula are located at Kalawao, Kalaupapa, and at Makanaluna near the Kauhako Crater. The cemeteries reflect both the religious and cultural affiliations of Kalawao and Kalaupapa settlement residents. According to the 1991 inventory, cemeteries associated with Kalawao are the Kahaloko Cemetery along Damien Road, the cemetery associated with Siloama Church, and unmarked locations in three distinct adjacent fields, east of Saint. Philomena Catholic Church.

Siloama Cemetery

Many members of the Siloama congregation were buried around the church in its early history. Remaining visible sites are few. The cemetery was probably not used after services stopped there in 1927.

Circulation Systems, Roads

Routes connecting the east and west sides of the peninsula existed prior to the development of the Kalaupapa and Kalawao Settlement. As the number of residents on the peninsula increased, use of these routes and trails also increased. When Saint Damien first arrived there was no formal road on the peninsula. As Kalaupapa became more of a supply line for the settlement, he worked with the residents to enhance and develop the path between Kalawao and Kalaupapa to facilitate the transportation of supplies and people from the Kalaupapa landing. The path proved unusable during the wet season, when it became a sea of mud, as well as during the dry spells when the deep ruts cut in the winter dried into hard furrows. In January 1883 Saint Damien and some helpers from the settlement made improvements and stabilized the government road to a more passable year-around surface, including the use of stone paving in sections. Upon completion of these improvements, the road between Kalaupapa and Kalawao was referred to as the Father Damien Road (Greene, 1985: 151).

Vegetation

Incurion by non-native vegetation has significantly impacted historic patterns of landscape use within Kalawao, often obscuring historic features, structural ruins, and historically open views and viewsheds. During the historic period, much of the settlement was more open in character with few garden spaces, ornamental or functional plantings.

Spatial Organization

Historic spatial organization at Kalawao settlement was initially defined by relatively unobstructed open space similar in character to the landscape throughout the peninsula prior to the establishment of facilities by the government. As the government began development of the settlement at Kalawao, along with the reconstruction of existing houses and support structures by Saint Damien occurred in small clusters and around the developing church clusters. The majority of the settlement was then oriented around the churches and along the Damien Road. Building clusters in the settlement, such as the Baldwin Home for Boys and the Federal Hospital were designed as largely self-contained complexes.

Heritage Plants

While the non-native character of the vegetation within the proposed project area is a direct consequence of past disturbance and introduction of invasive plants, several non-native elements relate directly to the history of the sites. Groves or wind barriers of coconuts (*Cocos nucifera*) can be found adjacent the historic footprints of all historic buildings associated with the Federal Leprosy Investigation Station and at the Old Baldwin Boys Home. Ironwood (*Casuarina equisetifolia*) are still found at their historic locations where they were planted as windbreaks. A grove of lemon scented gum (*Corymbia citriodora*) remains adjacent the Old Baldwin Boys Home. Other medicinal, food/fruit trees, and garden remnants remain scattered throughout the area of interest (Hosten 2010).

Heritage plant remnants include the following (Hosten 2010):

- Hala (*Pandanus tectorius*) and kukui nut trees (*Aleurites moluccana*) (associated with material culture);
- The “lemon scented gum” and “ward off fever” trees (associated with use, by some, for symptomatic relief) located on the east and west sides of the Old Baldwin Home;
- The palm trees (*Phoenix dactylifera*) scattered in the vicinity of the Old Baldwin Boys Home;
- Rows of ironwood for wind-protection;
- Rows of coconut palms;
- Legacy fruit trees remaining within the Old Baldwin Boys Home and surrounding area;
- Scattered ornamentals in the central open area of the Old Baldwin Home (associated with the original ornamental garden).

Ethnographic Resources and Traditional Communities

Ethnographic cultural resources are those resources to which communities ascribe cultural significance, meaning and value. These resources are representative of a given culture or contain information about a culture. Such resources continue to play a role in a community’s identity and way of life. These resources may include material objects, archeological sites, historic structures, landscape features, traditional cultural properties, spiritual and sacred areas, traditional hunting and gathering areas, subsistence resources, trails, natural resources, ocean resources, and submerged cultural resources. Resources

can also be intangible such as a descriptive wind or rain that frequents an area or a particular path, a night marcher's trail that ancestral spirits travel on certain nights of the moon cycle.

The NPS defines traditional communities as those who "...have been associated with a park for two or more generations (40 years), and whose interests in the park's resources began before the park's establishment [Ref: Management Policies 2006, Section 5.3.5.3, p. 70]."

Overview of Previous Ethnographic and Oral History Research

Various socio-cultural research projects have been conducted at Kalaupapa, much of it being unreported and unavailable to researchers. Earlier research tended to concentrate on the past. Before the park was established in 1980, two research projects were completed. In 1970, Ted Gugelyk and Dr. Michael Bloombaum began a study on the socio-psychological effects of Hansen's Disease with Kalaupapa patients. Their research focused on self-esteem, perception, attitudes about Hansen's Disease and the extent to which patients were affected by depression in relation to their disease. Most impressively, interviews were done with ninety of the 128 patients then living at Kalaupapa. The interviews were not recorded but were written as field notes and transcribed and edited with the patients' input (Gugelyk and Bloombaum 1979:14, n.1). In 1979, Gugelyk and Bloombaum published *Ma'i Ho'oka'awale, The Separating Sickness*. The book contains interview excerpts from twenty-five patients talking about their personal experiences with Hansen's disease – the stigma, their life at Kalaupapa, their attitudes and their hopes for the future. It does not seem that a final project report was ever completed (Langlas 2006:2) The records are restricted and will not be made available to other researchers.

As part of a master's degree, 'A'ala Roy did interviews with about six patients during the 1970s. Interviews were conducted in Hawaiian and English. She also collected a few historic photos of Kalaupapa. 'A'ala Roy died before completing her thesis and her work was never published. The interviews and photos remain with her family.

In the 1970's, Anwei Skinsnes (Law) began to conduct interviews with Kalaupapa residents. In the early 1980's, sixty hours of interviews were recorded on audio tape with individuals who had been sent to Kalaupapa as early as 1914, individuals who had worked at Kalaupapa as early as 1925, and children of individuals who worked at Kalaupapa as early as 1902. None of the individuals interviewed asked that the interviews be restricted. However, guidelines were developed by Ms. Skinsnes (Law) to ensure sensitive use of the materials.

In 1984-1985, Ms. Law conducted a series of interviews with a grant from the Hawaii State Library for the Blind and Physically Handicapped. This was followed by further oral histories supported by the NPS between 1985-1989, all of which have been transcribed. The transcribed works comprise three volumes. Volume 1 (1984-1985) and Volume 2 (1985-1987) contain thirty-nine interviews that deal with the pain of separation, the barriers that existed between patients and non-patients, the removal of some of these barriers, life at Bishop Home, life at Baldwin Home, recollections of former administrators, the importance of music, focus on art and other talents, as well as individuals' views on Kalaupapa National Historical Park and the future. Volume 3

(1988-1989) has interviews with staff, officials, NPS representatives and people who helped to bring the NPS to Kalaupapa – including Rep. Patsy Mink and NPS Pacific Area Director, Bob Barrel. There are also miscellaneous interviews and talks from the Damien Centennial celebration and the 13th International Leprosy Congress, the first time individuals affected by leprosy made presentations at this typically scientific congress.

In September, 1993, Valerie Monson, was contracted by Superintendent, Peter Thompson, and the NPS to collect oral histories of patients. Beginning in 1989, Ms. Monson had established a relationship with Kalaupapa residents when she began writing stories about Kalaupapa life for the *Maui News*. About 25 stories were published for the *Maui News* during that period. Before any publications, she asked for and received verbal permission from those she interviewed to publish their stories and/or their photograph(s).

In 2000, Jennifer Cerny conducted six months of ethnographic research for a Master's thesis in Cultural Heritage Studies at James Cook University. Her thesis, *Social value: an essential step toward Cultural landscape understanding* (2001), examined the social value of the vegetative landscape as told through the sentiments of the patients and residents of the Kalaupapa community. Her research identified plants within the cultural landscape and described the value given them by the patients in utilitarian, symbolic and aesthetic terms. She also addressed resource management issues at Kalaupapa National Historical Site and elsewhere in the United States. Detailed notes were taken but interviews were not recorded. Eight patients and two park managers were interviewed; casual talk-story was done with eight other patients and some non-patient residents (Langlas 2006:3, Cerny 2001).

An ethnographic study supported by the National Park Service was conducted March, 2001 to September, 2005 by an independent team of three researchers: Charles Langlas, cultural anthropologist, Sonia Juvik, cultural geographer and Ka'ohulani McGuire, cultural anthropologist. The main objective of the study was to describe the Kalaupapa community as it existed then [2000-2005] and to also describe how the community had evolved over the years since 1969 when patients were no longer required by law to be isolated. The study looked at the whole community and its three components and described the life of the patients, the State kōkua and the Federal kōkua. Both formal and informal interviews were conducted with all three community groups. The results of the research were written up in a final report (Langlas, 2006) for internal use only by the NPS. A condensed version of the final report was distributed to the Kalaupapa community (Langlas, McGuire and Juvik, 2008).

A separate ethnographic study was conducted by cultural geographer, Sonia Juvik as part of the above project. The focus of her study (Juvik 2007) was to describe the visible elements of the cultural landscape that had special meaning and value for both patients and kōkua. The study also looked at how people's perception of Kalaupapa as a place was determined by the physical environment around them. The study sought to describe the special "sense of place" that Kalaupapa has for those who live there, both patient and kōkua. Research results were obtained through participant observation, formal and informal interviews and structured questionnaires.

Displacement of the Kama`āina

The existence of Hawaiian culture on the peninsula dates back at least 800 years before present. In 1866, when the first leprosy patients arrived, there was still a traditional Hawaiian community living on the Kalaupapa Peninsula and in the neighboring Windward valleys. In order to enforce King Kamehameha's 1865 Act to Prevent the Spread of Leprosy, the Board of Health attempted to enforce strict isolation when the Kalawao Settlement was first established. As a result, these kama`āina were relocated by the Hawaiian government and the Board of Health. This displacement occurred in gradual stages over a period of about thirty years, from 1865 to 1895. The impact of this displacement was that there was a loss of ancestral and cultural connection to the land. By agreeing to relocate to other lands on an island of their choice, these kama`āina relinquished their interests in their kuleana (smaller plots of land belonging to native tenants within the larger ahupua`a). The majority of the kama`āina chose to relocate to lands set aside for them in the Eastern districts of Moloka`i. Some chose to go to other islands. The government paid for the cost of their transportation and relocation. Though the Hawaiian government reimbursed the kama`āina for their land, and for any resources of value – their homes, fruit trees and cultivated garden plots – the fact remains that the native people were displaced and there was a disconnection from their ties to the `āina. This departure of the kama`āina from their lands in Waikolu and Kalaupapa peninsula is a major contributing factor to the loss of Hawaiian cultural knowledge about land use, religion, traditional customs and cultural sites on the peninsula. When Monsarrat did his land survey in 1884, he had one informant from the “settlement”. In 1909, when Stokes documented heiau on the peninsula, he could find only one native informant from the area. Much of the oral knowledge about Hawaiian cultural resources and sites that has filtered down to the current patient population today is fragmented and incomplete.

Associated Communities

Within the park boundaries, the main group of residents with whom the park consults are those individuals who were affected by leprosy and who have now made Kalaupapa their home.

Members of the clergy, State, and Federal employees work and live on the peninsula to support the patient community. Many of these workers are of native Hawaiian ancestry who also fish, hunt and gather resources from the `āina. Most of these workers are also Molokai residents who live on upper Molokai when not in the Settlement for work. Support is also provided by families and friends of patients who have visited Kalaupapa for many years and established relationships with the patient community. A future potential group is the families of the original kama`āina who lost their generational ties to the `āina due to the forced isolation policies of the Hawaiian government.

Present-Day Patient Community

The majority of the current patients came to Kalaupapa during the 1940s and 1950's. The remaining patient community is considered elderly. While some patients live on Oahu and Kauai, most remain at Kalaupapa. The ethnic composition of the patient community is predominantly Hawaiian or part-Hawaiian, as it was historically. As in historic times, the Catholic faith still dominates the community although the Protestant churches still

continue to have weekly services and only last year did regular worship end at the Church of Jesus Christ of Latter-Day Saints, due to the death of its last leader. Though there was a small Buddhist community that started in the 1920s, there are no remaining Buddhists left at Kalaupapa.

Current Cultural Resource Use by Patient Community

Plants from the Kalawao area have been used to make lei, as a source of food, and medicine. Kīkānia, is a thorny non-native plant that grows wild, especially out in the open spaces at Kalawao where it used to be more abundant during the time of heavy livestock grazing. Its orange fruit, gathered and strung into lei, has become symbolic as the “official” lei representing Kalaupapa. Many patients have planted kīkānia in their yards because the open areas where kīkānia used to grow have become dominated by invasive shrub and trees. Other plants such as *lau kī*, *hō`i`o* and watercress were used for food preparation and/or eating. Patients also used plants for *lā`au lapa`au*, for medicine and healing.

Hunting for animal resources with guns is a recent tradition. It was illegal for patients to own guns until the early 1950s and kōkua were not allowed to hunt until about 1995. In earlier years, patients hunted pigs and goats with dogs or by catching the young animals. In one story, a patient killed a pig by hitting it on the head with a rock. The pig was dressed, cooked in the imu and shared with the rest of the boys at Old Baldwin Home (Cambra in Skinsnes Law, 1985). Deer entered the park in 1984 and are hunted today by kōkua. There are no longer patients that hunt but the kōkua do share their excess deer meat with those patients who request it. The tradition of giving fish, salt and other resources away to widows, elderly and those in need is rooted in Hawaiian culture. This tradition has carried over to the patient culture. Both patients and kōkua speak of giving fish out to other patients who can no longer fish or no longer have access to fish (i.e., a spouse who fished has since died). Now, that most of the patients no longer fish, patients depend on kōkua to supply them with these kinds of food resources that they love and that represent their cultural values.

Many people are often surprised to discover that “Siloama Church” was the first church built at Kawaiaua in Kalawao. The church was organized in June of 1866 and a church building constructed in 1871. Siloama was built on the site of their first meeting place – the lānai of a home that belonged to Kapuhaua. Its founding members, comprised of twelve women and 23 men of Hawaiian ancestry, most of whom were sent to Kalawao during that first historic year of segregation. A biblical name after the pool of Siloam in Jerusalem, Siloama means “church of the healing spring” (Helen Keao in Skinsnes Law, 1984-5: Tape #5A, p. 2).

Within the rock wall delineating the church yard are 13 graves associated with Siloama; nine are unmarked with no visible inscription. Outside of the rock wall (west) is the weathered, now unmarked, tomb of Kanakaokai, Hawaiian teacher, and a former student of Lahainaluna Seminary on Maui.

Though their patient membership is very limited, it is important to the members that Siloama be used. They still carry on the tradition of holding services there on the last Sunday of each month. (Sarah Benjamin in Skinsnes Law, 1984-5: Tape 5A, p.8)

The historic St. Philomena Church, also known as Damien's Church, is located across the road from the Old Baldwin Home entrance. Brother Bertrand built the original chapel which was dedicated on May 30, 1872. Saint Damien built an addition on the west side of the church in 1876. The stone-work section was begun in 1888 and was completed after Saint Damien's death in 1889. Mass is held regularly on the first Sunday of each month. Special masses are occasionally held there whenever special guests and groups visit. Olive trees believed to be planted by Saint Damien grow just inside the church grounds. At Kalaupapa Palm Sunday celebrations, small branches from these olive trees are sometimes cut and given to each person attending the service.

There are four associated graveyards east of the church. Most of the graves are unmarked burials in several open fields. Adjacent to St. Philomena is the cemetery where Joseph Dutton and a relic of Saint Damien are buried.

Heiau and Fishing Ko'a: Makali'i

Near the coastal edge at Kalawao lies a fishing ko'a (shrine) and navigational heiau [SHPD #50-60-03-2304]. The following ethnographic information about Makali'i comes from patient resident Henry Nalaie lua [1925-2009].

Henry further explained how different stars were used to mark certain places at sea and on land. If heading back to land from Mokapu island, no matter how dark it was, as long as there was a star shining above the pyramid, the fishermen were able use it as a marker to follow it and return safely to land (Nalaie lua 2002, Personal communication with Ka'ohulani McGuire).

Scenic Resources

At the largest scale, the magnificent natural landscape at Kalawao defined by towering cliffs, deep valleys, verdant watersheds, and open pastoral landscape remains the dominant scenic resource associated with the historic settlement. Many of these stunning views and scenic resources are viewed by the public at vantage points from along the Old Damien Road as it cuts across the Kalawao landscape. As one travels along this road corridor from Kalaupapa Settlement, the view which was historically open on either side of the road, is generally narrow and confined by encroaching vegetation. Once the road passes Siloama Church and Saint Philomena Church, the view today opens dramatically and expands across a rock-studded open expanse to the Pacific Ocean. This view depicts a picturesque landscape that is iconic in both early and contemporary views of Kalawao, and is considered a highly significant scenic resource.

Within Kalawao settlement, scenic resources are perceived from vantage points along Old Damien Road, which serves to divide the views into those that are oriented north across the open landscape to the Pacific Ocean, and views looking south, into the walled enclosure and forested areas adjacent to the Old Baldwin Home.

Scenic resources associated with the historic settlement at Kalawao have changed considerably over time. Much of this change is the result of abandonment, and the spread of non-native [exotic] vegetation into areas historically open in character. At Kalawao,

this change in character is primarily evident in the areas around the U.S. Federal Hospital site, and along the Old Damien Road as it passes the Baldwin Home for Boys. At the Baldwin Home, non-native vegetation has encroached from areas historically planted with ornamentals, or from areas associated with subsistence and cultivated garden areas. As a result of these changes, remaining views at the Baldwin site focus inward to a relatively small open area in the center of the enclosure and the area surrounding a man-made mound and monkey pod tree at the site of the old rock garden. From this point, historically significant views and scenic resources including views north across the [burial] grounds and open landscape, the Pacific Ocean, and Saint Philomena Church are limited to selected vantage points.

While the larger topographic landscape setting remains the dominant scenic resource at Kalawao, the remnant landscape associated with the historic settlement is also considered an important scenic resource. Commonly, the encroachment of non-native vegetation in historically open areas throughout Kalaupapa Peninsula—including those view to and from within the Old Baldwin Home, has significantly altered the visual character of the settlement. Selective thinning or removal of invasive vegetation could restore historic views and reestablish scenic resources associated with the settlement landscape.\

Park Operations

Visitor Experience

Kalaupapa National Historical Park was created to preserve the history of the settlement and its people. As such, visitor experience is about how the history of the settlement and its inhabitants are shared. Every effort is made to preserve the peace and sanctity of the peninsula to allow residents of the settlement to live as they desire.

Visitation is thus limited to those who obtain a Department of Health permit either by resident sponsorship or participation on the tour. Guests are not allowed to roam outside of the settlement unescorted by a resident of Kalaupapa (including State and National Park Service personnel). A general Management Plan is currently being written to ensure that the history of the peninsula and memories of its people continue to be preserved through time.

Maintenance

Kalaupapa National Historical Park headquarters is located within the Kalaupapa Settlement. Various buildings throughout the settlement serve as the base of operations for alloperations. There are five office buildings, a fire station, recycling center, compost facility, carpentry/paint shop, electrical shop, curatorial storage facility, water pumping station, vehicle storage facilities, auto/boat mechanic garage, and 30 housing units. Current maintenance of the Old Baldwin Boys Home is comprised of periodic cutting of woody vegetation and mowing of the open area.

Safety and Security

A staff of six law enforcement rangers offer public safety services and emergency aid. Visitors who become ill or are injured are airlifted to service hospitals.

VI ENVIRONMENTAL IMPACT ANALYSIS

The National Environmental Policy Act (NEPA) requires that environmental documents disclose the environmental impacts of the proposed federal action, reasonable alternatives to that action, and any adverse environmental effects that cannot be avoided should the proposed action be implemented. This section analyzes the environmental impacts of two project alternatives and a no-action alternative on park resources. Because the design of the Memorial will be determined at a later date through a competition, this impact analysis is mainly qualitative and additional detailed analysis may be done later, as appropriate, if there are substantive changes to what is proposed.

These analyses provide the basis for comparing the effects of the alternatives. NEPA requires consideration of impacts (direct, indirect and cumulative), the significance of the impacts (context and intensity) as well as measures to mitigate impacts. In addition to determining the environmental consequences of the alternatives, NPS *Management Policies* (NPS 2006) and Director's Order- 12, *Conservation Planning, Environmental Impact Analysis, and Decision- making*, require analysis of potential effects to determine if actions would impair park resources.

This document presents an analysis of what impacts can be expected under each of the alternatives discussed in this document. Through presenting impact analysis, the reader—and decision-makers—are better prepared to weigh advantages and disadvantages of the different alternatives.

Each alternative is evaluated in terms of the impacts the proposed actions would have on the affected environment described above. A description of the methods for determining impacts to an affected environment is listed below, followed by an assessment of the environmental impacts for each alternative.

Methodology

The environmental consequences for each impact topic were defined based on the following information regarding context, type of impact, duration of impact, area of impact and the cumulative impact.

Type of Impact

A measure of whether the environmental impact will improve or harm the resource and whether that harm occurs immediately or at some later point in time.

Beneficial

Reduces or improves the environmental impact being discussed.

Adverse

Increases or results in environmental impact being discussed. It should be noted that preparation of this EA also includes analysis of effects pursuant to Section 7(a)(2) (Endangered Species Act) and Section 106 (National Historic Preservation Act). Given differing standards it is possible that an “adverse impact” may not have an “adverse effect”, or vice versa. In the discussions which follow, such distinctions will be indicated in parentheses.

Direct

Caused by and occurring at the same time and place as the action, including such environmental impacts as animal and plant mortality, damage to cultural resources, etc.

Indirect

Caused by the action, but occurring later in time or further removed in distance, but are still reasonably foreseeable, including changes in species composition, vegetation structure, range of wildlife, offsite erosion or changes in general economic conditions tied to park activities.

Intensity (except Special Status Species, Cultural and Ethnographic Resources)

Negligible

Measurable or anticipated degree of change would not be detectable or would be only slightly detectable. Localized or at the lowest level of detection.

Minor

Measurable or anticipated degree of change would be have a slight effect, causing a slightly noticeable change of approximately less than 20 percent compared to existing conditions, often localized.

Moderate

Measurable or anticipated degree of change is readily apparent and appreciable and would be noticed by most people, with a change likely to be between 21 and 50 percent compared to existing conditions. Can be localized or widespread.

Major

Measurable or anticipated degree of change would be substantial, causing a highly noticeable change of approximately greater than 50 percent compared to existing conditions. Often widespread.

Special Status Species Intensity

No Effect

The project (or action) is located outside suitable habitat and there would be no disturbance or other direct or indirect impacts on the species. The action will not affect the listed species or its designated critical habitat (USFWS 1998).

May Effect, Not Likely to Adversely Effect

The project (or action) occurs in suitable habitat or results in indirect impacts on the species, but the effect on the species is likely to be entirely beneficial, discountable, or

insignificant. The action may pose effects on listed species or designated critical habitat but given circumstances or mitigation conditions, the effects may be discounted, insignificant, or completely beneficial. Insignificant effects would not result in take. Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not 1) be able to meaningfully measure, detect, or evaluate insignificant effects or 2) expect discountable effects to occur (USFWS1998).

May Effect, Likely to Adversely Effect

The project (or action) would have an adverse effect on a listed species as a result of direct, indirect, interrelated, or interdependent actions. An adverse effect on a listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions and the effect is not: discountable, insignificant, or beneficial (USFWS 1998).

Cultural and Ethnographic Resources Intensity

See Table 3.

Table 3. Descriptive terms defining impacts to cultural resources.

Cultural Resource Intensity	
<i>Negligible:</i>	The impact is at the lowest level of detection or barely measurable, with no perceptible consequences, either adverse or beneficial, to cultural resources. For purposes of Section 106, the determination of effect would be <i>no adverse effect</i> .
<i>Minor:</i>	The impact would affect historic properties with the potential to yield information important in prehistory or history. The historic context of the affected site(s) would be local. For purposes of Section 106, the determination of effect would be <i>no adverse effect</i> .
<i>Moderate:</i>	The impact would affect historic properties with the potential to yield information important in prehistory or history. For a National Register eligible or listed historic district, the impact is readily apparent, and/or changes a character-defining feature(s) of the resource to the extent that its National Register eligibility is jeopardized. For purposes of Section 106, the determination of effect would be <i>adverse effect</i> .
<i>Major:</i>	The impact would affect historic properties with the potential to yield important information about human history or prehistory. The impact is severe for eligible or listed historic districts. The impact changes a character defining feature of the resource, diminishing the integrity of a National Register eligible or listed resource to the extent that it is no longer eligible or listed on the National Register. For purposes of Section 106, the determination of effect would be <i>adverse effect</i> .

Ethnographic Resource Intensity	
<i>Negligible:</i>	Impact(s) would be barely perceptible and would neither alter resource conditions, such as traditional access or site preservation, nor alter the relationship between the resource and the affiliated group's body of beliefs and practices. There would be no change to a group's body of beliefs and practices.
<i>Minor:</i>	Impact(s) would be slight but noticeable and would neither appreciably alter resource conditions, such as traditional access or site preservation, nor alter the relationship between the resource and the affiliated group's body of beliefs and practices.
<i>Moderate:</i>	Impact(s) would be apparent and would alter resource conditions. Something would interfere with traditional access, site preservation, or the relationship between the resource and the affiliated group's beliefs and practices, even though the group's beliefs and practices would survive.
<i>Major:</i>	Impact(s) would alter resource conditions. Something would block or greatly affect traditional access, site preservation, or the relationship between the resource and the affiliated group's body of beliefs and practices, to the extent that the survival of a group's beliefs and/or practices would be jeopardized.

Duration of Impact

Duration is a measure of the time period over which the effects of an impact persist. The duration of impacts evaluated in this EA may be one of the following:

Short-term

Often quickly reversible and associated with a specific event, one to five years.

Long-term

Reversible over a much longer period, or may occur continuously based on normal activity, or for more than five years.

Area of Impact

Area of impact is the setting within which impacts are analyzed – such as the project area or region, or for cultural resources – the Area of Potential Effects. For this project the area of impact can be either localized or widespread.

The **localized** area of impact is defined as the former Old Baldwin Home for Boys; its adjoining former garden area to the south of the home, all of the surrounding rock walls, a portion of Damien Road, St. Philomena Church, Siloama Church, both church

associated graveyards, a field of unmarked graves, a heiau, and the area extending out to the adjoining coast line (Figure 7).

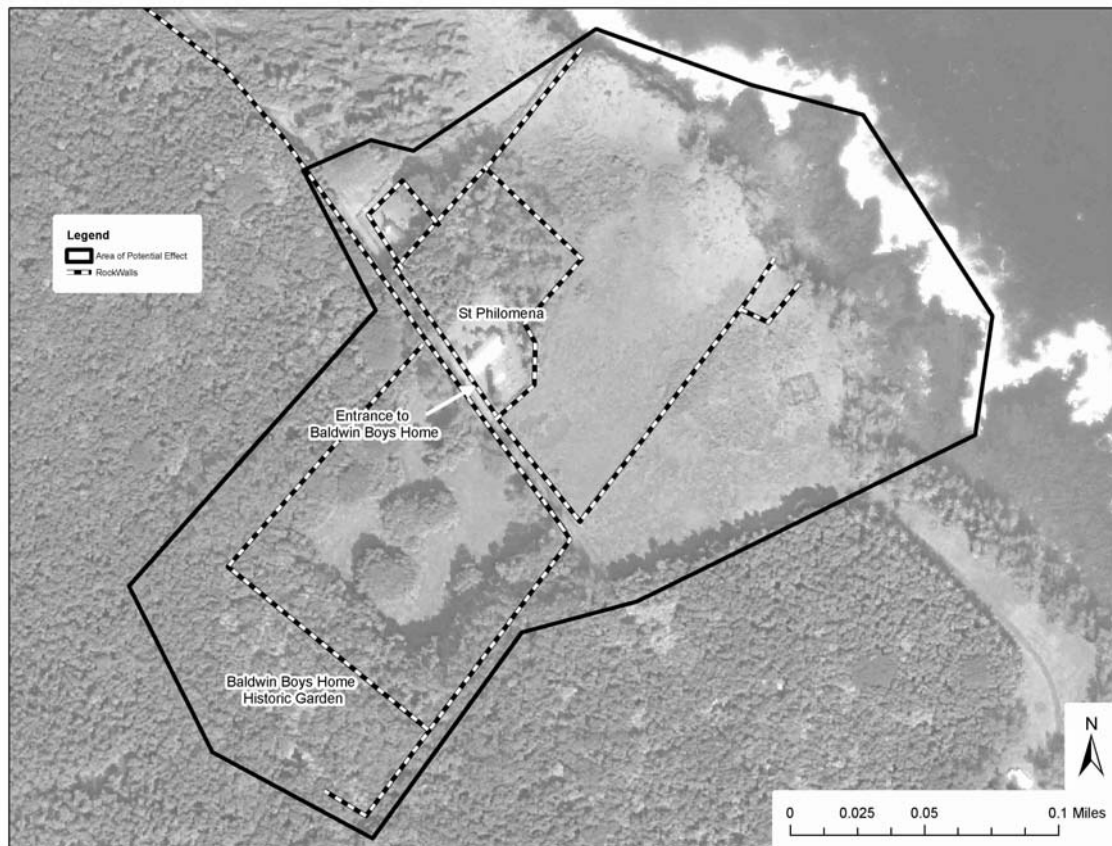


Figure 7. Project area.

Widespread area of impact is defined as the Kalaupapa Peninsula. Detectable on a landscape scale (beyond the affected site).

Cumulative Impacts

Cumulative impacts are the effects on the environment that would result from the incremental impacts of the action when added to other past, present and reasonably foreseeable future actions. Impacts are considered cumulative regardless of what agency or group (federal or non-federal) undertakes the action.

The cumulative impacts addressed in this analysis include past and present actions, as well as any planning or development activity currently being implemented or planned for implementation in the reasonably foreseeable future. Past, present and future projects are defined in Table 4. Cumulative actions are evaluated in conjunction with the impacts of an alternative to determine if they have any additive effects on a particular resource.

Table 4. Cumulative Actions and Potentially Affected Resources.

Action	Description	Resources Potentially Affected
Past Projects		
Site clean-up of the Baldwin Boys Home	Over time the buildings have been taken apart and rebuilt at Kalaupapa, demolished by bulldozing and set on fire for disposal.	Prehistoric and historic archeological resources. Cultural landscape. Soils and geology.
Hydrology	Evidence from the field indicates that bulldozers have been used to modify the water course and create berms to protect the Old Baldwin Boys Home area.	Prehistoric and historic archeological resources. Cultural landscape. Soils and geology.
Vegetation management	Clearing of vegetation on different occasions has included the use of bulldozers, chainsaws and hand tools.	Prehistoric and historic archeological resources. Cultural landscape. Soils and geology. Heritage plants.
Present Projects		
Construct Memorial	The proposed Memorial would be located at one of two locations within the Old Baldwin Boys Home.	Prehistoric and historic archeological resources. Cultural landscape. Soils and geology.
Vegetation management	Routine vegetation management to clear shrubs and mow the open area of the Old Baldwin Boys Home.	Prehistoric and historic archeological resources.

Action	Description	Resources Potentially Affected
	This includes fuel reduction and preservation of the historic viewshed.	Cultural landscape. Soils and geology.
Damien Road maintenance	Continued routine maintenance of Damien Road.	None
Feral animal control	Feral animal control will continue.	Rooting by feral pigs will continue to impact Cultural Resources
Future Projects		
Interpretation	Develop interpretive and educational media to tell the history of the area.	None
Heritage tree preservation	Clearing vegetation around heritage trees and planting a younger cohort to keep heritage plants on site.	None

Mitigation

Mitigation measures are identified in the impact assessment in Environmental Consequences. These measures have been developed to lessen the potential adverse effects of the alternatives.

Impairment Summary Statement

The National Park Service must consider the impacts of each alternative to determine if the described action would lead to an impairment of resources as discussed in the National Park Service Organic Act and the General Authorities Act. If there would be impairment the action may not be approved. An impairment is an impact that would harm the integrity of park resources or values (NPS 2006). Not all impacts constitute impairment. Severity, duration, and timing of the impact help determine whether the integrity of a park resource or value would be irreparably compromised.

In this Environmental Assessment determinations of impairment are provided in Table 5. Based on policy, however, impairment determinations are not made for health and safety, visitor use, maintenance, operations, socioeconomic resources and other non-natural or cultural resources topics.

The nature of this project to establish the Kalaupapa Memorial and the developed mitigation measures would serve to minimize negative impacts ensuring there is no impairment to any resources within the project area.

The Memorial construction would result in no-impairment for many of the resources analyzed, because the resources do not occur within the project area (Geology/Soils/Geologic Hazards, Water Resources, Floodplain, Vegetation (succession), Avifauna, Mammals, Reptiles and Amphibians, Insects and Invertebrates, and Special Status Species). Other adverse impacts, mainly for cultural resources, are minimized through careful location of the Memorial, resource specific mitigations, and construction limits (size, heights, and depth of disturbance) – see table 5.

Table 5. Resource Impairment Assessment

Impact Topic	Impairment Assessment
Geology/Soils/Geologic Hazards	The localized nature of the project does not cause impairment.
Water Resources	The localized nature of the project does not cause impairment.
Floodplain	The localized nature of the project does not cause impairment.
Vegetation (succession)	The localized nature of the project does not cause impairment.
Avifauna	The localized nature of the project does not cause impairment.
Mammals	The localized nature of the project does not cause impairment.
Reptiles and Amphibians	The localized nature of the project does not cause impairment.
Insects and Invertebrates	The localized nature of the project does not cause impairment.
Special Status Species	Since no special status species are present in the area of analysis there is no impairment.
National Historic Landmark	While there are impacts to the NHL, mitigation measures will be employed to minimize these impacts resulting in no impairment
Archeological Resources	While there are impacts to the archeological resources, mitigation measures will be employed to minimize these impacts resulting in no impairment.
Cultural Landscape, Buildings and Structures	While there are impacts to the landscape, mitigation measures will be employed to minimize these impacts resulting in no impairment.
Ethnographic Resources	There are no adverse effects to ethnographic resources and therefore no impairment.
Heritage Plants	There are no adverse effects to heritage plants and therefore no impairment.
Scenic Values	There is no impairment of Scenic Values because grounds management will improve and maintain current Scenic Values.

Environmental Consequences

Natural Resources

Geology/Soils/ Geologic and Associated Hazards

Rooting by feral pigs is the most visible direct impact of current management on soils and geology within the Old Baldwin Boys Home area bounded by rock walls. Historic accounts of floods, an incised intermittent streambed, the remains of a berm intended to deflect water, and the accumulation of sediments on the upslope sides of rockwalls are indications of overland waterflow associated with high rainfall weather events that have the potential to disrupt local soils.

Alternative 1. No-Action

Direct Effects – The no-action alternative will result in negligible direct impacts to Geology/soil resources. No action alternative will keep conditions as they are – with continual pig rooting at the former Old Baldwin Home site and in all of the graveyards.

Indirect Effects - Vegetation successional processes towards large trees and a shaded understory with a dearth of herbaceous species will result in soils with less plant armoring against the erosive forces of running water. Vegetation changes and a continuation of the current trend towards lower hunting pressure will result in increased

rooting by pigs leading to moderate adverse localized short-term impacts to geology and soils.

Mitigation Measures - none

Alternative 2. Memorial Construction, South/Southwest Location

Direct Effects - Under this alternative, the Memorial would be constructed in the south/southwest area of the Old Baldwin Boys Home complex. The Memorial footprint would result in minor adverse localized long-term impacts to geology and soils. Several benefits would be provided by the improved vegetation management within the Old Baldwin Boys Home and vicinity to maintain historic open views and remove unsafe trees would improve vegetation armoring of the soil by herbaceous vegetation. Improved feral animal control would reduce the amount of rooting by pigs. Furthermore, maintenance of rock walls and repair of flood-damage would aid the prevention of sediment movement.

Indirect Effects - negligible

Mitigation Measures - Construct the Memorial during the summer to reduce the potential of soil disturbance during the rainy season. Seed disturbed areas with native seed mix.

Alternative 3. Memorial Construction, Western Location

Direct Effects - Under this alternative, the Memorial would be constructed in the west area of the Old Baldwin Boys Home complex. Ground disturbance would occur within the footprint of the Memorial. Much of the disturbance would occur within an area flooded historically, thus increasing the probability of erosion during a flood event resulting in moderate adverse localized long-term impacts to geology and soils. Several benefits would be provided by the improved vegetation management within the Old Baldwin Boys Home and vicinity to maintain open historic views and remove unsafe trees would improve vegetation armoring of the soil by herbaceous vegetation. Improved feral animal control will reduce the amount of rooting by pigs. Furthermore, maintenance of rock walls and repair of flood-damage would aid the prevention of sediment movement.

Indirect Effects - negligible

Mitigation Measures - Avoid construction in the area most susceptible to flooding, and design the Memorial to consider the through-flow of water and flood debris. Construct the Memorial during the summer to reduce the potential of soil disturbance during the rainy season. Seed disturbed areas with native seed mix.

Cumulative Effects (Alternatives 1, 2, and 3)- negligible

Conclusion (Alternatives 1, 2, and 3). The combination of rooting by pigs, loss of protective herbaceous vegetation, and the disrepair of rockwalls make soils within the Old Baldwin Boys Home site increasingly susceptible to high rainfall weather events resulting in moderate adverse localized short-term impacts to local geology and soils under the no-action alternative.

For both construction alternatives, improved feral animal control, vegetation management, and maintenance of rock walls would protect soil resources post Memorial construction relative to the no-action alternative. The partial placement of Alternative 3 within the flood zone of an episodic stream would increase the probability of soil erosion

relative to alternative 2 during the construction phase of the Memorial. The Memorial construction would result in minor adverse localized long-term impacts to local geology and soils for alternative two, but moderate localized long-term impacts under alternative 3.

There is no impairment to the Geology/Soils of the project area because of locational and seasonal restrictions to construction.

Water Resources

The most important forces influencing water resources are indirect in the form of plant evapo-transpiration consequent to vegetation management.

Alternative 1. No Action

Direct Effects - negligible.

Indirect Effects - The steady increase in tree cover as a result of successional processes will reduce the availability of soil-water resources over time as a consequence of increased evapo-transpiration – a minor adverse localized long-term effect.

Mitigation Measures - none

Alternative 2. Memorial Construction, South/Southwest Location

Direct Effects - negligible

Indirect Effects - Reduction of the tree component and maintenance of a more open view would likely improve soil - water resources within the soil profile by reducing total evapo-transpiration – beneficial.

Mitigation Measures - none

Alternative 3. Memorial Construction, Western Location

Direct Effects - negligible

Indirect Effects - Reduction of the tree component and maintenance of a more open view is likely to improve soil water resources within the soil profile by reducing total evapo-transpiration – beneficial.

Mitigation Measures – none

Cumulative Effects (Alternatives 1, 2, and 3) - There would be negligible cumulative impacts to water resources under the no-action or construction alternatives.

Conclusion (Alternatives 1, 2, and 3) – The construction alternatives will result in a negligible to minor beneficial impact on soil-water resources in comparison to the minor adverse localized long-term effect associated with the no-action alternative. There is no impairment to the Water Resources of the project area because vegetation management may result in greater available water in the soil profile.

Floodplain

Much of the former Old Baldwin Boys Home is located on a flood plain currently clear of buildings and largely occupied by mown vegetation. The former garden area is located on the southern portion of the water outflow area, and remains altered by the construction of rockwalls intended to create agricultural terraces. Many of these rock walls have

degraded, some pierced by a gully that discharges into the area occupied by the buildings of the former Old Baldwin Boys Home. The ensuing text analyzes how the construction of the Memorial might influence floodplain function (including the ability to attenuate flood waters).

Alternative 1. No Action

Direct Effects - negligible

Indirect Effects - negligible

Mitigation Measures - none

Alternative 2. Memorial Construction, South/Southwest Location

Direct Effects - The construction of the Memorial may constrain floodwaters thus increasing the erosive power of rain events, resulting in a moderate adverse localized long-term effect.

Indirect Effects - The maintenance of the grounds associated with the Memorial, and historic rock walls within the historic gardens may alleviate some of the erosive power of the floodwaters.

Mitigation Measures - Favor construction within the higher lying southeast portion of the designated alternative area to minimize impediments to flood waters; favor a permeable Memorial structure.

Alternative 3. Memorial Construction, Western Location

Direct Effects - The construction of the Memorial may constrain floodwaters thus increasing the erosive power of rain events, resulting in a moderate adverse localized long-term effect.

Indirect Effects - The maintenance of the grounds associated with the Memorial, and historic rock walls within the historic gardens may alleviate some of the erosive power of the floodwaters.

Mitigation Measures - Favor construction within the higher lying western portion of the designated alternative area to minimize impediments to flood waters; favor a permeable Memorial structure.

Cumulative Effects (Alternatives 1, 2, and 3) – negligible.

Conclusion (Alternatives 1, 2, and 3) – The no-action alternative will have negligible impact on the floodplain located within the area occupied by the former Old Baldwin Boys Home. While the Memorial under both construction alternatives will have a direct moderate adverse localized long-term effect, the indirect influence of vegetation and rock wall maintenance is considered beneficial. Cumulative Effects are considered negligible. There is no impairment of the floodplain of the project area because of locational and seasonal restrictions to construction.

Vegetation (Successional processes)

The Coastal Spray Zone Flora proximal to the Marine intertidal zone environment is well beyond the zone of influence by the Memorial construction. The prehistoric vegetation at the Old Baldwin Boys home site likely contained Lowland Coastal Area Flora. The current vegetation is dominated by non-native invasive trees (Javaplum, guava, and other) and shrubs (lantana).

Alternative 1. No Action

Direct Effects - negligible

Indirect Effects - An indirect effect of the no-action alternative is the continued successional process towards domination by large non-native trees. A preponderance of tall statured woody plants (false kamaani, Kukui nut, Java plum, guava, and lantana) would result in the loss of herbaceous plant cover considered a moderate adverse localized long-term effect.

Mitigation Measures - none

Alternative 2. Memorial Construction, South/Southwest Location

Direct Effects - Vegetation management within the Old Baldwin Boys Home and surrounds would retain more open lower statured herbaceous vegetation resulting in a benefit to the project area.

Indirect Effects - negligible

Mitigation Measures – none

Alternative 3. Memorial Construction, Western Location

Direct Effects - Vegetation management within the Old Baldwin Boys Home and surrounds would retain more open lower statured herbaceous vegetation resulting in a benefit to the project area.

Indirect Effects - negligible

Mitigation Measures – none

Cumulative effects (Alternatives 1, 2, and 3) - negligible

Conclusion (Alternatives 1, 2, and 3) - The no action alternative would result in the continued successional trend towards larger trees with the concomitant loss of herbaceous plants and shorter statured woody shrubs and trees - a moderate adverse localized long-term effect. Vegetation management associated with the construction and maintenance of the Memorial and surrounds (alternatives 1 and 2) would be a net benefit to maintaining herbaceous ground-cover. There are no impairments to vegetation successional processes because of the net benefits of vegetation management as a consequence of Memorial construction.

Avifauna

The avifauna at the Old Baldwin Boys Home is comprised of non-native species. The only danger potentially imposed on native birds would be by the inclusion of artificial lights with the Memorial construction. Lights are known to disrupt navigation and attract native seabirds from their marine habitat.

Alternative 1. No Action

Direct Effects – negligible

Indirect Effects – negligible

Mitigation Measures – none

Alternative 2. Memorial Construction, South/Southwest Location

Direct Effects - negligible

Indirect Effects – Maintenance of open space would provide a benefit in the form of maintaining open habitat for Pacific golden plover (*Pluvialis fulva*)

Mitigation Measures – a stipulation to exclude artificial lights from the Memorial construction

Alternative 3. Memorial Construction, Western Location

Direct Effects - negligible

Indirect Effects – Maintenance of open space would provide a benefit in the form of maintaining open habitat for Pacific golden plover (*Pluvialis fulva*).

Mitigation Measures – stipulation to exclude artificial lights from the Memorial construction

Cumulative Effects (Alternatives 1, 2, and 3) - negligible

Conclusion (Alternatives 1, 2, and 3). Lack of suitable habitat, the past effects of avian malaria, and mitigation to prevent the use of lights in the Memorial construction ensure Memorial construction has negligible effect on native avifauna. There is no impairment of Avifauna because native species are largely absent from the project area.

Mammals

The Hawaiian hoary bat is the only native mammal species in Hawaii and has the potential to fly through the area identified as the Old Baldwin Boys Home. As with the avifauna, lights are known to distract bats.

Alternative 1. No Action

Direct Effects – Feral animals continue to increase in numbers, a minor, adverse, localized, long-term effect.

Indirect Effects - negligible

Mitigation Measures - none

Alternative 2. Memorial Construction, South/Southwest Location

Direct Effects Improved management (including feral animal control for safety reasons) would reduce the abundance of deer and pigs but have a negligible influence on native mammals at the Old Baldwin Boys Home site.

Indirect Effects - negligible

Mitigation Measures - stipulation to exclude artificial lights from the Memorial.

Alternative 3. Memorial Construction, Western Location

Direct Effects - Improved management (including feral animal control for safety reasons) would reduce the abundance of deer and pigs but have a negligible influence on native mammals at the Old Baldwin Boys Home site.

Indirect Effects - negligible

Mitigation Measures - stipulation to exclude artificial lights from the Memorial.

Cumulative Effects (Alternatives 1, 2, and 3) - negligible

Conclusion (Alternatives 1, 2, and 3). Mitigation to prevent the use of lights in the Memorial would ensure the Memorial does not impact the Hawaiian hoary bat. Management of feral animals to improve public safety and protect the Memorial and surrounding grounds would reduce the abundance of deer and pigs within the Old Baldwin Boys Home area for both Memorial alternatives. The absence of native mammals from the project area implies the Memorial will have negligible effect on native mammals. There is no impairment of mammals within the project area because native species are largely absent from the Baldwin Boys Home.

Reptiles and Amphibians

With the exception of the marine turtles, all reptiles and amphibians within the vicinity of the Old Baldwin Boys Home are Polynesian or more recent introductions. Lights are known to distract marine turtles.

Alternative 1. No Action

Direct Effects - negligible

Indirect Effects - negligible

Mitigation Measures - none

Alternative 2. Memorial Construction, South/Southwest Location

Direct Effects - negligible

Indirect Effects – Memorial would increase the abundance of non-native reptiles.

Mitigation Measures – a stipulation to exclude artificial lights from the Memorial.

Alternative 3. Memorial Construction, Western Location

Direct Effects – negligible.

Indirect Effects - Memorial would increase the abundance of non-native reptiles, an overall negligible effect.

Mitigation Measures - a stipulation to exclude artificial lights from the Memorial.

Cumulative Effects (Alternatives 1, 2, and 3) – negligible.

Conclusion (Alternatives 1, 2, and 3). The only native reptiles and amphibians that could be impacted by the Memorial are marine turtles. Design criteria ensure that artificial light sources are excluded from the Memorial. Polynesian and more recent introduced non-native geckos would likely increase with both Memorial construction alternatives. The memorial will have negligible effect on native reptiles and amphibians. There is no impairment of amphibians within the project area because native species are largely absent from the Baldwin Boys Home.

Insects and Invertebrates

Little is known about native insects and invertebrates within the vicinity of the Old Baldwin Boys Home. Several Special Status species of aquatic macro-invertebrates are known to occur in adjacent valleys. Caves and tunnels remain under-explored and may house known rare insects and as yet undiscovered species. Insects are attracted to artificial lights.

Alternative 1. No Action

Direct Effects – negligible.

Indirect Effects – negligible.

Mitigation Measures – none.

Alternative 2. Memorial Construction, South/Southwest Location

Direct Effects - negligible

Indirect Effects - negligible

Mitigation Measures - stipulation to exclude artificial lights from the Memorial.

Alternative 3. Memorial Construction, Western Location

Direct Effects – negligible.

Indirect Effects – negligible.

Mitigation Measures - stipulation to exclude artificial lights from the Memorial.

Cumulative effects (Alternatives 1, 2, and 3) – negligible.

Conclusion (Alternatives 1, 2, and 3). The exclusion of lights from the Memorial ensures negligible effect on insects and invertebrates. Insects and invertebrates remain unimpaired because they are absent from the project area and lights are specifically excluded from the memorial design.

Special Status Species

The lack of perennial water (and hence fish & other aquatic resources), few other native wildlife, and extensive habitat degradation at the Old Baldwin Boys Home constrain this analysis to Special Status Species able to fly (Hawaiian Hoary Bat and marine seabirds) and marine wildlife known to be influenced by artificial lights (marine turtles). The construction guidelines stipulate that neither water features nor artificial lighting be included in the Memorial.

Alternative 1. No Action

Direct Effects - no effect

Indirect Effects - no effect

Mitigation Measures - none

Alternative 2. Memorial Construction, South/Southwest Location

Direct Effects - no effect

Indirect Effects - no effect

Mitigation Measures - a stipulation to exclude artificial lights from the Memorial.

Alternative 3. Memorial Construction, Western Location

Direct Effects - no effect

Indirect Effects - no effect

Mitigation Measures - a stipulation to exclude artificial lights from the Memorial.

Cumulative Effects (Alternatives 1, 2, and 3) - no effect

Conclusion (Alternatives 1, 2, and 3). Habitat degradation, lack of native species, and exclusion of lights from the Memorial construction ensure the protection (negligible effect) of all special status species known to occur in the vicinity of the former Old Baldwin Boys Home. Special Status Species remain unimpaired because they are absent from the project area and lights are specifically excluded from the memorial design.

Cultural Resources

Kalaupapa National Historical Park has consulted under Section 106 of the NHPA with the Hawaii State Historic Preservation Officer, the Advisory Council on Historic Preservation, and interested consulting parties on the proposed project (Appendix E). Although the proposed project may have adverse effects on cultural resources if impacts are not addressed, and while the final design of the Memorial would not be known until the design competition is completed, the National Park Service finds that there would not be Adverse Effect to cultural resources given the required subsequent completion of ongoing Section 106 reviews. After a Memorial design is chosen, conditions sufficient to avoid adverse effects would be imposed, in consultation with SHPO (36 CFR Section 800.5(b)).

National Historic Landmark

National Historic Landmarks are nationally significant historic places designated by the Secretary of the Interior because they possess exceptional value or quality in illustrating or interpreting the heritage of the United States.

Alternative 1. No Action

Direct Effects - There would be no additional impacts on the contributing resources to the National Historic Landmark as a result of the implementation of the No Action Alternative. Routine maintenance of Damien Road would continue.

Indirect Effects – Continued encroachment by non-native vegetation and rooting by pigs could disturb and damage the cultural resources resulting in a minor, adverse, localized, long-term effect to the National Historic Landmark.

Alternative 2. Memorial Construction, South/Southwest Location

Direct Effects -- The Old Baldwin Home historic site is a contributing site to the *Kalaupapa Leprosy Settlement National Historic Landmark*. Construction of the Memorial would diminish the integrity of contributing resources and character defining patterns and relationships associated with the Old Baldwin Boys Home historic site. Because the design for the Memorial will not be known until after the design competition, subsequent Section 106 review will be required when a design is chosen. Mitigation measures (see below) would be established to minimize the impacts to the National Historic Landmark. With the mitigation measures, the construction of the Memorial within the Old Baldwin Home historic site would be a moderate, adverse, localized, long-term impact.

Indirect Effects – The construction of the Memorial in this location would mean that the non-native vegetation and feral animals would be managed resulting in less damage to the National Historic Landmark. This would be a beneficial effect.

Alternative 3. Memorial Construction, Western Location

Direct Effects - The former Old Baldwin Home historic site is a contributing site to the *Kalaupapa Leprosy Settlement National Historic Landmark*. Construction of the Memorial would diminish the integrity of contributing resources and character defining patterns and relationships associated with the Old Baldwin Boys Home historic site. The Memorial in this location would be highly visible from the Saint Philomena church altering the historic view. Because the design for the Memorial will not be known until

after the design competition, subsequent Section 106 review will be required when a design is chosen. Mitigation measures (see below) would be established to minimize the impacts to the National Historic Landmark. With the mitigation measures, the construction of the Memorial within the Old Baldwin Home historic site would be a moderate adverse localized long-term impact.

Indirect Effects – The construction of the Memorial in this location would mean that the non-native vegetation and feral animals would be managed resulting in less damage to the National Historic Landmark. This would be a beneficial effect.

Mitigation Measures for Alternatives 2 and 3 - The construction of the Memorial and pedestrian pathway would adhere to the design criteria in section IV (Description of Alternatives) of this document. These criteria provide guidance for compatible new development through the appropriate scale (mass and height), use of materials, location and siting to reduce potential visual and physical impacts to other resources, and general standards for the design of commemorative structures appropriate within the NHL district. All new development or construction within the historic site will follow the *Secretary of the Interior's Standards for the Treatment of Historic Properties*. Project construction work would not commence until Section 106 of the National Historic Preservation Act was completed.

Cumulative Impacts (Alternatives 1, 2, and 3) - The National Historic Landmark has been impacted by construction and disturbances over time. The cumulative effect of the construction of the Memorial is a moderate adverse localized long-term effect because it adds non-historic structures, modifies historic patterns and circulation and adds an accessible pedestrian pathway to the Old Baldwin Boys Home, a contributing feature to the National Historic Landmark.

Conclusion -(Alternatives 1, 2, and 3) - Because of vegetation encroachment and feral animal activity, the No Action Alternative would result in indirect minor adverse localized long-term effects to the NHL. Direct effects of Alternatives 2 and 3 would result in moderate adverse localized long-term impacts and indirect beneficial effects to the NHL (the same action considered under the Section 106 process would not have an adverse effect). While there are impacts to the NHL, mitigation measures will be employed to minimize these impacts resulting in no impairment.

Pre-contact and Historic Archeological Resources

The recent archaeological testing (Stein 2010) helps to define the proposed Memorial locations. Areas with the least probability of disturbing any previously unidentified archeological resources were chosen for the locations of both Alternative 2 and 3.

Ground disturbing activities, including excavation, grading and vegetation removal for the construction of the Memorial could affect previously unidentified prehistoric or historic archeological resources

According to design criteria being established by Ka 'Ohana O Kalaupapa in conjunction with the NPS, any *iwi* (bones from ancient burials), significant archaeological features or rare native plants discovered on the preferred Alternative Site for the Memorial will remain in place.

Alternative 1. No Action

Direct Effects - Under the No Action Alternative, the Memorial would not be constructed and existing conditions would remain the same. Negligible direct impacts to archeological resources would occur under this alternative.

Indirect Effects – Continued encroachment by non-native vegetation and rooting by pigs could disturb and damage the archeological resources resulting in an indirect minor adverse localized long-term effect to the resources.

Alternative 2. Memorial Construction, South/Southwest Location

Direct Effects - Archeological resources were identified through survey and testing within the project area. Based on the survey and testing information, this proposed alternative would be located to have the least impact on known subsurface archeological resources. Because of this, impacts to the discrete archeological resources would be minimized. However, the integrity of the overall site would be impacted. Because the design for the Memorial will not be known until after the design competition, subsequent Section 106 review will be required when a design is chosen. Mitigation measures (see below) would further reduce impacts to archeological resources. Direct impacts to archeological resources would result in major localized long-term impacts.

Indirect Effects - The construction of the Memorial in this location would mean that the non-native vegetation and feral animals would be managed resulting in less damage and would be a beneficial effect to the archeological resources. The construction of the pedestrian pathway to the Memorial would be built in a manner and location that would not impact the archeological resources (see Appendix C) resulting in negligible effects to archeological resources.

Alternative 3. Memorial Construction, Western Location

Direct Effects — An archeological survey and testing project was completed within the project area. Based on the survey and testing information, this proposed alternative would be located to have minimal impact on known subsurface archeological resources. Because of this, impacts to the discrete archeological resources would be minimized. However, the integrity of the overall site would be impacted. Because the design for the Memorial will not be known until after the design competition, subsequent Section 106 review will be required when a design is chosen. Mitigation measures (see below) would further reduce impacts to archeological resources. Direct impacts to archeological resources would result in major adverse localized long-term impacts.

Indirect Effects - The construction of the Memorial and pedestrian pathway in this location would mean that the non-native vegetation and feral animals would be managed resulting in less damage to and would be a beneficial effect to the archeological resources.

Mitigation Measures for alternatives 2 and 3 - In order to minimize potential adverse impacts to archeological resources the following measures would be implemented:

- To ensure that no undetected significant archeological resources would be affected, an archeological monitor will be present at the site during all construction activities.
- Should presently unidentified significant archeological resources be discovered during construction, work in that location would be halted, the park Cultural Resources Program Manager contacted, the site secured, and the park would consult according to 36 CFR 800.11 and, as appropriate, provisions of the Native American Graves Protection

and Repatriation Act of 1990 and Hawaii state burial laws. Any archeological site would be properly recorded by an archeologist and evaluated under the eligibility criteria of the National Register of Historic Places.

- If the site is determined eligible, appropriate measures would be implemented either to avoid further resource impacts or to mitigate loss or disturbance (e.g., by data recovery excavations or other means) in consultation with the Hawaii State Historic Preservation Office.

Cumulative Impacts (Alternatives 1, 2, and 3) - Archeological resources at the Old Baldwin Boys Home have been adversely impacted from past site clearing disturbances (prior to the advent of archeological resources protection laws), erosion and other natural processes. The encroachment of invasive vegetation and the damage caused by pigs and other feral animals together with erosion and other natural processes continue to degrade this important historic site. There would be negligible effects to cumulative impacts from the no-action alternative. Alternatives 2 and 3 would contribute to cumulative impacts to archeological resources, but because of mitigation measures, would be minimized to long-term moderate adverse impacts.

Conclusion (Alternatives 1, 2, and 3) - The No Action Alternative would result in indirect minor adverse localized long-term effects to the archeological resources. Direct effects of Alternatives 2 and 3 would result in moderate adverse localized long-term impacts and indirect beneficial effects to archeological resources (the same action considered under the Section 106 process would not have an adverse effect). While there are impacts to the archeological resources, mitigation measures will be employed to minimize these impacts resulting in no impairment.

Cultural Landscape - Buildings and Structures

Alternative 1. No Action

Direct Effects - There would be negligible impacts on the contributing features to the cultural landscape, buildings and structures as a result of the implementation of the No Action Alternative. Routine maintenance of Damien Road would continue.

Indirect Effects – Continued encroachment by non-native vegetation and rooting by pigs would disturb and damage the resources that are contributing features to the cultural landscape resulting in an indirect minor adverse localized long-term effect.

Alternative 2. Memorial Construction, South/Southwest Location

Direct Effects - Alternative 2 is in physical and visual proximity to several historic structures that contribute to the significance of the cultural landscape. This alternative is within the stone wall surrounding and defining the former Old Baldwin Home complex, and in proximity to remnants of the central garden, remnant historic vegetation outside the walls, and circulation features associated with the complex. Other cultural resources in the general area of the former Old Baldwin Home include the Saint Philomena Catholic Church, the Church walls and gates, the Saint Philomena stone fence, cemeteries—both marked and unmarked, other stone fence lines, Damien Road, remnants of the U.S. Leprosy Investigation Hospital site, Siloama Church, and the Siloama Church stone fence and restroom.

Establishing the Memorial and associated pedestrian pathway in Alternative 2 would have the potential to affect historic views, and historic circulation patterns. Mitigation measures (see below) would help to minimize the impacts to the cultural landscape.

Because the design for the Memorial will not be known until after the design competition, subsequent Section 106 review will be required when a design is chosen. Establishing these non-historic structures (memorial and pedestrian pathway) would have a moderate adverse localized long-term direct impact to the physical and visual character of the Old Baldwin Boys Home historic site within the NHL district. There will also be a moderate adverse long-term impact to cultural landscape resources and historic circulation patterns with the construction of an accessible pedestrian route from Damien Road to the new Memorial.

Indirect Effects - Establishing the Memorial at this site would impact the viewshed within the Old Baldwin Boys Home complex and 12 associated contributing structures (listed in the NPS List of Classified Structures and Cultural Landscape Inventory for Kalaupapa and Kalawao Settlements) located adjacent and in proximity to the viewshed of the proposed Memorial resulting in a moderate adverse localized long-term impact .

Alternative 3. Memorial Construction, Western Location

Direct Effects - Alternative 3 is in physical and visual proximity to several historic structures that contribute to the significance of the cultural landscape. This alternative is within the stone wall surrounding and defining the former Old Baldwin Home complex, and in proximity to remnants of the central garden, remnant historic vegetation outside the walls, and circulation features associated with the complex. Adjacent cultural resources (in proximity to the proposed locations) include the Saint Philomena Catholic Church, the Church walls and gates, the Saint Philomena stone fence, cemeteries—both marked and unmarked, other stone fence lines, Damian Road, remnants of the U.S. Leprosy Investigation Hospital site, Siloama Church, and the Siloama Church stone fence and restroom.

Establishing the Memorial in Alternative 3 would have the potential to affect historic views, and historic circulation patterns. The implementation of mitigation measures (see below) would help to reduce the impacts to the cultural landscape. Because the design for the Memorial will not be known until after the design competition, subsequent Section 106 review will be required when a design is chosen.

This alternative would have a moderate adverse localized long-term impact by adding a new structure, or series of structural features, to the Old Baldwin Boys Home historic site within the NHL district. These non-historic structures would have a moderate, adverse long-term, impact to the physical and visual character of the site. There will also be a moderate adverse impact to historic circulation patterns with the construction of an accessible pedestrian route from Damien Road to the new Memorial.

Indirect Effects - Construction of the Memorial at this site would impact the viewshed within the Old Baldwin Boys Home complex and 12 associated contributing structures (listed in the NPS List of Classified Structures and Cultural Landscape Inventory for Kalaupapa and Kalawao Settlements) located adjacent and in proximity to the viewshed of the proposed Memorial resulting in a moderate adverse localized long-term impact.

Mitigation Measures for alternatives 2 and 3 - The construction of the Memorial would adhere to the design criteria in section IV (Description of Alternatives) of this document. These criteria provide guidance for compatible new development through the appropriate scale (mass and height), use of materials, and location to reduce potential visual and

physical impacts to other resources, and general standards for the design of commemorative structures appropriate within the NHL district and cultural landscape setting. All new development within the historic site will follow the *Secretary of the Interior Standards for the Treatment of Historic Properties*. Project work would not commence until Section 106 of the National Historic Preservation Act was completed. Any contributing feature to the cultural landscape that is modified or removed would be documented before and after construction to HABS/HAER standards. The pedestrian ADA accessible pathway to the Memorial site would be constructed using minimal ground disturbance and visually compatible materials with the historic setting.

Cumulative Impacts (Alternatives 1, 2, and 3) - There have been construction and clearing activities in the project area in the past, the addition of new construction would contribute to the cumulative impacts to the cultural landscape. There would be negligible effects to cumulative impacts from the no-action alternative. Mitigation for Alternatives 2 and 3 would reduce the cumulative effects to moderate adverse localized long-term impacts on the cultural landscape.

Conclusion (Alternatives 1, 2, and 3) - Because Alternatives 2 and 3 would add a non-historic structure(s) and structural features, modify vegetation, and adds accessible circulation path(s) and associated grade modifications, there would be a moderate adverse localized long-term impact overall. The same action considered under the Section 106 process would not have an adverse effect. While there are impacts to the landscape, mitigation measures will be employed to minimize these impacts resulting in no impairment.

Cultural Landscape - Vegetation (Heritage plants)

Heritage plants includes trees, shrubs, and herbaceous plants deliberately planted by staff and residents of the Baldwin Boys Home area. Surveys (Hosten 2010) indicate many heritage plants have been lost due to site clean-ups and successional processes leading to invasive larger statured trees.

Alternative 1. No Action

Direct Effects – negligible

Indirect Effects – Successional processes leading to the shading out of shorter statured heritage trees will result in a loss of heritage trees, considered a major adverse long-term and localized impact (the same outcome considered under the Section 106 process described above would not have an adverse effect.

Alternative 2. Memorial Construction, South/Southwest Location

Direct Effects – Negligible. The Memorial will be placed so as to avoid heritage trees.

Indirect Effects – Improved vegetation management of the Old Baldwin Boys Home will allow the beneficial survival of existing heritage trees

Alternative 3. Memorial Construction, Western Location

Direct Effects - negligible. The Memorial will be placed so as to avoid heritage trees.

Indirect Effects - Improved vegetation management of the Old Baldwin Boys Home will allow the beneficial survival of existing heritage trees

Mitigation Measures for alternatives 2 and 3– Design Memorial construction so as to avoid heritage trees.

Cumulative Effects (Alternatives 1, 2, and 3) - Other local vegetation management projects (fuel-reduction) in the area would make beneficial contributions to the maintenance of heritage plants

Conclusion (Alternatives 1, 2, and 3) - Ongoing successional processes under the no action alternative (alternative 1) would result in the loss of heritage trees, a major, adverse long-term, and localized impact. Improved grounds management under both construction alternatives (alternatives 2 and 3) would allow the beneficial retention of heritage trees until the end of their natural life-span. There are no adverse effects to ethnographic resources and therefore no impairment.

Scenic Values

Scenic values are associated with both views looking out from the proposed Memorial location, as well as views looking towards and within the former Old Baldwin Boys Home. Because the Memorial design has not been chosen, the full impacts to the scenic resources can't be assessed. The following impact assessment makes some assumptions on impacts to scenic resources based on the location information for the proposed Memorial. Further assessment of impacts to the scenic resources will be completed in subsequent Section 106 reviews.

Alternative 1. No Action

Direct Effects – negligible.

Indirect Effects – The views associated with the former Old Baldwin Boys home continue to change as plant succession and natural processes continue unchecked. Increasing thickets of shrubs would impede more open views within the project area, and obstruct open views to the ocean.

Alternative 2. Memorial Construction, South/Southwest Location

Direct Effects – Building a Memorial may allow the current conditions to remain, or may result in a beneficial effect to the views and scenic resources through vegetation management.

Indirect Effects – negligible

Mitigation Measures – see design guidelines in this document under “DESCRIPTION OF ALTERNATIVES” and appendices B and C.

Alternative 3. Memorial Construction, Western Location

Direct Effects – Project implementation would maintain current conditions or result in a beneficial effect to scenic views.

Indirect Effects – negligible

Mitigation Measures – see design guidelines in this document under “DESCRIPTION OF ALTERNATIVES” and appendices B and C.

Cumulative Effects (Alternatives 1, 2, and 3) - Together with future fuel-reduction projects proposed by the NPS in the vicinity of the existing structures, construction of a

memorial may support the removal of invasive vegetation and open the larger view from the Old Baldwin Home resulting in a beneficial effect.

Conclusion (Alternatives 1, 2, and 3)- The no-action alternative would lead to continued despoiling of the views (a moderate adverse localized long-term effect) within the Old Baldwin Boys Home and to the ocean, whereas the construction alternatives provide the benefit of improved vegetation management and maintenance of views. Cumulative effects as a consequence to other projects would result in a beneficial effect. For this reason, there is no impairment of Scenic Values.

Ethnographic Resources

Ethnographic resources include historic hunting in the immediate project area and fishing along the nearby coast of the larger project area. Little gathering of plant material occurs currently. While the patients no longer hunt, kokua do hunt in this area and share meat from deer and pigs with patients. The influence of the Memorial on Ethnographic resources is assessed by the influence the presence of the Memorial would have on resource availability.

Alternative 1. No Action

Direct Effects - There will be negligible direct impacts on the ethnographic resources as a result of the implementation of the No Action Alternative. Although this area is noted in oral histories and has a contemporary value to the residents of Kalaupapa, existing conditions would not change from the implementation of this alternative. Routine maintenance of and access to the area via Damien Road would continue.

Indirect Effects – negligible.

Alternative 2. Memorial Construction, South/Southwest Location

Direct Effects - Temporal or spatial modification of the hunting zone within which the Old Baldwin Boys Home is situated would result in a minor adverse localized long-term effect.

Indirect Effects – negligible.

Mitigation measures – design additional hunting zones on the peninsula to offset the loss of the Old Baldwin Boys Home as a portion of a larger hunting area.

Alternative 3. Memorial Construction, Western Location

Direct Effects - Temporal or spatial modification of the hunting zone within which the Old Baldwin Boys Home is situated would result in a minor adverse localized long-term effect.

Indirect Effects – negligible.

Mitigation measures – design additional hunting zones on the peninsula to offset the loss of the Old Baldwin Boys Home as a portion of a larger hunting area.

Cumulative Impacts (Alternatives 1, 2, and 3) -There would be negligible cumulative impacts on hunting and plant gathering under the no action alternative and under Alternatives 2 and 3.

Conclusion (Alternatives 1, 2, and 3) - Direct effects from Alternative 1 would be negligible because access and use of the site would remain the same as it is currently.

Alternatives 2 and 3 would have a minor adverse long-term effect on the current hunting zone. The hunting area would be modified to protect visitors at the Memorial. With modification to the hunting zone there would be an overall minor adverse localized short-term effect. The same action considered under the Section 106 process would not have an adverse effect. There are no adverse effects to ethnographic resources and therefore no impairment.

Park Operations

Visitor Experience

The primary story being told at Kalaupapa National Historical Park is the forced isolation from 1866 until 1969 of people from Hawai'i afflicted with Hansen's disease. Recreation in the form of hiking, swimming, or other outdoor opportunities are therefore of minor importance in comparison to education of visiting public. This analysis examines how educational opportunities in the vicinity of the Old Baldwin Boys Home will be influenced by the construction of the Memorial.

Alternative 1. No Action

Direct Effects – negligible effect

Indirect Effects – negligible effect

Mitigation Measures – none

Alternative 2. Memorial Construction, South/Southwest Location

Direct Effects – Construction of a Memorial bearing the names of patients with Hansen's disease, and possibly other information, is a direct contribution to the educational opportunity offered by existing historic buildings, archaeological features, interpretive signs, and other resources in the vicinity of the Old Baldwin Boys Home. The Memorial is thus a benefit to local educational opportunities.

Indirect Effects – The construction of the Memorial may also detract from the interpretation of the Old Baldwin Boys Home and surrounds to depict the stories of historically important structures and personages (the Baldwin Boys Home, St. Philomena, Brother Dutton, and Saint Damien. This visual and informational cluttering presents a moderate adverse localized long-term effect.

Mitigation Measures – none.

Alternative 3. Memorial Construction, Western Location

Direct Effects – Construction of a Memorial bearing the names of patients with Hansen's disease, and possibly other information, is a direct contribution to the educational opportunity offered by existing historic buildings, archaeological features, interpretive signs, and other resources in the vicinity of the Old Baldwin Boys Home. The Memorial is thus a benefit to local educational opportunities.

Indirect Effects – The construction of the Memorial may also detract from the interpretation of the Old Baldwin Boys Home and surrounds to depict the stories of historically important structures and personages (the Baldwin Boys Home, St. Philomena, Brother Dutton, and Saint Damien. This visual and informational cluttering presents a moderate adverse localized long-term effect.

Mitigation Measures – none.

Cumulative Effects (Alternatives 1, 2, and 3) – negligible

Conclusions (Alternatives 1, 2, and 3) – The no-action alternative has negligible direct, indirect or cumulative effects. Both construction alternatives provide a direct benefit to educational/recreational of the project area through the provision of names as an additional interpretive opportunity. However, the construction of the Memorial also detracts from the interpretation of the surrounding landscape to depict the stories of historically important structures and personages. This confounding effect of inserting a new structure in the historic fabric of the Old Baldwin Boys Home is considered a moderate adverse localized long-term effect. The same action considered under the Section 106 process would not have an adverse effect.

Maintenance and Park Operations

Alternative 1. No Action

Direct Effects – Negligible

Indirect Effects - Negligible

Mitigation Measures - None

Alternative 2. Memorial Construction, South/Southwest Location

Direct Effects – With the construction of the Memorial there would be increased maintenance responsibilities to the National Park Service. This would result in a minor adverse localized long-term effect.

Indirect Effects - Negligible

Mitigation Measures - None

Alternative 3. Memorial Construction, Western Location

Direct Effects – With the construction of the Memorial there would be increased maintenance responsibilities to the National Park Service. This would result in a minor adverse localized long-term effect.

Mitigation Measures - None

Cumulative (Alternatives 1, 2, and 3)- negligible effect

Conclusion (Alternatives 1, 2, and 3) - The No Action Alternative would have a negligible effect on park maintenance. Alternatives 2 and 3 would result in minor adverse localized long-term effects. The same action considered under the Section 106 process would not have an adverse effect.

Visitor Safety

The existing numbers of law enforcement officers will remain the same because numbers of visitors is unlikely to increase greatly following the construction of the Memorial. The addition of the Memorial is not anticipated to cause additional safety concerns for visitors. Based on this assumption Alternatives 1, 2 and 3 will have negligible impacts to visitor safety.

A comparison of impacts (direct, indirect, and cumulative) on resources is provided by Table 6.

Table 6. Environmental Consequences Comparison

Impact Topic		Direct, Indirect, Cumulative Impacts	Alternative 1 – No Action	Alternative 2 – Construct Memorial at Old Baldwin Boys Home – South/Southwest	Alternative 3 – Construct Memorial at Old Baldwin Boys Home – West
Natural Resources	Geology/Soils/Geo	Direct Impacts	Negligible	Minor adverse localized long-term	Moderate adverse localized long-term
		Indirect Impacts	Moderate adverse local short-term	Negligible	Negligible
		Cumulative Impacts	Negligible	Negligible	Negligible
	Water Resources	Direct Impacts	Negligible	Negligible	Negligible
		Indirect Impacts	Minor adverse localized long-term	Beneficial	Beneficial
		Cumulative Impacts	Negligible	Negligible	Negligible
	Floodplain	Direct Impacts	Negligible	moderate adverse localized long-term effect	moderate adverse localized long-term effect
		Indirect Impacts	Negligible	Beneficial	Beneficial
		Cumulative Impacts	Negligible	Negligible	Negligible
	Vegetation (succession)	Direct Impacts	Negligible	Beneficial	Beneficial
		Indirect Impacts	Moderate adverse localized long-term	Negligible	Negligible
		Cumulative Impacts	Negligible	Negligible	Negligible
	Avifauna	Direct Impacts	Negligible	Negligible	Negligible
		Indirect Impacts	Negligible	Beneficial	Beneficial
		Cumulative Impacts	Negligible	Negligible	Negligible
	Mammals	Direct Impacts	Minor adverse localized long-term	Negligible	Negligible
		Indirect Impacts	Negligible	Negligible	Negligible
		Cumulative Impacts	Negligible	Negligible	Negligible
	Reptiles and Amphibians	Direct Impacts	Negligible	Negligible	Negligible
		Indirect Impacts	Negligible	Negligible	Negligible
		Cumulative Impacts	Negligible	Negligible	Negligible

	Insects and Invertebrates	Direct Impacts	Negligible	Negligible	Negligible
		Indirect Impacts	Negligible	Negligible	Negligible
		Cumulative Impacts	Negligible	Negligible	Negligible
	Special Status Species	Direct Impacts	No effect	No effect	No effect
		Indirect Impacts	No effect	No effect	No effect
		Cumulative Impacts	No effect	No effect	No effect
Cultural Resources	National Historic Landmark	Direct Impacts	Negligible	Moderate adverse localized Long-term	Moderate adverse localized Long-term
		Indirect Impacts	Minor adverse localized long-term	Beneficial	Beneficial
		Cumulative	Negligible	Moderate adverse localized long-term	Moderate adverse localized long-term
	Archeological Resources	Direct Impacts	Negligible	Major adverse localized long-term	Major adverse localized long-term
		Indirect Impacts	Minor adverse localized long-term	Beneficial	Beneficial
		Cumulative	Negligible	Moderate adverse localized long-term	Moderate adverse localized long-term
	Cultural Landscape, Buildings and Structures	Direct Impacts	Negligible	Moderate adverse localized long-term	Moderate adverse localized long-term
		Indirect Impacts	Minor adverse localized long-term	Moderate adverse localized long-term	Moderate adverse localized long-term
		Cumulative	Negligible	Moderate adverse localized long-term	Moderate adverse localized long-term
	Heritage Plants	Direct Impacts	Negligible	Negligible	Negligible
		Indirect Impacts	Major adverse localized long-term	Beneficial	Beneficial
		Cumulative Impacts	Beneficial	Beneficial	Beneficial
	Scenic Values	Direct Impacts	Negligible	Beneficial	Beneficial
		Indirect Impacts	Moderate adverse localized long-term	Negligible	Negligible
		Cumulative	Beneficial	Beneficial	Beneficial

	Ethnographic	Direct Impacts	Negligible	Minor adverse localized long-term	minor adverse localized long-term
		Indirect Impacts	Negligible	Negligible	Negligible
		Cumulative	Negligible	Negligible	Negligible
Park Operations	Visitor Experience	Direct Impacts	Negligible	Beneficial	Beneficial
		Indirect Impacts	Negligible	Moderate adverse localized long-term	Moderate adverse localized long-term
		Cumulative Impacts	Negligible	Negligible	Negligible
	Maintenance	Direct Impacts	Negligible	Minor adverse localized long-term	Minor adverse localized long-term
		Indirect Impacts	Negligible	Negligible	Negligible
		Cumulative Impacts	Negligible	Negligible	Negligible
	Visitor Safety	Direct Impacts	Negligible	Negligible	Negligible
		Indirect Impacts	Negligible	Negligible	Negligible
		Cumulative Impacts	Negligible	Negligible	Negligible

Public Involvement

Kalaupapa National Historical Park and Ka ‘Ohana O Kalaupapa conducted internal scoping from April 2009 to July 2009. Included in the internal scoping were members of Kalaupapa National Historical Park and the ‘Ohana, the partner authorized by the legislation (Senate Bill 22, Section 7108) to establish the Kalaupapa Memorial. A variety of comments were received from park staff in cultural resources, natural resources and planning.

During the public scoping process for this Environmental Assessment, which occurred from September 18, 2009 through October 31, 2009 (see Appendix D for media release), comments were received and recorded or submitted during public meetings and comment letters/emails from individual members of the public were received following the meetings.

Comments focused mostly on three major topics -- where the authority for making decisions about the location or design of the Memorial should be vested, the actual location of the proposed Memorial, and the identification of Memorial design criteria.

Discussion of which sector of the public should be vested with the authority to make decisions about the Memorial’s design and location centered on patients, family members, Ka ‘Ohana O Kalaupapa, and the National Park Service. Overwhelmingly, the patients (including the wishes of those who are no longer with us but expressed strong opinions during the early stages of the Memorial process) were identified as the group that should have the major say in designing and locating the Memorial.

This Environmental Assessment is being made available to the public, federal, state and local agencies and organizations through media releases distributed to a wide variety of news media, direct mailing, placement on the park’s website (www.nps.gov/kala), on the NPS PEPC website at (<http://parkplanning.nps.gov/>), on the website of Ka ‘Ohana O Kalaupapa (www.kalaupapaohana.org), and in local public libraries. Copies of the document may also be obtained by calling Kalaupapa National Historical Park at (808) 567-6802 ext. 1103.

Responses to comments on the Environmental Assessment will be addressed in the proposed Finding of No Significant Impact (FONSI) or will be used to prepare an Environmental Impact Statement (if appropriate).

LIST OF PREPARERS

National Park Service Personnel

Cari Kreshak, Pacific West Region, Honolulu, Cultural Resource Program Manager
Paul Hosten, Kalaupapa National Historical Park, Terrestrial Ecologist
Cathy Gilbert, Pacific West Region, Historical Landscape Architect
Ka`ohulani McGuire, Kalaupapa National Historical Park, Cultural Anthropologist
Erika Stein, Kalaupapa National Historical Park, Archaeologist and Acting Chief of Cultural Resources
Elaine Jackson-Retondo Pacific West Region, Historian (Architectural)
Joseph Balachowski, Pacific West Region, Historical Architect

Participating Ka ‘Ohana O Kalaupapa

Clarence “Boogie” Kahilihiwa, resident of Kalaupapa for more than 50 years and President of Ka ‘Ohana O Kalaupapa
Esther Kia`aina, former Chief of Staff for Congressman Ed Case who drafted the Kalaupapa Memorial Act
Sol P. Kaho`ohalahala, Hawaiian cultural practitioner and elected official
Anwei S. Law, Historian and author on subject of Kalaupapa
Henry G. Law, Historic Architect and first Superintendent of Kalaupapa National Historical Park
Donald Reeser, Superintendent of Haleakala National Park, 1988-2005
Valerie Monson, Coordinator of Ka ‘Ohana O Kalaupapa

CONSULTATION AND COORDINATION

The National Park Service has followed a public process to identify the issues and concerns related to the establishment of the Kalaupapa Memorial. From the initial scoping sessions with members of the public and other agencies, a series of alternatives were developed, analyzed and presented to the public. Public comments and responses have provided further refinement of the decision to be made.

Beginning in 2009 Ka ‘Ohana O Kalaupapa and the National Park Service have been collaborating on this project through a General Agreement, as well as consulting throughout the integrated cultural and natural compliance processes to achieve establishment of the Memorial in a manner that fulfills differing requirements. The intent of these overlapping efforts is to expediently create a Memorial which honors the legacy of KALA and promotes future understanding and respect.

Section 106 Summary

As part of the Kalaupapa Memorial planning process, compliance with Section 106 of the National Historic Preservation Act (NHPA) (Section 106) is required. Beginning in August 2009, a letter was sent to potential consulting parties including the Hawaii SHPO announcing that the NPS was initiating the NEPA and NHPA compliance processes for the Memorial project.

September 18 through October 31, 2009 was the National Environmental Policy Act public scoping period for the Memorial project. Public meetings were held during this time and comments were accepted and recorded. While this was not Section 106 consultation, this public scoping provided a forum for further information sharing and discussion about the project. Throughout this process, patients and public expressed their desire to have the Memorial at the former Baldwin Boys Home.

An archeological report documenting the field work and testing for the Memorial project -- *Layered Landscapes: Archaeological Investigations and Identification Report Associated with the Kalaupapa Memorial Project* – by Erika Stein was prepared and sent to the Hawaii SHPO for review in July 2010. This report captures the archeological survey and testing results for the project and provides a description of the historic properties within the area of potential effect. This report is still under review by the Hawaii SHPO.

Between May 18 and November 23, 2010, Ka’ohulani McGuire, Kalaupapa National Historical Park Anthropologist, met individually with 17 of 20 patient residents to consult on the project. Questions centered around patient’s support of the Memorial, the two proposed locations for the Memorial at the former Old Baldwin Boys Home and the opportunity for patients to share additional comments. In summary, a majority of the patient residents interviewed preferred the proposed alternative location #2 for the Memorial.

In October 2010 a letter of Section 106 36 CFR 800.11(e) findings was sent to consulting parties (Appendix E). Responses to the letter of findings were mostly in support of building the Memorial in the Old Baldwin Boys Home.

The NPS, with concurrence from the Hawaii State Historic Preservation Office and guidance from the Advisory Council on Historic Preservation found that there would be a No Adverse Effect to historic properties as long as subsequent Section 106 review is completed when a Memorial design is chosen and imposed conditions are met (Appendix F).

Section 106 consultations will be ongoing with the distribution of this document to the public until a NEPA Finding of No Significant Impact (FONSI) or Record of Decision (ROD) has been established.

As Kalaupapa is listed on the National Register as the Kalaupapa National Historic Landmark, Section 110 of the Historic Preservation Act also applies. Section 110 states: Prior to the approval of any Federal undertaking which may directly and adversely affect any National Historic Landmark, the head of the responsible Federal agency shall, to the maximum extent possible, undertake such planning and actions as may be necessary to minimize harm to such landmark, and shall afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the undertaking. National historic landmark designation places a higher standard than that which applies to properties that are listed in or eligible for listing in the National Register of Historic Places.

The Advisory Council on Historic Preservation, the Hawai'i state historic preservation officer, and concerned groups were contacted at the beginning of this environmental assessment process (see Consultation and Coordination). The NPS conducted the Section 106 and is forwarding a copy of this environmental assessment to the State Historic Preservation Officer and the Advisory Council for Historic Preservation.

In addition to cultural resources, Section 7 of the Endangered Species Act, as amended, requires consultation with the U.S. Fish and Wildlife Service or the National Marine Fisheries Service to ensure that proposed actions do not jeopardize the continued existence of any listed or candidate species or critical habitat. Section 7 consultation has been initiated by a copy of this EA being sent to the U.S. Fish and Wildlife Service in Honolulu with a request for their review and comments. A list organizations with an interest in the public review of the EA is provided in Appendix G.

REFERENCES

- Atkinson, I.A.E. 1985. The spread of commensal species of *Rattus* to oceanic islands and their effects on island avifaunas. In *Conservation of island birds: Case studies for the management of threatened island species*, edited by P. J. Moors, 35-81. Cambridge, UK: International Council for Bird Preservation.
- Asherman K. E., J. M. Crumme, and J. Q. C. Lau. 1990. A botanical reconnaissance of Kalaupapa National Historical Park, November 27-December 5 1989.
- Baldwin , Arthur D. 1915. A Memoir of Henry Perrine Baldwin, 1842 to 1911. Privately printed in Cleveland.
- Baldwin, P. H., C. W. Schwartz, E. R. Schwartz. 1952. Life History and Economic Status of the Mongoose in Hawaii. *Journal of Mammalogy*. 33, (3): 335-356.
- Benjamin, Sarah 1983. Interview: Tape #5A – Siloama Church. Quoted in Anwei Skinsnes Law, *Oral History Interviews, Kalaupapa, Hawaii* (Conducted for Hawaii State Library for the Blind & Physically Handicapped, 1984-1985), Vol. 1: Part 2, 8.
- Cambra, John n.d. Interview: Tape #3A – The Old Baldwin Home. Quoted in Anwei Skinsnes Law, *Oral History Interviews, Kalaupapa, Hawaii* (Conducted for Hawaii State Library for the Blind & Physically Handicapped, 1984-1985), Vol. 1: Part 1, 6.
- Canfield, J. E. 1990. Description and Map of the Plant Communities of the Northeast Coastal Spray Zone of Kalaupapa National Historical Park. Cooperative National Park Resources Studies Unit Technical Report 71. University of Hawaii at Manoa, Honolulu, Hawaii.
- Carper, Robert L., H. Thomas McGrath, Paul C. Cloyd, Linda W. Greene, Catherine H. Blee, Gary F. Somers. 1985. St. Philomena Catholic Church (Father Damien's Church). Historic Structure Report. National Park Service
- Case , Howard D., ed. 1931. Joseph Dutton, His Memoirs. Honolulu: The Honolulu Star-Bulletin, Ltd.
- Cerny, Jennifer. 2001. Social Value: an essential step toward cultural landscape understanding. Master's Thesis, Cultural Heritage Studies Program, James Cook University, Townsville, Australia.
- Clague, D.A. C. Dao-Gong, R. Murnane, M.H. Beeson, M.A. Lanphere, G.B. Dalrymple, W. Friesen, and R.T. Holcomb. 1982. Age and Petrology of the Kalaupapa Basalt, Molokai, Hawaii. *Pacific Science* 36(4):411-420.

- CEQ. 1997. Council on Environmental Quality. Environmental Justice Guidance Under the National Environmental Policy Act.
- Damien Institute Monthly Magazine. 1896. April 1896. Blessed Marianne Cope Museum and Archives, OSF.
- Damon, Ethel. 1948. Siloama. The Church of the Healing Spring. Honolulu: The Hawaiian Board of Missions.
- Daws, Gavan. 1973. Holy Man, 168-169. New York: Harper and Row, Publishers.
- Day, R.H. and B..A. Cooper. 2002. Petrel and Shearwater surveys near Kalaupapa, Moloka'i Island, June 2002. Final Report, prepared by ABR, Inc.—Environmental Research & Services. Fairbanks, AK. 17pp.
- Diong, C. H. 1982. Population biology and management of the feral pig (*Sus scrofa* L.) in Kipahulu Valley, Maui. PhD Dissertation, University of Hawaii, Honolulu, Hawaii.
- Durst, Mara and Jadelyn Moniz-Nakamura. 2005. Kalawao: Phase II of an Archaeological Inventory Survey of a Portion of Land within the Ahupua'a of Kalawao. National Park Service.
- Duvall, F. 2000. Report on 2-day biological survey Huelo Islet: Vertebrates. Draft report, Department of Land and Natural Resources, Kahului, Maui.
- Elliott, H.W. 1973. A field survey of the exotic axis deer at Point Reyes National Seashore. M.S. thesis, University of California, Davis. 40 pp.
- Flexner James L., n.d. Two Seasons of Intensive Surface Survey in Hawaii's First Hansen's Disease Settlement Kalawao, Moloka'i. University of California, Berkeley. Report Submitted to Kalaupapa National Historical Park.
- Flexner, James L. 2006. Archaeology of the Recent Past at Kalawao: 2006 Field Summary Report. Submitted to Kalaupapa National Historical Park.
- Flexner, James L. 2006. Making Sense of the Senseless: A Highly Fragmented Ceramic Assemblage from Kalaupapa National Historical Park, Moloka'i.
- Flexner, James L. 2009. Houses of the Exiles: The 2008 Field Season of the Archaeology of the Recent Past at Kalawao. Submitted to Kalaupapa National Historical Park n.d.Two Seasons of Intensive Surface Survey in Hawaii's First Hansen's Disease Settlement Kalawao, Moloka'i . Submitted to Kalaupapa National Historical Park.
- Flexner, James L. and Colleen L. Morgan n.d. The Industrious Exiles: An Analysis of Flaked Glass Tools from the Leprosarium at Kalawao, Moloka'i . Unpublished manuscript.
- Gibson, Emma, Warren. 1957. Under the cliffs of Moloka'i. Academy Library Guild.

GK & Associates. 1991. Environmental Assessment for Boulder Removal Project, Waihanau Stream, Kalaupapa National Historical Park, Moloka'i , Hawaii. Prepared for Edward K. Noda and Associated, Inc.

Gogan, P.J., R. H. Barrett, W.W. Shook and T.E. Kucera. 2001. Control of Ungulate Numbers in a Protected Area. *Wildlife Society Bulletin*. 29(4): 1075-1088.

Goltz, D. M., A. M. Agness and P. C. Banko. 2001. Axis deer home range, movements, and survival at Kalaupapa, Moloka'i . Unpublished Report. USGS-BRD. Hawaii Volcanoes National Park.

Graf, W. and L. Nichols Jr. 1966. The axis deer in Hawaii. *Journal of the Bombay Natural History Society*.

Greene, Linda. 1985. Exile in Paradise: The Isolation of Hawaii's Leprosy Victims and Development of Kalaupapa Settlement, 1865 to the Present. Branch of Planning, Alaska/Pacific Northwest/Western Team, U.S. Dept. of the Interior, National Park Service, Denver Service Center.

Gugelyk, Ted and Milton Bloombaum. 1979. *Ma'i Ho`oka`awale: the Separating Sickness*. Honolulu: University of Hawai'i, Social Science Research Institute.

Hanley, Sister Mary Laurence, O.S.F, 2010, personal communication.

Hanley, Sister Mary Laurence, O.S.F. and O.A. Bushnell. 1991. Pilgrimage and Exile: Mother Marianne of Moloka'i . Honolulu: University of Hawaii Press.

Hodges, Cathleen Natividad. 1996. Observation of Seabird Survey at Kalaupapa. Memorandum to Rick Potts, KALA Wildlife Biologist. June 27, 1996.

Hosten, P. E. 2010. Legacy Trees and Other Culturally Significant Plants Within and Adjacent to the Baldwin Boys Home, Kalaupapa National Historical Park. Unpublished report. Kalaupapa National Historical Park. Hale Malama Archival Facility.

Hutchison, Ambrose T. 1932 In Memory of Reverend Father Damien J. DeVeuster and Other Priests Who Have Labored in the Leper Settlement of Kalawao, Moloka'i . Father Paul Macken transcribed handwritten. Unpublished manuscript.

Jessel, S. and R. Agliam. 1994. Kukaiwaa, North Shore Moloka'i , Carter's Panic Grass (*Panicum fauriei* var. *carteri*), August 22-25, 1994.

Juvik, Sonia P., 2007, "Kalaupapa Landscape: An Ethnographic Study. United States Department of the Interior National Park Service, Pacific West Region Social Science Series, Publication Number 2007-03. Frederick F. York, Ph.D., Managing Editor.

Kaeo, Helen 1983. Interview: Tape #5A – Siloama Church. Quoted in Anwei Skinsnes Law, *Oral History Interviews Kalaupapa, Hawaii* (Conducted for Hawaii State Library for the Blind & Physically Handicapped, 1984-1985), Vol. 1: Part 2, 2.

Ka 'Ohana O Kalaupapa. 2007 (on-going) Kalaupapa Names Project.

Kirch, Patrick Vinton. 2002. From the 'Cliffs of Keolewa' to the 'Sea of Papaloa': An archaeological reconnaissance of portions of the Kalaupapa National Historical Park, Moloka'i, Hawaiian Islands. Berkeley: Archaeological Research Facility, University of California, Berkeley.

Korn, Alfons L. 1976. News from Moloka'i. Letters between Peter Kaeo & Queen Emma, 1873-1876. Honolulu: University Press of Hawaii

Kozar, K., R. Swift, and S. Marshall. 2007. Shoreline Bird Inventories in Three National Parks in Hawaii: Kalaupapa National Historical Park, Haleakala National Park, and Hawaii Volcanoes National Park. Pacific Cooperative Studies Unit Technical Report 149.

Kraus, F. 2005. Inventory of Reptiles and Amphibians in Hawaii Volcanoes, Haleakala, and Kalaupapa National Parks. Contribution No. 2005-013 to the Hawaii Biological Survey. Prepared for Pacific Cooperative Studies Unit. University of Hawai'i at Manoa, Honolulu, Hawaii.

Langlas, Charles. 2006. *Final Report of the Kalaupapa Ethnographic Project*. National Park Service Pacific West Region Social Science Series. Technical Document Number 2006-TD01. United States Department of the Interior.

Langlas, Charles, Ka'ohulani McGuire and Sonia Juvik. 2008. *Kalaupapa 2002-2005, A Summary Report of the Kalaupapa Ethnographic Project*. Prepared for the National Park Service.

Law, Anwei S. 2010. *Ka Hokuwelowelo: A Collective Memory of Kalaupapa*. University of Hawaii Press.

Law, Anwei S. and Henry G. Law. 2009. *Father Damien: A Bit of Taro, A Piece of Fish, and A Glass of Water*. New York: IDEA Center for the Voices of Humanity).

LeGrande, M. 2002. Survey of Kukaiwaa Peninsula, Kalaupapa National Historical Park, Moloka'i, Hawaii, Special Report Prepared for Kalaupapa National Historical Park.

McCoy, Mark D. n.d. Report on Kalaupapa Peninsula Archaeological Project 2002. Unpublished manuscript.

McCoy, Mark D. 2006. Landscape, social memory, and society: An ethnohistoric-archaeological study of three Hawaiian communities. Unpublished PhD dissertation, University of California, Berkeley.

- McCoy, Mark D., James L. Flexner, and John M. Matsunaga. 2005 Kalaupapa Cesspool Project (KCP 2005): A Report on Archaeological Testing in Kalaupapa Settlement, Moloka'i Island, Hawaii. Unpublished manuscript.
- McCoy, Mark D. and Anthony S. Hartshorn. 2007. Wind Erosion and Intensive Prehistoric Agriculture: A Case Study from the Kalaupapa Field System, Moloka'i Island, Hawaii'i. *Geoarchaeology: An International Journal*. 22, (5): 511-532.
- McGuire, Kaohulani. 2002 – pers. comm.
- McGuire, Kaohulani. 2010 – pers. comm.
- McKeown, S. 1996. A Field Guide to Reptiles and Amphibians in the Hawaiian Islands. Diamond Head Publishing, Inc., Los Osos, California.
- Medeiros, A.C., C.G. Chimera, and L.L. Loope, S.M. Joe, and P.D. Krushelnycky. 2000. Notes on Status and Ecology of the Endangered Hawaiian Annual 'Āwiwi, *Centaurium sebaeoides* (Gentianaceae). *Pacific Science* 54(4):417-422.
- Nalaielua 2002, Personal communication with Kaohulani_McGuire.
- National Park Service. 1998. NPS- 28: Cultural Resources Management Guideline. U.S. Department of the Interior, National Park Service, Washington, D.C.
- NPS. 2000a. Resource Management Plan Kalaupapa National Historical Park, Kalaupapa, Hawaii. U.S. National Park Service, Kalaupapa, Moloka'i.
- NPS. 2006. National Park Service Management Policies. U.S. Department of the Interior, Washington, D.C.
- Powell, Lahilahi. n.d. In unreleased *Kalaupapa Archeology* documentary film.
- Puna, D. 1877 "Na Hiona Walohia o ke Aupuni Poepoe." *Ka Lahui Hawaii*, Dec. 6, Buke 3, Helu 49: Aoao3. (Manuscript translated by Mary Kawena Pukui as part of the Hawaiian Ethnological Notes Collection at Bishop Museum ; "Sad Sights of the Enclosed Kingdom (Leper Colony)," HEN vol 1: 3030-3033).
- Purnell, Nanette Napoleon. 1991. Kalaupapa Cemetery Directory. Research by: The Cemetery Research Project (Nanette Napoleon Purnell, Research Director). Sponsored by the National Park Service.
- Skinsnes, Anwei. 1984. Interview with John Cambra. Oral History Project of the Library for the Blind and Physically Handicapped and Kalaupapa National Historical Park.
- Skinsnes Law, Anwei
1984-85 Oral History Interviews, Kalaupapa, Hawai'i. Volume 1: Parts 1 and 2.
Conducted for the Hawaii State Library for the Blind and Physically Handicapped.
Personal collection of Anwei Skinsnes Law.

1985-87 Oral History Interviews, Kalaupapa, Hawai'i. Volume 2: parts 1, 2, and 3.
Conducted for the National Park Service. Personal collection of Anwei Skinsnes Law.
1988-89 Oral History Interviews, Kalaupapa National Historical Park. Volume 3.
Conducted for the National Park Service. Personal collection of Anwei Skinsnes Law.

Somers, Gary, F. 1985. St. Philomena Catholic Church (Father Damien's Church).
Historic Structure Report. National Park Service.

Stein, Erika T. Viernes. in prep. Archaeological Monitoring Report for Septic System
Improvements at Kalaupapa National Historical Park. Kalaupapa, Hawaii. National Park
Service.

Stein, Erika T. Viernes. in prep. Archaeological Monitoring Report in Support of
Restoration at St. Philomena Church at Kalawao, Kalaupapa National Historical Park.
Kalaupapa, Hawaii. National Park Service.

Stein, Erika T. Viernes. 2010. Layered Landscapes: Archaeological Investigations and
Identification Report Associated with the Kalaupapa Memorial Project (MEMO).
Kalaupapa, Hawaii, Kalaupapa National Historical Park. National Park Service.

Stokes, John F.G. n.d. Moloka'i, Survey of Heiau. 1909. Unpublished manuscript, field
notebook.

Summers, Catherine C. 1971. Moloka'i: A Site Survey. Honolulu: Pacific
Anthropological Records Number 4, Department of Anthropology. Bishop Museum
Press.

SWCA Environmental Consultants. 2010. Assessment of Natural Resources and
Watershed Conditions for Kalaupapa National Historical Park. Fung Associates Inc. 1833
Kalakaua Avenue, Suite 1008, Honolulu, Hawaii 96815. SWCA Environmental
Consultants, 201 Merchant Street, Suite 2310, Honolulu, Hawaii 96813. Unpublished
Report, January 2010.

Tep P. and K. Gaines 2003. Reversing the impacts of feral pig on the Hawaiian tropical
rainforest ecosystem. Restoration and Reclamation Review, Univ. of MN.
www.hort.agri.amn.edu/h5015/rrr.htm

USFWS. 1998. Recovery Plan for the Hawaiian Hoary Bat (*Lasiurus cinereus semotus*).
U.S. Fish and Wildlife Service, Portland, OR.

Watanuki, Randall 2010. Personal communication.

Wood, K.R. 2008. Vegetation Descriptions of the Offshore Islets, Kalaupapa, Moloka'i,
Hawaii and Kukaiwa'a Peninsula. Special Report Prepared for Kalaupapa National
Historic Historical Park.

APPENDIX A

Omnibus Public Land Management Act of 2009.
Sec. 7108 Kalaupapa National Historical Park

Omnibus Public Land Management Act of 2009. Sec. 7108 Kalaupapa National Historical Park

(a) In General- The Secretary of the Interior shall authorize Ka `Ohana O Kalaupapa , a non-profit organization consisting of patient residents at Kalaupapa National Historical Park, and their family members and friends, to establish a memorial at a suitable location or locations approved by the Secretary at Kalawao or Kalaupapa within the boundaries of Kalaupapa National Historical Park located on the island of Molokai, in the State of Hawaii, to honor and perpetuate the memory of those individuals who were forcibly relocated to Kalaupapa Peninsula from 1866 to 1969.

(b) Design-

(1) IN GENERAL- The memorial authorized by subsection (a) shall--

(A) display in an appropriate manner the names of the first 5,000 individuals sent to the Kalaupapa Peninsula between 1866 and 1896, most of whom lived at Kalawao; and

(B) display in an appropriate manner the names of the approximately 3,000 individuals who arrived at Kalaupapa in the second part of its history, when most of the community was concentrated on the Kalaupapa side of the peninsula.

(2) APPROVAL- The location, size, design, and inscriptions of the memorial authorized by subsection (a) shall be subject to the approval of the Secretary of the Interior.

(c) Funding- Ka `Ohana O Kalaupapa , a nonprofit organization, shall be solely responsible for acceptance of contributions for and payment of the expenses associated with the establishment of the memorial.

APPENDIX B

National Park Service Management Policies (2006)

National Park Service Management Policies (2006) Relevant to this Project.

9.1 General Park Facilities

The Service will demonstrate environmental leadership and a commitment to the principles of sustainability and asset management in all facility developments and operations. Support facilities require proper planning, design, programming, construction, operation, and maintenance. The Service must avoid the construction of buildings, roads, and other development that will cause unacceptable impacts on park resource values. The Service must also avoid the future operation and maintenance costs of unnecessary or ineffective facilities, regardless of how the asset investment is funded. The Service must also recognize the ongoing operations and maintenance costs of its facilities and be able to sustain them over time. Partnership construction projects will be held to the same standards articulated above.

Facility Planning and Design (9.1.1)

The protection of each park's resources and values will be the primary consideration in facility development decisions. Facilities for visitor use and park management will be consistent with each park's authorizing legislation, and with approved general management plans, development concept plans, and associated planning documents. The planning and design of park facilities will be accomplished by interdisciplinary teams constituted to meet the resource stewardship, programmatic, and technical requirements of the project. Public input will be sought at the earliest stage of planning and design, particularly in those cases where controversy is likely...

... Designs for park facilities, regardless of their origin (NPS, contractor, concessioner, or other), will use NPS facility models for space and function requirement and will be harmonious with and integrated into the park environment. They will also be subject throughout all phases of design and construction to the same code compliance; the same high standards of sustainable design, universal design, and functionality; and the same review and approval processes. NPS requirements for sustainable design and functionality include protection of the natural and cultural environments, resource conservation, energy conservation, pollution prevention, defensible space for fire safety, and fostering education about sustainable design and practices.

Integration of Facilities into the Park Environment (9.1.1.2)

When the determination has been made through a planning process that it is appropriate for a facility to be constructed within park boundaries, all facilities will be integrated into the park landscape and environs with sustainable designs and systems to minimize environmental impact. Development will not compete with or dominate park features or interfere with natural processes, such as the seasonal migration of wildlife or

The full integration of facilities into the park environment will involve sensitivity to cultural, regional, esthetic, and environmental factors (e.g., solar orientation, prevailing winds, landscaping, vulnerability to wildfire and other natural hazards) in the selection of site, construction materials, and forms; innovative concepts for grouping facilities and activities, both in the design of new development and in the redesign of existing complexes while building on the architectural and landscape elements already present; thorough interdisciplinary resource, user, and short- and long-term structure maintenance analyses; the long-term need for and sustainable use of water, energy, and waste disposal resources; assessment of the transportation and mobility needs of park visitors and

concessioner and NPS employees, and of access to the park from gateway communities; and knowledge about the values and socio-cultural interests of American Indians and other groups traditionally associated with the park.

Protection of Cultural Values (9.1.1.3)

When important cultural resources are present, efforts will be made to use existing contributing structures. New visitor or administration structures will harmonize with the area and the cultural resources in proportion, color, and texture. No attempt will be made to duplicate or mimic a historic design, nor will any modern construction be portrayed to the public as being historic. However, vernacular styles of architecture are appropriate when they provide visual compatibility with the cultural landscape.

Application of the criteria of effect promulgated by the Advisory Council on Historic Preservation and compliance with the council's regulations on "Protection of Historic Properties" (36 CFR Part 800) will precede any development. These criteria apply to all historic properties.

Revegetation and Landscaping (9.1.1.4)

The selection of plant materials and cultivation practices will be guided by the policies for management of plant materials in section 4.4 and the need for fire-resistant vegetation for defensible space. To the maximum extent possible, plantings will consist of species that are native to the park or that are historically appropriate for the period or event commemorated. The use of exotic plant species is restricted to situations that conform to the exotic species policy in section 4.4.4. Irrigation to maintain exotic plantings will be avoided, except when it is part of an approved management program essential to achieve park objectives and when adequate and dependable supplies of water are available. Low water use practices that measure soil moisture content and other technologies (such as drip irrigation and appropriate timing of water applications) should be employed.

APPENDIX C

Preliminary Access Trail Design

Potential Access Trail Design

Turnpikes Without Ditches

A turnpike without ditches is sometimes called a *causeway*. These structures are viable alternatives where a hardened tread is needed and groundwater saturation is not a problem. Turnpikes without ditches have been used successfully throughout the Sierra Nevada and elsewhere to create an elevated, hardened tread across seasonally wet alpine meadows. The surface can also be reinforced with large stones, called armoring, paving, or flagstone. Often multiple parallel paths are restored and replaced with a single causeway (see figure 1). These structures can create less environmental impact than turnpikes with ditches because they do not lower the water table. The risk is that in highly saturated soils the turnpike without ditches could sink into the ground, a problem that geotextile can help prevent.

Turnpikes Without Ditches

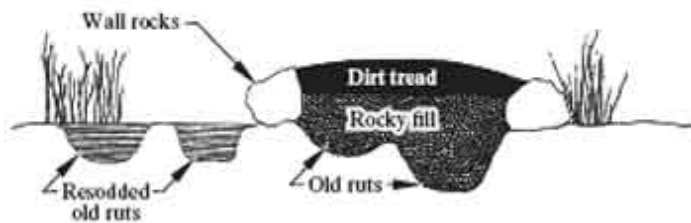


Figure 1. Turnpikes without ditches, sometimes called causeways, create an elevated, hardened tread across seasonally wet areas and can replace multiple parallel paths.

APPENDIX D

Public Comment Sought for Kalaupapa Memorial

Public Comment Sought for Kalaupapa Memorial

The following media release was issued prior to the public scoping meetings held September 19 – 26, 2009.

Ka ‘Ohana O Kalaupapa and Kalaupapa National Historical Park welcome the public to learn about and share their thoughts about the Kalaupapa memorial. A series of public meetings about the memorial will be held in conjunction with the preparation of an Environmental Assessment and to comply with the National Environmental Policy Act. Before each meeting, Ka ‘Ohana O Kalaupapa will hold hour-long family workshops to help anyone find information about ancestors who were sent to Kalaupapa.

Earlier this year, President Barack Obama signed into law the Kalaupapa Memorial Act. The law states that “The Secretary of the Interior shall authorize Ka ‘Ohana O Kalaupapa, a non-profit organization consisting of patient residents at Kalaupapa National Historical Park, and their family members and friends, to establish a memorial at a suitable location or locations approved by the Secretary at Kalawao or Kalaupapa within the boundaries of Kalaupapa National Historical Park ... to honor and perpetuate the memory of those individuals who were forcibly relocated to the Kalaupapa Peninsula from 1866 to 1969.”

The first meeting will be held at Kaumakapili Church, 766 North King Street, in Honolulu on September 18, 2009. The Family Workshop will begin at 6 p.m., followed by the public scoping session regarding the memorial from 7 to 9 p.m. Light refreshments will be served.

Kaumakapili Church was chosen as the site for the first meeting since this was the home church of Kahauliko who was sent to Kalaupapa on January 6, 1866, and is listed as No. 1 on the Admission Register of persons sent to Kalaupapa. Consequently, Kahauliko’s name will be listed first on the Kalaupapa memorial, which will contain the names of the estimated 8,000 individuals sent to the Kalaupapa peninsula because of government policies regarding leprosy.

Other public meetings will be held on:

Lanai, September 19, venue and times to be announced

Maui, September 21, Paukukalo Hawaiian Homes Community Center, 661 Kaumualii Street, Wailuku
Family Workshop, 6 p.m.
Memorial Public Scoping Session, 7-9 p.m.

Molokai, September 23, Kalana O’iwi Conference Center,
600 Maunaloa Highway, Kaunakakai
Family Workshop, 6 p.m.
Memorial Public Scoping Session, 7-9 p.m.

Kalaupapa: September 26, McVeigh Hall
Family Workshop, 9 a.m.
Memorial Public Scoping Session, 10 a.m.-noon

Comments in writing from individuals on the Big Island and Kauai or anywhere else can be mailed to: Ka 'Ohana O Kalaupapa, P.O. Box 1111, Kalaupapa, HI 96742 or to Kalaupapa National Historical Park, P. O. Box 2222, Kalaupapa, HI 96742.

The 'Ohana is a nonprofit organization that is made up of Kalaupapa residents, their family members, descendants and longtime friends.

Kalaupapa National Historical Park was established in 1980 at the request of the Kalaupapa community. Ka 'Ohana O Kalaupapa was organized in 2003.

The Kalaupapa Memorial Act was introduced to Congress in late 2005 by then-Congressman Ed Case. When Case left the US House of Representatives a year later, his successor, Congresswoman Mazie Hirono, re-introduced the bill where it was passed on the House floor last year. Senator Daniel Akaka introduced the Kalaupapa Memorial Act to the US Senate where it was also adopted as part of the Omnibus Public Land Management Act of 2009.

For more information, call Valerie Monson, secretary/coordinator for Ka 'Ohana O Kalaupapa, at 808-573-2746, or Steve Prokop, Superintendent, Kalaupapa National Historical Park at 808-567-6802, ext. 1100.

APPENDIX E

Section 106 Consultation for Proposed Memorial at Kalaupapa National Historical Park

Letter Recipients (updated October 25, 2010) – On file at Kalaupapa National Historical Park.

Section 106 Consultation for Proposed Memorial at Kalaupapa National Historical Park



United States Department of the Interior
NATIONAL PARK SERVICE
Kalaupapa National Historical Park
P.O. 2222
Kalaupapa, HI 96742

Tel: 808-567-6802
Fax: 808-567-6729



October 25, 2010

Name
Address

Subject: Section 106 Consultation for Proposed Memorial at Kalaupapa National Historical Park

Dear Name,

The National Park Service (NPS) is pursuing cultural resource consultation under the National Historic Preservation Act (NHPA) for the proposed establishment of the Kalaupapa Memorial at Kalaupapa National Historical Park (KNHP). The NPS is working in partnership with Ka 'Ohana O Kalaupapa ('Ohana) to establish this Memorial. On March 30, 2009, President Barack Obama signed the legislation into law directing the Secretary of the Interior to authorize the 'Ohana to establish the Memorial at a location or locations approved by the Secretary to honor and perpetuate the memory of approximately 8,000 individuals who were sent to the Kalaupapa Peninsula from 1866 to 1969 because of government policies regarding leprosy. The 'Ohana, a 501(c)3 organization, consists of patient residents at KNHP, family members, long-time friends and professionals working to preserve the history of Kalaupapa.

Through public consultation, including strong support by the Kalaupapa patients, family members, and members of the general public, two proposed locations for the Memorial have been established. The locations are within the site of the former Old Baldwin Boys' Home on the Kalawao side of the peninsula. Kalawao was where the original Settlement was established in 1866.

This area was chosen, in part, because, in accordance with NPS guidelines for the establishment of memorials, it is important that the commemorative work be located in surroundings that are relevant to the subject of the work. At least 2,000 of the 8,000 people who died at Kalaupapa lie in unmarked graves in a field directly across from the former Old Baldwin Home site. The buildings of the Old Baldwin Home were purposely

demolished more than 50 years ago, and the site itself has since been disturbed by bulldozing and the encroachment by invasive vegetation.

The Memorial is being developed and funded by the ‘Ohana as mandated by Congress. However, the project requires approval by NPS, and is therefore considered a “federal undertaking” according to federal regulation 36 CFR Part 800.16, which triggers the Section 106 process contained in the National Historic Preservation Act.

Section 106 requires NPS to consider effects on historic properties for any project it approves (i.e. the Kalaupapa Memorial). In doing so, NPS is required to involve the public through consultation prior to making any determination.

The NPS has initially determined that by establishing the Memorial at Kalawao, the project has the potential to cause effects on historic properties. The NPS is hereby initiating the consultation process in accordance with 36 CFR Part 800.3.

The Area of Potential Effect (APE) for the Kalaupapa Memorial, as determined by NPS, encompasses approximately 33 acres and is the geographic area where the Memorial project may directly or indirectly alter the character or integrity of historic properties (map attached). For clarification, the two areas where the Memorial is proposed to be constructed within the former Baldwin Boys Home site is considerably smaller than the APE. However, the assessment of effects to historic properties extends beyond the proposed Memorial locations because of the potential for effects to the characteristics of the National Historic Landmark and the cultural landscape.

‘Kalaupapa Leprosy Settlement’ is listed on the National Register of Historic Places as a National Historic Landmark (#76002145). The listing is extensive and includes the entire peninsula of Kalaupapa, its adjoining valleys and up to 1500 meters off shore. The listing specifically mentions the following historic properties within the APE as contributing features – all the archeology of the peninsula and adjoining valleys considered as one site, Old Baldwin Home, remnant historic tree plantings, Saint Philomena Church and Siloama Church. A complete list of historic properties within the APE is attached.

It was determined early in this compliance process that archaeological investigations were necessary to determine the extent and nature of the subsurface resources. Archaeological testing in the form of subsurface shovel test pits was conducted in the area of the former Baldwin Boys Home. This testing led the NPS to conclude that the proposed Memorial locations contain minimal cultural materials and - subsurface architectural features. A 218-page archeological report, *Layered Landscapes: Archeological Investigations and Identification Report Associated with the Kalaupapa Memorial Project* (Stein 2010), documents the research and findings.

While the locations for the Kalaupapa Memorial have been proposed, the actual design of the Memorial has not been determined. Ka ‘Ohana O Kalaupapa will sponsor an open design competition. Because the design of the Memorial, which is intended to be esthetically compatible with the surrounding area, is not known at this time, a complete assessment of effects to the cultural resources cannot be completed.

NPS has initially determined that the construction of the Kalaupapa Memorial on the former Baldwin Boys Home site may cause adverse effects to cultural resources, specifically the National Historic Landmark, archeological resources and the cultural landscape, areas which encompass almost the entire 8,725-acre Kalaupapa Peninsula.

Through proper mitigation and design, the Kalaupapa Memorial could help to enhance the landscape and enrich the history of Kalaupapa. The Memorial will eventually list the names of everyone sent to Kalaupapa, which will return people to their rightful places in the history that they helped to create. Establishing the Memorial in the Old Baldwin Boys Home could provide opportunities for education and interpretation as well as continued invasive vegetation management in the area.

National Park Service Management Policies provide guidance for the establishment of memorials. The Ka 'Ohana O Kalaupapa and the NPS agree to follow these guidelines for the Kalaupapa Memorial.

Be designed and sited to avoid disturbance of natural and cultural resources and values;
be located in surroundings relevant to its subject;
be constructed of materials suitable to and compatible with the local environment;
not encroach on any other preexisting work or be esthetically intrusive;
not interfere significantly with open space and existing public use;
not divert attention from a park's primary interpretive theme; and
not be affixed to the historic fabric of a structure.

We invite you to participate in the consultation process for the Memorial project, which the 'Ohana and NPS are working on collaboratively. Please review and provide input on the project, specifically the Area of Potential Effect, the list of historic properties in that area and the finding of Adverse Effect.

Please provide comments to Steve Prokop by November 19, 2010, at the above address or Steve_prokop@nps.gov.

We appreciate your participation in this project of establishing a Memorial at the former Baldwin Boys Home at Kalawao. Additional project information can be found on this website <http://parkplanning.nps.gov/projectHome.cfm?projectID=27494>. Please direct any questions by phone or email to Cari Kreshak, NPS Cultural Resource Program Manager, at (808)228-5443 or cari_kreshak@nps.gov.

Sincerely,

Stephen Prokop
Superintendent

Cc:

See attached list

Enclosures

Project location and APE map

List of historic properties within the APE

Letter recipients



Project map showing Area of Potential Effect and proposed locations for the Memorial.

Historic Properties within the Project Area of Potential Effect

‘Kalaupapa Leprosy Settlement’ is listed on the National Register of Historic Places as a National Historic Landmark (76002145). The listing is extensive and includes the entire peninsula of Kalaupapa, its adjoining valleys and up to 1500 meters off shore. The listing indicates that all the archeology of the peninsula and adjoining valleys is considered one site. Historic properties that are specifically mentioned in the National Register listing are **bolded** in the table below.

Historic Property	Classification
Saint Philomena Catholic Church	Building
Saint Philomena churchyard walls and gates	Building
Saint Philomena Stone Fence	Structure
Saint Philomena tombs including Saint Damien and Brother Dutton	Site
Saint Philomena Rubbish Pit Site	Site
Catholic Rectory Site	Site
Siloama Tombs including Kanakaokai	Site
Siloama Church	Building
Siloama Restroom	Building
Articulated walkways in and around two churches	Structure (cultural landscape component)
Old Baldwin Home Site	Site
Baldwin Home for Boys Stone Walls	Structure
Baldwin Home Kitchen Ruins	Structure
Old Baldwin Home Garden Area	Site
Old Baldwin Home Garden Terraces	Structure
Old Baldwin Home Rockery Site	Site
pre-old Baldwin Home Terrace	Structure
Pre-contact / proto-historic Archaeological Site	Site
Damien Road	Structure
Wash House Enclosure	Structure
Wash House Site	Site
Mauka-makia Federal Hospital West Wall	Structure
Moku Puakala (Burial Field Site)	Site
Heiau Site (Makalii)	Site
Remnant historic tree plantings	Site

APPENDIX F

Section 106 Consultation – Response from the State Historic Preservation Office

LINDA LINGLE
GOVERNOR OF HAWAII



**STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES**

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

PAUL J. CONRY
ACTING FIRST DEPUTY

LENORE N. OHYE
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAIHOLELAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

December 6, 2010

Stephen Prokop, Superintendent
Kalaupapa National Historical Park
US Department of the Interior
PO 2222
Kalaupapa, Hawaii 96742

LOG NO: 2010.3445
DOC NO: 1012MD01
Archaeology

Dear Mr. Prokop:

**SUBJECT: National Historic Preservation Act (NHPA) Section 106 Review -
Proposed Memorial at Kalaupapa National Historical Park
Kalaupapa Ahupua'a, Kalawai County, Island of Moloka'i**

Thank you for your correspondence dated October 15, 2010 regarding the aforementioned undertaking, which we received on October 18, 2010. We apologize for the delay in our reply.

The National Park Service (NPS) is working in partnership with Ka 'Ohana O Kalaupapa (the 'Ohana) to establish the Kalaupapa Memorial (the Memorial) at the Kalaupapa National Historical Park (KNHP). The Memorial is the result of legislation signed on March 30, 2009 by President Barack Obama, directing the Secretary of the Interior to authorize the 'Ohana to establish the Memorial at a location or locations approved by the Secretary to honor and perpetuate the memory of approximately 8,000 individuals who were sent to the Kalaupapa Peninsula from 1866 to 1969 because of government policies regarding leprosy. The 'Ohana, a 501(c)3 organization, consists of surviving patient residents, family members, long-time friends and professionals. The U.S. Department of the Interior Memorandum dated July 1, 2009 (Subject: Activation: P.L. 111-11, Omnibus Public Land Management Act of 2009, Title VII, Subtitle B., Section 7108: Kalaupapa National Historical Park Memorial), states that "The location, size, design, and inscriptions of the memorial shall be subject to the approval of the Secretary of the Interior."

The NPS has determined that the proposed Memorial location, to be situated within the land previously occupied by the Old Baldwin Boy's Home (which was deliberately destroyed in the 1950s) will be located in an APE of 33 acres, "...where the Memorial project may directly or indirectly alter the character of integrity of historic properties" and "the assessment of effects to historic properties extends beyond the proposed Memorial locations because of the potential for effects to the characteristics of the National Historic Landmark and the cultural landscape." We note that the National Historic Landmark encompasses the 8,725-acre Kalaupapa Peninsula.

Your correspondence indicates that guidelines for the design and location of the Memorial have been agreed-upon between the 'Ohana and the NPS. The agreed-upon guidelines follow the NPS Management Policies for memorials and include the following principals;

The memorial shall:

1. Be designed and sited to avoid disturbance of natural and cultural resources and values;
2. Be located in surroundings relevant to its subject;
3. Be constructed of materials suitable to and compatible with the local environment;
4. Not encroach on any other pre-existing work or be esthetically intrusive;
5. Not interfere significantly with open space and existing public use;
6. Not divert attention from the park's primary interpretive theme; and
7. Not be affixed to the historic fabric of a structure.

In your letter dated October 15, 2010, you indicate that, "Through proper mitigation and design, the Kalaupapa Memorial could help to enhance the landscape and enrich the historic of Kalaupapa." We concur with this assessment and believe that if the agreed-upon guidelines (1 through 7 above) are followed, there will be **no adverse effect** to the KNHP or to individual historic properties within the district, pursuant to 36CFR§800.5, which states,

(b) Finding of no adverse effect. The agency official, in consultation with the SHPO/THPO, may propose a finding of no adverse effect when the...undertaking is modified or conditions are imposed, such as the subsequent review of plans for rehabilitation by the SHPO/THPO to ensure consistency with the Secretary's Standards for the Treatment of Historic Properties (36CFR part 68) and applicable guidelines, to avoid adverse effects.

We believe that the guidelines agreed upon by NPS and the 'Ohana will ensure consistency with the applicable Secretary's Standards for Preservation and Preservation Planning; we also believe that the preferred location at the site of the former Baldwin Boy's Home is within the stated guidelines. We request the opportunity to be consulted as the plans for the memorial are finalized. We also request that you consider some level of archaeological mitigation, either data recovery or monitoring at the final site of the memorial, if ground disturbance will occur during construction.

Your letter also indicates that NPS has determined that this undertaking may have an adverse effect on the KNHP pursuant to CFR 36 Park 800. We request that you take into account the following information when making your final determination:

1. The 'Ohana, who are cited as partners in this undertaking, do not agree with the determination of Adverse Effect (letter to SHPD dated October 25, 2010 and letter to NPS dated November 15, 2010);
2. We feel the APE (either of 33 acres or 8,725 acres) needs further refinement, given that the only location from which this Memorial will be visible is the St. Philomena Church;
3. The Bishop of the St. Philomena Church does not agree with the determination of Adverse Effect (letter from the Bishop of Honolulu to NPS, dated October 25, 2010);
4. The next closest church, United Church of Christ, does not agree with the determination of Adverse Effect (letter from Conference Minister Charles Buck to NPS, dated November 3, 2010);
5. The Advisory Council on Historic Preservation does not agree with the finding of Adverse Effect (letter from ACHP to NPS dated November 5, 2010); and

6. Prior findings of the NPS indicated that "*Memorial construction not consistent with the Secretary Standards for Historic Preservation will have an adverse effect on cultural resources.*" (*emphasis added*; Layered Landscapes June 2010, p. i).

In addition, we find guidance in the original foundation statement of the Kalaupapa National Historical Park (NPS 2006), citing Public Law 95-565, Sec. 102 dated 22 December 1980 which was the founding document for the KNHP, regarding Patient and Native Hawaiian Staffing:

Preservation and interpretation of the settlement will be managed and performed by patient and Native Hawaiians to the extent practical.

Training opportunities shall be provided to patients and Native Hawaiians in management and interpretation of the settlement's culture, historical, educational, and scenic resources.

It is our understanding that to date, consulted patients and Native Hawaiians have found that the memorial will enhance rather than adversely affect the KNHP.

If you have questions about this letter please contact Morgan Davis at (808) 243-5169 or via email to: morgan.e.davis@hawaii.gov.

Aloha,



Theresa K. Donham
Acting Archaeology Branch Chief
Deputy SHPO
State Historic Preservation Division

cc:

Caroline D. Hall, Assistant Director
Office of Federal Agency Programs, Federal Property Management Section
Advisory Council on Historic Preservation
1100 Pennsylvania Avenue NW, Suite 803
Washington, DC 20004

Charles Buck, Conference Minister
Hawaii Conference, United Church of Christ
1848 Nuuanu Avenue
Honolulu, Hawaii 96817

Most Reverend Larry Silva, Bishop of Honolulu
Diocese of Honolulu, Office of the Bishop
1184 Bishop Street
Honolulu, Hawaii 96813

Charles "Boogie" Kahilihiwa, President
Ka 'Ohana O Kalaupapa
PO Box 1111
Kalaupapa, Hawaii 96742

APPENDIX G

Environmental Assessment distribution list

In addition to patients, members of Ka 'Ohana O Kalaupapa, and other interested individuals, the EA was also distributed to the following list of State Agencies, Federal Agencies, and Non-Governmental Organizations.

Advisory Council on Historic Preservation
Congregation of the Sacred Hearts of Jesus and Mary, Provincial Superior
County of Maui, Office of the Mayor
Department of Anthropology (President, Society for Hawaiian Archaeology)
Department of Hawaiian Home Lands, Chairman
Department of Health
Department of Land and Natural Resources
Department of Land and Natural Resources (Director, SHPD Administrator, Preservation Officer)
Hawaii Conference United Church of Christ, Conference Minister
Historic Hawaii Foundation, Executive Director
Hui Malama I Na Kupuna O Hawai'i Nei, Executive Director
Kalaupapa National Historical Park Patient Advisory Commission
Kalaupapa Patient Advisory Council, President
Molokai Island Burial Council, c/o State Historic Preservation Division, Burial Sites Program
Molokai Museum and Cultural Center
Mormon Church, President
Office of Hawaiian Affairs (Regional and Molokai branch)
Roman Catholic Church, Diocese of Honolulu
Shrine and Museum of Blessed Marianne Cope, Sisters of Saint Francis Motherhouse, Cause Director
Sisters of St. Francis
Soto Mission of Hawaii
St. Francis, Healthcare Foundation of Hawaii, Cause Director
State of Hawai'i, Lt Governor
The Association for Hawaiian Civic Clubs, President
U. S. Senate (2)
U.S. Congressional District 01
U.S. Congressional District 02
U.S. Fish & Wildlife Service
University of Hawaii, Historic Preservation Program, Dept of American Studies
Maui County Council, Chairman
Office of Hawaiian Affairs

