



Haleakalā National Park Kīpahulu Comprehensive Plan and Environmental Assessment

Maui, Hawaii
September 2018

NOTE TO REVIEWERS AND RESPONDENTS

Comments on this EA may be submitted electronically at the NPS Planning, Environment and Public Comment (PEPC) website (<http://parkplanning.nps.gov/KCP>) or you may mail written comments by October 31, 2018 to the address listed below.

Before including personal identifying information in your comment, you should be aware that your entire comment – including your personal identifying information – may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

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Chapter 1

Purpose and Need



Interpretive panel at Makahiku Falls



Kalo lo'i field at Kapahu farm



Pools of 'Ohe'o

Chapter One Divider Back

CHAPTER 1: PURPOSE AND NEED

OVERVIEW OF THE PARK AND PLANNING AREA

Haleakalā National Park is on the eastern side of Maui, the second-largest island in the Hawaiian chain. Originally established in 1916 as the Haleakalā unit of Hawai'i National Park (now Hawai'i Volcanoes National Park) and made into a separate NPS unit in 1961, the park is characterized by starkly contrasting mountain and coastal environments. Within a few miles of the coast, the park rises dramatically in elevation to 10,023 feet at the summit of the dormant Haleakalā Volcano. Approximately 72% of the park is designated wilderness that protects a mountainous environment with numerous microclimates. The park is separated into the Summit District above 7,000 feet of elevation, and the coastal Kīpahulu District. The Kīpahulu District of the park protects multiple intact *ahupua'a*, traditional Native Hawaiian land divisions that protect all resources from *mauka* (summit) to *makai* (sea). The Upper and Middle Kīpahulu Valley is managed by the park as a biological reserve that protects some of the world's rarest plant and animal species and is closed to the general public. The Kīpahulu coastal area, also known as the Lower Kīpahulu Valley, is set in a tropical rainforest atop a seaside cliff and was first farmed by early Polynesians more than 1,200 years ago; the district remains an integral part of local Hawaiian culture. The Lower Kīpahulu Valley portion of the Kīpahulu District highlights the beauty of the scenic free-flowing stream system through 'Ohe'o Gulch and is one of the most popular visitor destinations in the park. The project area for the Kīpahulu Comprehensive Plan/Environmental Assessment (EA) is defined as the Lower Kīpahulu Valley, the portion of the Kīpahulu District that includes current park development and extends from the coast to the terminus of the Pīpīwai Trail.

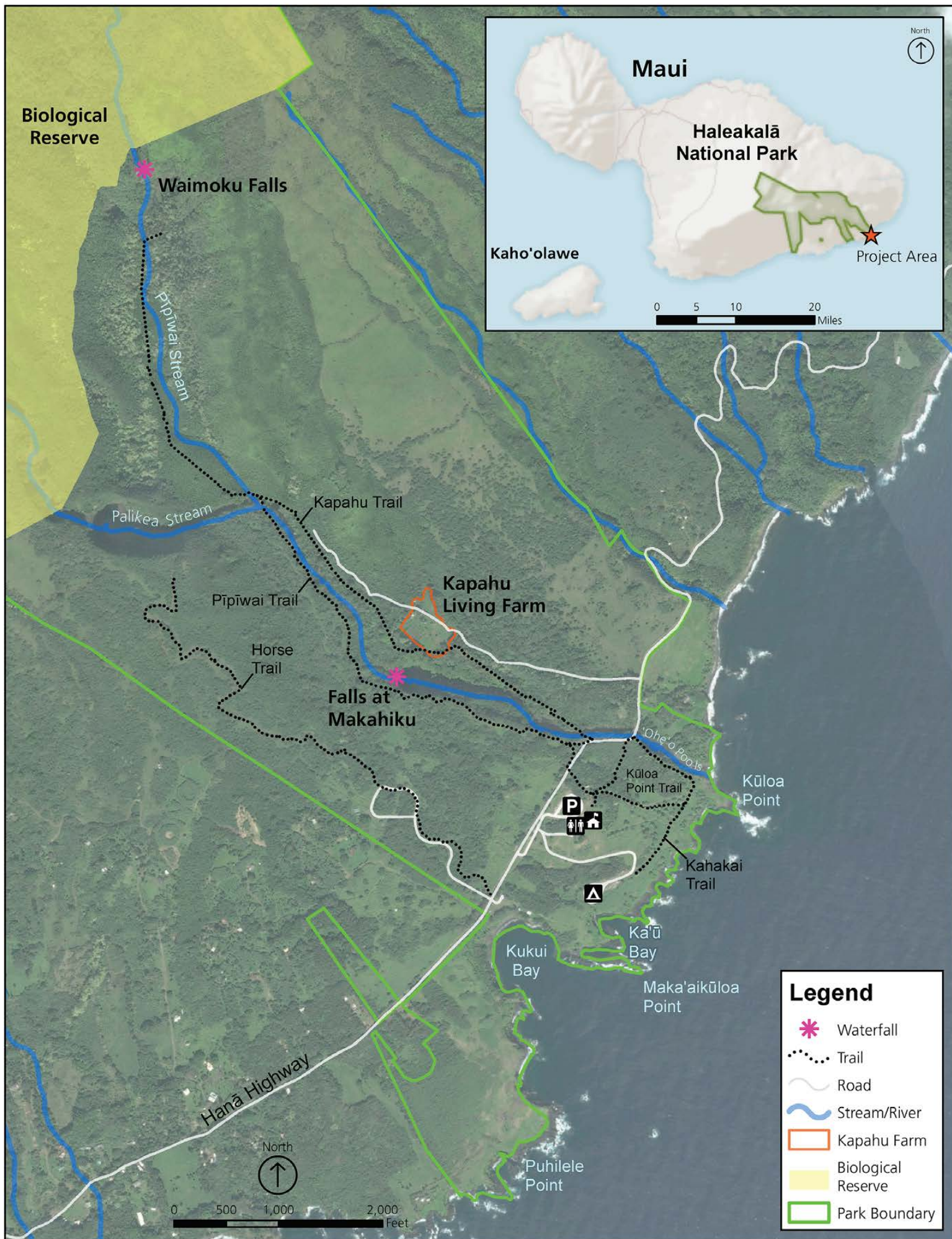
Visitors reach the Lower Kīpahulu Valley via the two-lane Hāna Highway that circumscribes the northeast coast of Maui or the winding Pi'ilani Highway along the island's southwest coast. It takes approximately three hours to reach the Kīpahulu coastal district from Kahului, the commercial center of Maui and location of the island's international airport. The closest communities to the park are Hāna, 9.5 miles to the northeast; and Kaupō, 7 miles to the southwest. Once in the Kīpahulu District of the park, visitors can explore the park visitor center and bookstore; hike; swim in the Pools of 'Ohe'o; take in sweeping views of waterfalls, the ocean, and rainforest; camp at the designated campground; and participate in guided activities offered by park staff, partners, and commercial services that showcase Native Hawaiian traditions and practices.

PURPOSE AND NEED FOR THE KĪPAHULU COMPREHENSIVE PLAN

The purpose of the comprehensive plan is to: improve visitor access to and enjoyment of the Kīpahulu District while reducing visitor-caused impacts to the park's cultural and natural resources; promote safety; and ensure adequate operational capacity and facilities given the area's remote location. The plan provides guidance on improvements to areas such as the Pools of 'Ohe'o, visitor center, trails, campground, and Kapahu Living Farm; as well as improvements to supporting NPS operational facilities such as the maintenance area buildings, fee station, staff housing, and staff offices.

The plan is needed for the following reasons.

1. Congestion and crowding occur in the visitor center area, parking lots, Pools of 'Ohe'o, in the campground, on trails, and affect visitor safety and damage resources. Congestion at the fee station area causes back-ups to the Hāna Highway. Off-road parking and crowding are creating staff and visitor safety concerns. The large volume of visitors is



- causing resource damage (such as trail widening, visitor created trails, and damage to archeological resources at the campground). The overflow parking lot and unpaved road become impassible during and following heavy rainfall. The plan is needed to identify the appropriate size and locations for visitor serving facilities and visitor use management strategies to address increasing visitation to the area.
2. Visitor safety concerns at the Pools of 'Ohe'o include rockfall and flash flooding. Other safety concerns include visitors falling or jumping off rocks into pools along the Pipīwai Stream or being struck by rockfall at Waimoku Falls. While most severe incidents are a result of visitors taking part in a prohibited activity or being unprepared for their visit, the plan is needed to consider safety messaging and the potential for closing the pools to visitors.
 3. Opportunities to interpret cultural resources and provide opportunities to learn about Native Hawaiian culture are limited. The George Kewalo Kanalu House has no public access and the Kapahu Living Farm has limited visitor access. A comprehensive approach to interpretive and stewardship opportunities is needed to effectively share this aspect of the park's significance with visitors.
 4. Research has shown that visitors perceive a lack of directional and educational signs to be the one of the most significant problems in the Kīpahulu area. The plan is needed to identify improvements to ensure coordinated visitor information and circulation.
 5. The Kīpahulu District lacks accessible visitor opportunities. The primary visitor attraction, the 'Ohe'o Pools, does not have an accessible route allowing visitors to view the pools. Trails to other visitor attractions, such as to the *hale* (traditional Hawaiian home) and ocean (at Kūloa Point) are also not accessible. Accessible routes to the pools and ocean have previously been designed and now need to be evaluated in the context of the comprehensive facility improvements under evaluation in this plan.
 6. There are very few designated camping areas in the East Maui area and demand for camping opportunities is high. Campground use at Kīpahulu has increased over time, and presents challenges for park operations and maintenance, such as increased amounts of trash and recycling, litter, and human waste; and damage to amenities such as tables and grills. The plan is needed to evaluate campground improvements to enhance visitor use, improve maintenance, and ensure protection of surrounding vegetation and cultural resources.
 7. Trails experience erosion due to heavy rainfall and trail design. The Kapahu and horse trails are closed and need evaluation as to whether redesign or closure and revegetation is appropriate. The plan is needed to evaluate the trail system and provide recommendations for trail use, trail alignment, accessibility, overlooks and trail terminus, potential trail connections, and safety elements for visitors (e.g., surfacing, railings, road crossings, etc.).
 8. Operational facilities were built as temporary structures and do not provide enough office and heavy equipment storage space to serve park operational needs. The fee station lacks shade, air conditioning, office space, and a restroom. The plan is needed to evaluate facilities to adequately support operations and ensure employee safety.
 9. The park's housing management plan identifies the need for up to three houses at Kīpahulu; two for law enforcement staff to improve emergency response time, reduce vandalism and other inappropriate activities, and aid in recruiting and retaining law enforcement staff. The remaining housing unit would be provided for a water treatment plant operator. The plan is needed to identify housing locations.
 10. There is deferred maintenance on buildings, trails, archeological sites, and maintained landscapes (such as mowed paths) in the Kīpahulu District. The plan is needed to identify financially feasible options to address deferred maintenance and implement new

proposed facilities with expected funding. The plan is also needed to ensure facility improvements are appropriate for the character of the area.

The Kīpahulu Comprehensive Plan brings together actions for the District that address issues that have developed over the past 28 years and will update the 1995 general management plan guidance for the area. The following general management plan requirements are addressed for the Lower Kīpahulu Valley:

- indications of types and general intensities of development (including visitor circulation and transportation patterns, systems and modes) associated with public enjoyment and use of the area, including general locations, timing of implementation, and anticipated costs; and
- identification of and implementation commitments for visitor carrying capacities for all areas of the unit.

PLANNING ISSUES IDENTIFIED DURING PROJECT SCOPING

The scoping phase of a comprehensive planning process plays an important role to focus the issues that must be addressed in the plan. The following topics represent the pertinent comments and concerns that were identified during past public engagement efforts and during the comprehensive plan scoping phase in the summer of 2016 and spring of 2017. See Appendix F for more information about the scoping phase.

- **Additional visitor facilities and improvements.** Many of the park facilities have high levels of deferred maintenance. Office and maintenance facilities and the fee station were originally erected as temporary facilities and are inadequate for staff use, and heavy equipment and vehicles are lacking adequate cover from the elements and are rapidly deteriorating. There is a high and historically unsustainable cost of maintaining facilities, trails, and mowed areas. During and after rain events, the overflow parking lot and road to the campground become muddy and impassible.
- **Level of site development and design character.** While there are needs for improved facilities, commenters expressed strong support for maintaining a traditional Hawaiian experience at Kīpahulu. Many commented on the appropriate level of site development in the district. Some felt that the area should remain natural and not be over-managed, while others felt that additional park presence would help guide appropriate visitor behaviors at the pools, on the trails, and in the campground. There was widespread agreement throughout public comments that any development within the Kīpahulu District should be sensitively designed to echo traditional Hawaiian construction techniques and materials and the development footprint should be kept to a minimum so as to not affect scenic views.
- **Visitor safety and accessibility.** Safety and accessibility improvements associated with the trails and Pools of 'Ohe'o were common themes during public scoping. Fatalities and numerous injuries have occurred at Kīpahulu in the past decade because of hazardous conditions or unauthorized visitor behaviors, but many commenters did not like the negativity of the signage currently used by the park to educate visitors of potential risks. The public also wanted more opportunities for those with mobility issues to be able to enjoy the park's resources from physically accessible trails. Another safety risk is long emergency response times due to the District's remote location and distance from emergency services, and particularly at night.
- **Campground management and development.** There are few designated camping areas in the East Maui area, and demand for camping opportunities is high. Campground use at

Kīpahulu has increased over time. This presents challenges for park operations and maintenance, such as increased amounts of trash and recycling (which park staff haul to Kahului), litter, and human waste; and damage to archeological resources, and amenities such as tables and grills. While one accessible camp pad exists, with a route to the restroom, accessibility issues remain. Comments supported redesigning the campground and taking a more proactive management approach to camping. Commenters felt that changes to the campground could improve visitor behavior, better protect nearby cultural resources, and allow better crowd control.

- **Visitor impacts and resource protection.** During public scoping numerous individuals commented on the number of visitors at Kīpahulu and perceived negative effects to the area's resources. Specific concerns included erosion and vegetation damage associated with the horse trail, off-trail hiking and littering; water quality in the pools being affected by sunscreen; and invasive species being spread through visitor actions including off-trail use and horseback riding. Visitors waiting to enter the park have formed long vehicle lines, extending to the Hāna Highway and impeding local traffic. Congestion on trails has also led to widening of trails.
- **Interpretation and educational opportunities.** Commenters felt the park should offer additional opportunities to connect visitors to the area's natural and cultural resources. Additional cultural experiences and learning opportunities would allow the park to explain the continuing traditions and customs associated with the land, might engender respect and awareness for land and resources, and encourage appropriate visitor behaviors. Some comments highlighted the potential to work with local Hawaiian groups and individuals to help convey the land's importance through paid positions and programming. Some also suggested expanding programming and plantings at Kapahu Living Farm, a facility that is currently managed by a nonprofit park partner group.

The following issues were identified during public engagement but were not carried forward.

- **Feral animal management and invasive species management.** Public comments received during the scoping period requested the Kīpahulu comprehensive plan to address feral animal management and the management of invasive plant and animal species in the park. Suggestions included creating an invasive management plan as part of the area comprehensive plan, using feral cows to remove invasive plant species, and installing fencing to keep feral animals out of the Kapahu Living Farm and developed areas of the Lower Kīpahulu Valley. While feral animal and invasive species management would benefit the native plant and animal species in Kīpahulu, the National Park Service determined that these topics were outside the scope of this plan. Invasive species removal and feral animal management are widespread management issues experienced throughout the park. Actions related to these topics would be the focus of resource management plans that would encompass all areas of the park. Therefore, these topics were not included in this planning effort.
- **Potential expansion of the Kapahu Living Farm.** Comments received during the public scoping period and stakeholder workshop sessions suggested expanding Kapahu Living Farm to include additional park land. The farm is currently managed through a cooperative agreement regularly revised by the National Park Service and the nonprofit management entity and approved by the park superintendent. Changes to the farm—including changes in the current management structure or boundary adjustments to the farm—would be addressed through the agreement process and were deemed outside the scope of this plan. Changes in public access and visitor opportunities offered at Kapahu Living Farm are included in the action alternatives (alternative 2 and alternative 3).

DESIRED CONDITIONS

Desired conditions are defined as statements of aspiration that describe resource conditions, visitor experiences and opportunities, and facilities and services that an agency strives to achieve and maintain in a particular area.

Desired conditions describe what conditions, outcomes, and opportunities are to be achieved and maintained in the future, not necessarily what exists today. Desired condition descriptions paint a picture of what the particular area will look like, feel like, sound like, and function like in the future. They do not answer the questions of how conditions will be maintained or achieved. The below desired conditions were developed by park staff and based on the park's foundation document, general management plan, and other park planning efforts. Desired conditions were developed to help guide the plan alternatives and provide a foundation for this plan/EA. The desired conditions for the Kīpahulu District are linked to the fundamental resources and values and based on prior planning and guidance as well as the purpose and enabling legislation.

Desired Conditions for Cultural Resources, Natural Resources, and Associated Activities:

- Safeguard the integrity of cultural resources is safeguarded to preserve significant attributes and uses that to contribute to the cultural significance including traditional cultural activities.
- Identify and protect cultural resources; stabilize significant cultural resources; and, where appropriate, assist in the perpetuation and interpretation of the traditional Hawaiian culture.
- Enhance protection of cultural resources dedicated for interpretation and limit public information on sites dedicated for protection.
- Native Hawaiians engage in traditional cultural activities such as ritual ceremonies, spiritual training, and various practices within the park.
- Foster continued connections and interrelationships between Native Hawaiians and culturally significant park resources.
- Cooperate and collaborate with the community and environmental organizations to protect and conserve resources.
- Visitors have opportunities to:
 - better understand traditional Hawaiian experiences and cultural uses of park resources;
 - learn about the connections between people and cultural resources preserved by the park, such as historic agricultural and habitation sites;
 - participate in traditional uses and experiences that demonstrate the connections between people, spirituality, and the physical environment;
 - learn about the importance of pre-contact and historic cultural resources such as Native Hawaiian temples, trails, fishing shrines, and house platforms;
 - develop an appreciation for cultural resources.
- Interpret cultural resources, where appropriate, to tell important historic stories including, but not limited to, Native Hawaiian culture.
- Provide infrastructure at areas dedicated to interpretation of cultural activities and to facilitate safe visitor experiences.
- Maintain natural conditions and processes and activities to protect the natural and cultural resources found within high priority natural resource areas.
- Native Hawaiians have access to this area for cultural practices and religious activities.

- Interpret natural and cultural resources for visitors through diverse mediums and methods.
- Focus trail enhancements on safety (for example, barriers such as fencing and rock walls) and preventing secondary impacts such as erosion.
- Visitors have opportunities to learn about invasive species and associated environmental impacts.
- Cooperate and collaborate with the community and environmental organizations to protect and conserve resources.
- Monitor visitor impacts to resources.
- Apply scientific methods as a critical factor in prioritizing natural resource and cultural resource protection and activities.

Desired Conditions for Visitor Use and Experience:

- Visitors have the opportunity to engage in a diverse range of recreation opportunities such as scenic viewing of the coastal environment, solitude experiences, breathing clean air, and hearing natural sounds.
- Visitors have a range of quality visitor experiences and opportunities associated with experiencing natural sounds, viewsheds, and dark night skies.
- Manage the Kīpahulu District primarily for day use and continue to provide campgrounds within the park and facilities for overnight use.
- Develop park interpretation on the basis of three themes: 1) geologic processes and associated volcanic and erosional features; 2) the altered ecosystems containing rare endemic biota; and 3) Hawaiian land use, culture, and history.
- Visitors have opportunities to experience shorelines that are largely undisturbed with natural processes predominating.
- Visitors have the opportunity to understand the remoteness of the site.

IMPACT TOPICS RETAINED OR CONSIDERED BUT NOT RETAINED FOR FULL ANALYSIS IN THIS PLAN

National Park Service planning projects identify issues and evaluate associated impacts. Issues are retained for consideration and discussed in detail if:

- the environmental impacts associated with the issue are central to the proposal or of critical importance;
- a detailed analysis of environmental impacts related to the issues is necessary to make a reasoned choice between alternatives;
- the environmental impacts associated with the issue are a big point of contention among the public or other agencies; or
- there are potentially significant impacts to resources associated with the issue.

The National Park Service used an interdisciplinary review process to determine which resources could be affected by this project. It should be noted that all of the park's resources and values are considered important and are managed accordingly, regardless of whether or not they are retained in the impact analysis of this document. The dismissal of an impact topic from detailed analysis only means that the topic is not important to consider for the particular actions proposed within this plan.

Impact Topics Retained for Full Analysis

The following impact topics are carried forward for further analysis in this plan/EA:

- **Water Quality.** There are potentially significant impacts to water resources, namely water quality, from activities proposed in the action alternatives. The construction, development, use and rerouting of trails may result in soil compaction and consequently an increase in sediment levels in water bodies. New developments and construction activities could cause some primarily short-term increases in denuded areas, which may also increase sedimentation. New impervious surfaces—parking areas and roofs—would have permanent effects on runoff rates, although these may have little net effect when accounting for the use of permeable surfaces for parking areas. Other water quality factors include natural erosion, storm erosion, and runoff from significant ungulate activity above the pools.

Decisions related to use of the Pools of ‘Ohe‘o would likely have an impact on water quality in the gulch as visitors introduce chemicals (including sunscreen which can cause coral bleaching and slow coral reef growth) and cause frequent disturbances to the riverbed leading to increased turbidity; conversely, closure of the pools could have a beneficial impact to water quality. In either case, the impact is not likely to be adverse.

- **Archeological Resources.** The 810-acre Kīpahulu Historic District, which extends *mauka* (upland) from sea level to the mouth of the Kīpahulu Valley on either side of the ‘Ohe‘o Gulch, has been proposed for listing in the National Register of Historic Places as a single archeological district containing precontact and historic features. Actions related to the development of facilities and new visitor opportunities in the Kīpahulu District would likely include ground disturbances that would be mitigated to avoid adverse impacts to *in situ* archeological resources.
- **Ethnographic Resources and Traditional Cultural Practices.** Haleakalā National Park is a sacred place to *kānaka maoli* (Native Hawaiians) and is fundamentally linked to their traditional and contemporary beliefs, practices, and way of life; the Kīpahulu Valley is part of a broad Traditional Cultural Property that is important for its association with known traditional uses, oral history, *mele* (Hawaiian language chants or songs), and legends, as well as its role as a source for traditional resources and materials. From ancient times to the present, Native Hawaiians have used particular areas, sites, and features within the current park boundaries for a broad range of activities, cultural practices, and protocols including ceremonies, spiritual training, practices related to birth and burial, resource collection, and travel across East Maui. Some of these sacred practices include access and use of the Pools of ‘Ohe‘o. Decisions related to managing access to the pools would likely impact the ability of Native Hawaiians to continue these practices.
- **Visitor Use and Experience.** Visitor access to a diverse range of visitor opportunities and experience includes accessibility and access to key experiences in the Kīpahulu District. Visitor access to the Pools of ‘Ohe‘o is a key experience and therefore conducting a detailed analysis of the environmental impacts related to visitor access is necessary to make a reasoned choice between the alternatives. In addition, given the increasing visitation to the District, conducting an impact assessment of how the alternatives consider congestion and crowding is important.
- **Socioeconomics.** Tourism plays an important role in the local and regional economy. One of the most popular visitor activities in Maui is exploring the pools and waterfalls of the ‘Ohe‘o Gulch. Nearly 800,000 visitors a year travel the narrow, winding 52-mile-long road to East Maui and the Lower Kīpahulu Valley. The majority of visitors travel to the Kīpahulu District by way of the state- and county-maintained Hāna Highway (Highway 31) through Hāna.

Traffic mainly consists of East Maui residents and tourists in rental cars or commercial van tours. This area of the park gets over 500 cars a day, and about 1,500 to 1,800 people per day, mainly concentrated during peak times. The alternatives included in this plan propose varying recreational opportunities that may affect visitation levels, traffic on East Maui roads, and possibly spending in the local area as well as quality of life. Furthermore, the facility development actions, NPS staffing, and housing components of the alternatives could affect the local economy and community.

Impact Topics Considered But Not Retained for Full Analysis

The following topics were evaluated during the scoping process to determine if any environmental issues existed that would require full analysis; however, none were identified and these topics were dismissed from further analysis in this environmental assessment.

- **Native Vegetation.** Under the alternatives no more than approximately 2.2 acres (less than 100th of a percent of the existing acreage) would be disturbed by proposed developments in the alternatives—and much of this vegetation is not native. Ground disturbance for new construction would create openings that could enable the establishment of nonnative plants, but the use of construction best management practices would minimize this possibility. Although some native vegetation would likely be lost, even with the application of best management practices and mitigation measures, minimal changes would be expected in the abundance and distribution of native plants in the project area. In addition, it is unlikely that new trails or facilities would provide a vector for transmission of Rapid ‘Ohia Death as the project area contains no ‘Ohia forests. With surveys occurring before construction begins, action would be taken to avoid impacts to rare or special status species. In addition, park staff would maintain and assess native vegetation under normal park operations. Therefore, native vegetation was dismissed from further analysis.
- **Federally Listed and Other Species of Concern.** Through informal consultation with the US Fish and Wildlife Service (USFWS), six federally listed species were identified as potentially being found within or flying through the project area. These are: the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), Hawaiian goose or Nene (*Branta sandvicensis*), the orangeblack Hawaiian damselfly (*Megalagrion xanthomelas*), Hawaiian petrel (*Pterodroma sandwichensis*), Band-rumped storm-petrel (*Oceanodroma castro*) and the threatened Newell’s shearwater (*Puffinus auricularis newelli*). According to the USFWS, there are no federally listed plants at this site. Section 7 consultation is still in progress, analyzing the effects of the preferred alternative on listed and endangered species in accordance with the Endangered Species Act. The proposed action alternatives would not adversely impact critical habitat or migration patterns for the federally listed species because no critical habitat exists within the project area. Therefore, species of concern were dismissed as an impact topic. However, informal consultation with the USFWS will continue and perhaps reinstate as implementation of the plan progresses.
- **Cultural Landscapes.** Native Hawaiians have strong cultural and spiritual connections to the resources and land located within Haleakalā National Park and cultural landscapes have been identified within the broad Kīpahulu District. However, nothing included in the plan alternatives would affect the overall landscape of the Kīpahulu area. Development in action alternatives would be limited and any new construction would consider the overall landscape and viewshed per public and park staff comments collected during scoping, as outlined in the mitigation measures common to all action alternatives. Therefore, this impact topic was dismissed from further analysis. Cultural landscapes associated with the Kīpahulu Historic

District should continue to be considered during the implementation of actions included in this plan and when completing compliance for future projects in the District.

- **Environmental Justice.** Executive Order 12898, “Federal 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 minority and low-income communities to avoid disproportionate placement of any adverse effects from federal policies and actions on these populations. The Department of the Interior requires all of its bureaus to consider the impacts of their actions and inactions on minority and low-income populations and communities, to consider the equity of the distribution of benefits and risks of those decisions, and to ensure meaningful participation by minority and low-income populations in the department’s wide range of activities where health and safety are involved.

Census Tract 301 in Maui County that includes the surrounding communities of Kīpahulu, Kaupō, Kēōkea, Hāna, Nāhiku, Wailua, and Ke‘anae contains both minority and low-income populations; however, environmental justice is dismissed for the following reasons:

- Implementation of any of the alternatives is expected to have insignificant impacts on minorities of low-income populations and communities and would not result in any disproportionate human health or environmental effects. Anticipated impacts, such as traffic and changes in the natural and physical environment, would not disproportionately affect minority or low-income populations.
- NPS staff actively solicited public participation as part of the planning process and gave equal consideration to input from all persons regardless of age, race, income status, or other socioeconomic or demographic factors.

The park staff has consulted and worked with the affected Native Hawaiians, Kīpahulu and Summit area kūpuna groups, and the local Hāna community, in cooperative efforts to manage the recreational potential of the park and its resources effectively. Park staff will continue to do so (see Appendix F for a summary of public involvement for this plan). All alternatives considered in this plan give attention to potential effects on traditionally associated peoples now recognized by Haleakalā National Park. Detailed discussions on expectations and needs for accommodation with all special status parties will help ensure that Hawaiian cultural values and significant activities that play a role in the human interaction with Kīpahulu can be recognized and valued by the park and by future visitors. No adverse effects were identified that disproportionately affect the traditionally associated peoples. Therefore, the topic of environmental justice was not retained for further analysis.

- **American Indian Trust Resources.** Secretarial Order 3175, “Departmental Responsibilities for Indian Trust Resources,” requires that any anticipated impacts on Indian trust resources from a proposed project or action by Department of the Interior agencies be explicitly addressed in environmental documents. Departmental responsibilities are identified in Department of Interior and Indian Affairs Department Manual 512, section 2. The federal Indian trust responsibility is a legally enforceable fiduciary obligation on the part of the United States to protect tribal and allotted lands, assets, resources, and treaty rights; it represents a duty to carry out the mandates of federal law with respect to American Indian and Alaska Native tribes. There are no known Indian trust resources in the Lower Kīpahulu Valley area of Haleakalā National Park. The lands are not held in trust by the Secretary of the Interior for the benefit of Indians due to their status as Indians. Therefore, the impact topic of Indian trust resources was not retained for further analysis.

Chapter 2

Alternatives



Pools of 'Ohe'o



Kanalulu House



Kīpahulu Campground

Chapter Two Divider Back

CHAPTER 2: ALTERNATIVES

INTRODUCTION

This comprehensive plan presents three alternatives for future management and facilities development of the Lower Kīpahulu Valley. The three alternatives are alternative 1, to continue current management (the no-action alternative); alternative 2, to expand facilities and visitor opportunities within the developed area of Kīpahulu and allow visitors to access the Pools of ‘Ohe‘o at their own risk (preferred alternative); and alternative 3, to provide more limited additional facilities and visitor opportunities within the developed area of Kīpahulu and close the Pools of ‘Ohe‘o to the public.

This chapter describes the process used by the National Park Service to develop the actions that meet desired conditions and the purpose and need for the comprehensive plan. This chapter also includes the three alternatives, and indicators and thresholds for visitor use management. The impacts of implementing each alternative are discussed in Chapter 3: Affected Environment and Environmental Consequences.

Development of the Proposed Action and Alternatives

The National Park Service relied on the park’s previous planning documents for guidance in developing the proposed action and alternatives to the proposed action. These include the park foundation document and general management plan. Combined, these documents and the desired conditions developed as part of this planning effort, provide clear direction about what kind of place the park should be—its overall character in terms of resource conditions and visitor experiences.

Public input during scoping was important in the development of the proposed action and alternatives. The public scoping process helped the National Park Service understand the public’s values and preferences regarding visitor experiences in the park including their concerns, issues, and suggestions related to the overall management of the Lower Kīpahulu Valley. The main ideas reflected in the comments were related to the level of park development within the Kīpahulu District, visitor safety, and natural and cultural resource protection.

The proposed action and action alternatives must address the purpose and need for the plan as described in Chapter 1. The purpose and need was developed through careful analysis of comments received during public scoping, review of the park’s previous planning documents, and input from a wide variety of NPS staff. Once the purpose and need was articulated and further defined by the outcomes of additional public scoping and the stakeholder workshop sessions, the National Park Service developed a range of strategies to address management of the Kīpahulu District in light of the park-identified desired conditions. Actions common to all alternatives would be implemented regardless of which alternative is identified as the agency’s preferred management approach.

While developing the proposed action and alternatives, it became clear that some proposals did not need further analysis. Certain alternatives can be considered but eliminated from further study for a variety of reasons. The National Park Service discussed and dismissed a number of ideas from consideration (see “Preliminary Options Considered but Dismissed from Detailed Evaluation” in this chapter).

Proposed Action and Alternatives

A proposed action is “the bureau activity under consideration” (40 CFR, Section 46.30). “A proposed action is one option (alternative) for addressing purpose and need” (NPS 2015a) and “is not necessarily, but may become, during the NEPA process, the bureau preferred alternative” (40 CFR, Section 46.30).

The National Park Service is considering a proposed action and one additional action alternative, both of which represent changes in visitor opportunities and facilities in the developed area of the Lower Kipahulu Valley. Once the proposed action and alternative were developed, they were compared to the no-action alternative, which is the continuation of the park’s current management actions and direction into the future. Alternative 1 (no-action), alternative 2 (proposed action), and alternative 3 are described in detail in this chapter. The proposed action and alternative were developed with consideration of financial sustainability. Cost estimates for implementation of the alternatives are included as Appendix D: Estimated Costs Associated with Alternatives.

In all alternatives, the National Park Service would continue to follow existing agreements and servicewide mandates, laws, and policies. Those mandates are not repeated in this chapter.

ALTERNATIVE 1 (CONTINUE CURRENT MANAGEMENT)

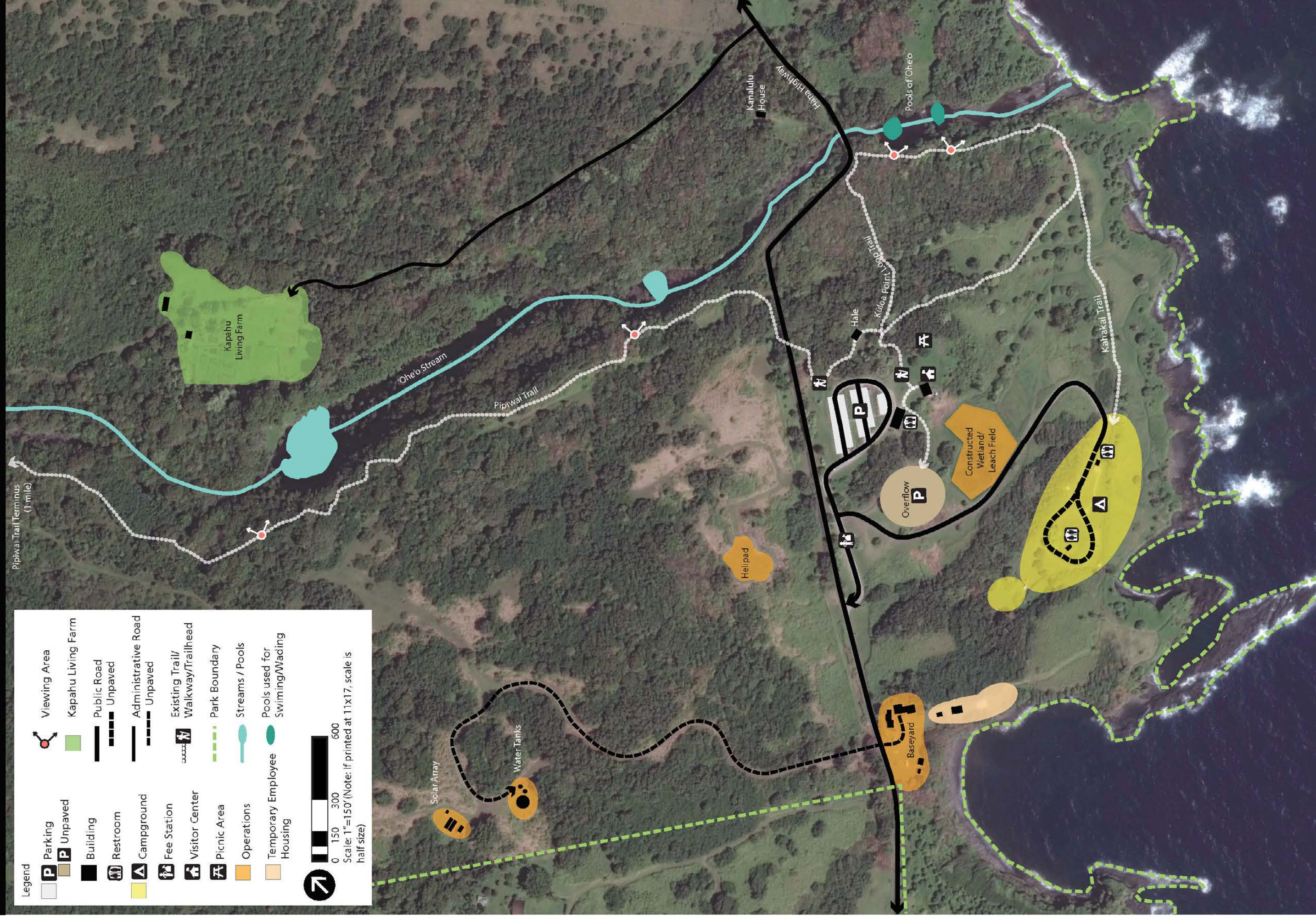
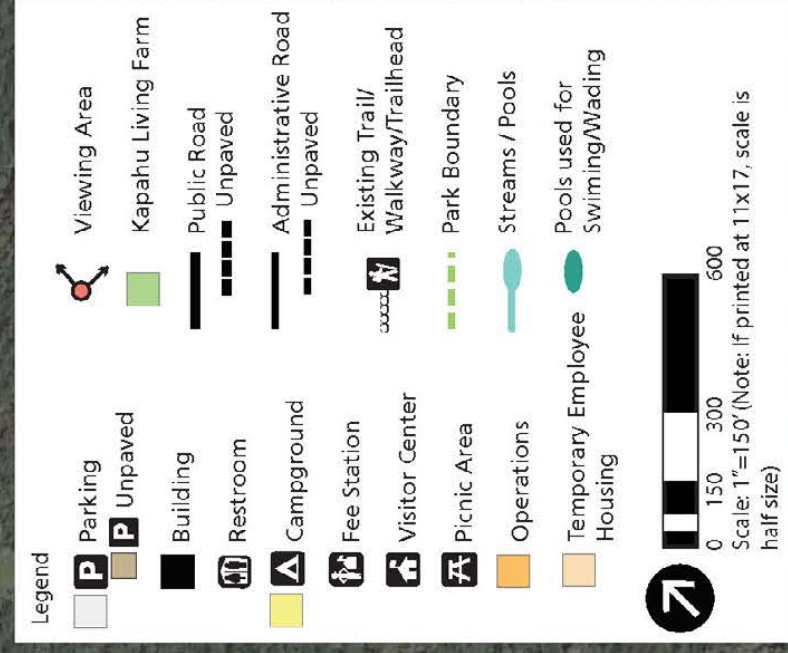
The no-action alternative is the continuation of current management actions and direction into the future; that is, continuing with the present course of action until that action is changed. The no-action alternative, as required by NEPA, also serves as a baseline with which to compare the effects of action alternatives with those of the status quo.

Table 1. No-Action Alternative

MANAGEMENT	DESCRIPTION
Visitor center	The visitor center would remain in its existing location and level of maintained condition at a size of approximately 640 square feet. It would continue to house interpretive exhibits, an information desk, and bookstore. Interpretive programming would continue to be offered from the visitor center. The existing solar array serving the visitor center, fee station, and comfort station would continue to be maintained. No new visitor facilities would be constructed.
Fee station	The fee station would remain in its existing location and level of maintained condition at a size of approximately 76 square feet for two employees.
Parking and drop-off	The existing parking lot and drop-off area would remain in its current location and level of maintained condition and provide an 82-car parking lot (approximately 1.2 acres in size) which is paved and terraced, including three accessible stalls and steps from the various terraces leading to the visitor area. In addition, an oversized vehicle (e.g., tour bus) drop-off is located in front of the visitor center.
Overflow parking	The overflow parking lot is a grassy area for visitors to park once the primary parking area is filled. The overflow parking area is located along the access road to the campground and would remain in its current location, level of maintained condition, and size of approximately 0.5 acres.
Campground	The campground would remain in its existing location and level of maintained condition at a size approximately of 2.5 acres. Continued use of the following sites would remain:

MANAGEMENT	DESCRIPTION
	<ul style="list-style-type: none"> • 23 drive-in tent sites (with pedestal grills) • 1 accessible drive-in tent site • 1 walk-in group tent site (with 3 pedestal grills) • 3 visitor-created walk-in sites (with picnic tables) <p>Use of the 2 existing vault toilets on site, one of which is accessible, with trash and recycling receptacles located outside would remain.</p> <p>The approximately 0.41 mile access road to the campground would remain gravel and in its current alignment.</p>
Campground management	<p>The campground would continue to be managed as it currently is. No permits or fees are currently required for visitors using the campground; campsites are available on a first-come, first-served basis. A visitor may camp up to 3 nights per month at the Kīpahulu campground. The campground also has a 12-person group limit.</p> <p>There is no program area in the campground and the park would not offer interpretive programs at the location. Campground and general park information would continue to be shared on a bulletin board located within the campground road loop.</p>
Picnic areas	<p>The park allows dispersed picnicking near the visitor center and along the trails. There are limited picnic tables located under the trees near the visitor center. Under the no-action alternative, the park would continue to promote dispersed picnicking at picnic tables in the grassy area near the visitor center and along trails.</p>
Hiking trails	<p>The Pīpīwai Trail would remain in its current alignment, level of maintained condition and location at approximately 2 miles in length from the Kīpahulu Visitor Center and parking area to Waimoku Falls. It varies in width between 3 feet and 6 feet from entrance to terminus. A boardwalk section exists within the bamboo section and two viewing areas to overlook the 'Ohe'o Gulch and waterfalls. A project is funded to widen the existing boardwalk section to accommodate increased visitor use.</p> <p>The Kūloa Point Trail would remain in its current alignment and level of maintained condition and location at approximately 1 mile in length. It currently runs from the Kīpahulu Visitor Center and parking area to two overlooks of the 'Ohe'o pools and gulch, looping back to the visitor center.</p> <p>The Kahakai Trail would remain in its current alignment and level of maintained condition. It currently runs 0.3 miles from the campground past the visitor center to the Kūloa Point Trail. This mowed grass trail provides visitors ocean and coast views.</p> <p>The Kapahu Trail to the Kapahu Living Farm would remain closed to the public along its entire extent (1.3 miles) from the Kīpahulu Visitor Center to the farm and its connection to the Pīpīwai Trail.</p>
Cultural activity areas	<p>Cultural activity areas would continue to be provided at the visitor center area.</p> <p>Traditional farming techniques would continue at the Kapahu Living Farm. The farm would be open for limited scheduled guided tours.</p> <p>The Hale Ku'ai would remain in its existing location at its existing size, but may be improved as necessary. It is infrequently used for cultural programming and stewardship activities.</p>
George Kewalo Kanalulu House	<p>The Kanalulu House would remain in its existing location. Its condition would be maintained at its current level. The house is not currently used for interpretive or educational programs and it is closed to the public.</p>

MANAGEMENT	DESCRIPTION
Kapahu Living Farm	<p>The Kapahu Living Farm would remain in its existing location at a size of approximately 10 acres.</p> <p>Currently, the Kīpahulu ‘Ōhana, a non-profit organization, manages the living farm through a cooperative agreement with the park. Traditional Hawaiian farming practices are interpreted through Kīpahulu ‘Ōhana programming with no NPS-guided or self-guided tours.</p> <p>The minimal facilities present at the farm including a gravel parking pad, hale, and portable toilet, are property of the Kīpahulu ‘Ōhana and are not for general public use.</p> <p>The access road leading to the farm is repaired cooperatively by the NPS and partner as needed.</p>
Pools of ‘Ohe‘o	<p>The Pools of ‘Ohe‘o would remain open to the public, except when closed for visitor safety concerns (high water levels or rockslides). The pools are closed approximately 60% of the time due to various issues, with most closures happening during winter months.</p> <p>Safety messages at the visitor center and at the pools’ access point warn visitors of the risks in the area, including flash floods and natural hazards.</p>
Maintenance facilities	<p>The maintenance baseyard would remain in its existing location at a size of approximately 4.7 acres.</p> <p>The maintenance yard buildings would remain in their existing locations and maintain their current sizes and configurations. Buildings located in the maintenance yard are:</p> <ul style="list-style-type: none"> • the resource management office and storage (350 square feet) • resource management nursery (approximately 1,500 square feet) • law enforcement office and fire cache, also known as the shed, (approximately 325 square feet) • maintenance building, office, and storage (approximately 530 square feet) • maintenance garage (approximately 384 square feet) • maintenance storage shed (approximately 96 square feet)
Kīpahulu Bunkhouse	<p>The Kīpahulu bunkhouse would remain in its existing location at a size of approximately 625 square feet and continue to serve as temporary housing for park staff, researchers, and volunteers. Its condition would be maintained at its current level.</p>
Water tanks and access roads	<p>The three potable water tanks would remain in their existing location at a total capacity of 16,700 gallons. The road that accesses the water tanks is approximately 0.5 miles in length and its condition would be maintained at its current level (1/3 of it is paved and the other 2/3 is not paved). All buried waterlines are scheduled for replacement in 2018 or 2019.</p>
Helipads	<p>The park would continue to maintain the two existing mowed grass helipads. The project helipad is located near Hāna Highway and primarily used for crew and cargo shuttle into Kīpahulu Valley. The emergency helipad is located near the comfort station leach field and is used as an emergency services staging area.</p>
Staff housing	<p>There is no staff housing offered at Kīpahulu. Park staff must secure their own, off-site housing in nearby communities.</p>
Interpretation and education	<p>Interpretive and educational programs would continue at current levels.</p>



Back of No Action Overview Map

ACTIONS COMMON TO ALL ACTION ALTERNATIVES

Some actions are found in both alternative 2 and alternative 3. These meet the purpose and need for the plan and address identified issues.

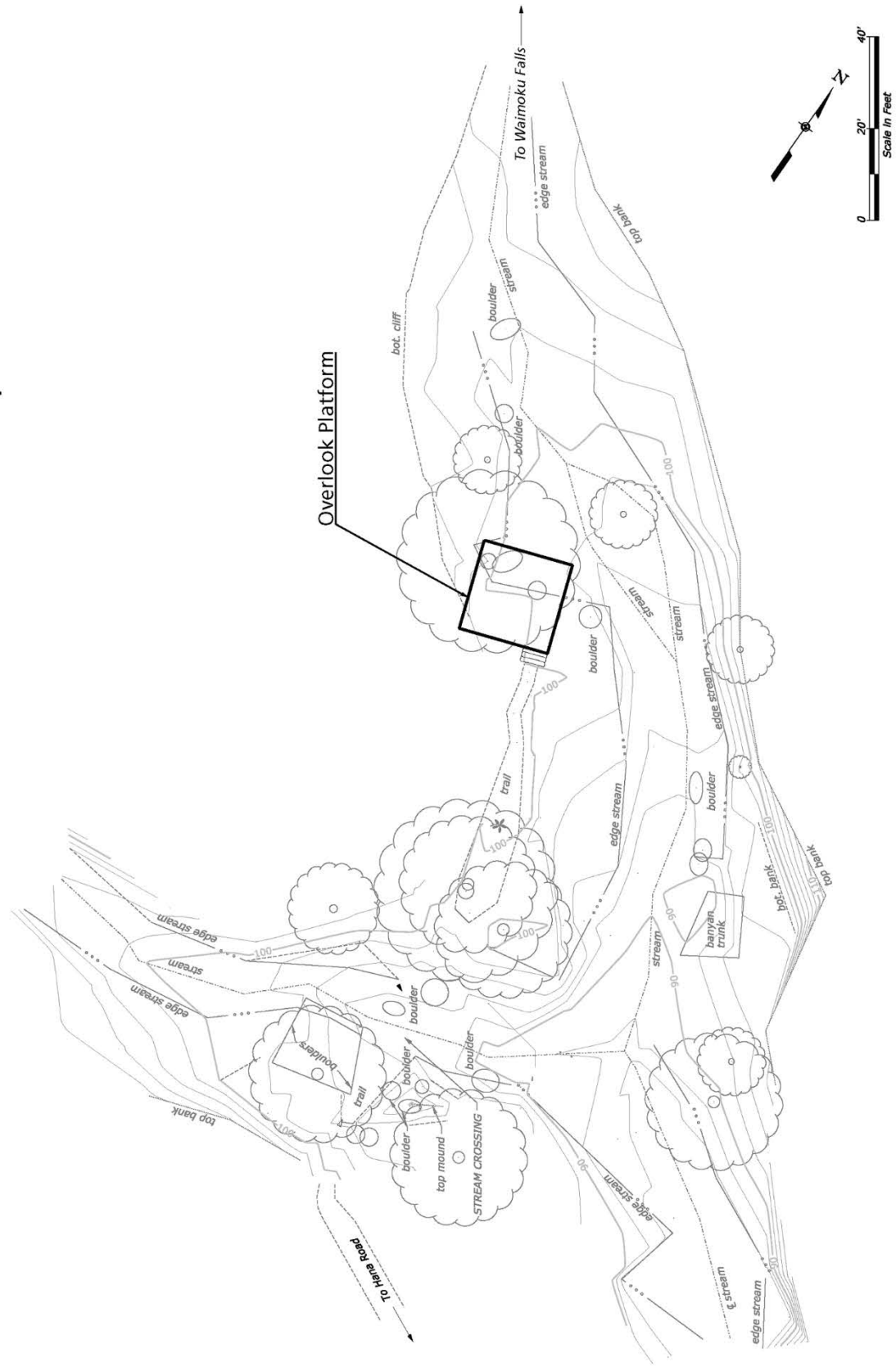
Table 2. Actions Common to All Action Alternatives

ACTION	Description
Additional hiking opportunities	Under both action alternatives, the Kapahu Trail would offer additional hiking opportunities for visitors. Either the trail would be opened for ranger-guided hikes under alternative 2 or it would be rerouted under alternative 3 to allow for self-guided hikes. An additional 500 linear feet spur would be created to connect the Pīpīwai Trail to the Kanalulu House via the lower Kapahu Trail. In both action alternatives, mitigation measures would be developed in consultation with the community to protect archeological resources and partner assets along the Kapahu Trail and reduce erosion.
Accessible coastal trail and overlook platforms	<p>A new 2,100-linear-foot accessible trail would be created that would link the campground to the ocean overlook. The trail would be constructed as a boardwalk with sustainable materials and minimal slope to allow guests with mobility impairments to move between the campground and the coastal viewing platform. This trail would also connect with the Kahakai Trail to create a loop near the walk-in campsites.</p> <p>A 500-square-foot ocean overlook platform on the accessible boardwalk would act as a “destination” for the Kūloa Point Trail and a turn-around point. Pedestrian pullouts (approximately 500 square feet each) would be installed along the accessible trail between the campground and viewing platform. These areas would include benches, interpretive waysides that focus on different aspects of Hawaiian culture (customs, history of the land, connections to the sea, archeology), and additional space for interpretation and programming.</p>
New arboretum and research lab featuring native and Polynesian plants	<p>The park would construct an enclosed or fenced native plant arboretum composed of five, 2-acre trailside parcels across the highway from the park entrance. The arboretum would act as a research/collaboration space for resource management staff and interested academic programs and local organizations. The arboretum and research lab would allow for additional educational programming related to native plants and STEM (science, technology, engineering, and math) programming for school groups.</p> <p>Visitors would be able to access the arboretum via a new 300 linear feet trail spur from the Pīpīwai Trail. NPS-guided tours of the facility would occasionally be available. Interpretive panels would provide information about the program, park resource management, and native plant species for those visiting when a program was not scheduled.</p> <p>The existing resource management nursery would move near the arboretum. Access would be from the existing maintenance road. All constructed facilities would be able to be moved off the site per July 19, 2018 letter to the superintendent.</p>
Defined camping sites in park campground	<p>The campground campsites would be numbered and formalized with an established limit to camping once all sites are filled. The campground would continue to offer drive-in, walk-in, and group campsites. Visitors would obtain permits for specific sites either prior to their arrival via Recreation.gov or at the fee station or visitor center for a fee. Camping would continue to be limited to 3 nights in a 30-day period for visitors and provide a semi-primitive camping experience for visitors (vault toilets; campers must bring water or obtain drinking water from the visitor center area).</p> <p>Twelve accessible drive-in sites would line the campground loop; each site would include a tent pad, a secured picnic table, a pedestal grill, and designated parking spots. These 600-square-foot individual drive-in sites would be numbered and delineated by low rock walls and would be limited to 6 people per campsite. Additional native and/or culturally appropriate shady vegetation would be planted near the south drive-in sites to improve visitor camping experiences.</p>

ACTION	Description
	<p>Seven walk-in sites would be created near the coast by the accessible trailhead. These walk-in sites would be individually numbered. Each site would be approximately 600 square feet and would be limited to 4 people/2 tents per site. An angled parking area for walk-in sites would be built (approximately 1,700 square feet) near the vault toilet and information bulletin board.</p> <p>A walk-in group site that could accommodate 25 people would be located in the current location northwest of the drive-in sites and separated from the rest of the campground by native and/or culturally appropriate vegetation. The accessible group site would include 5 tent pads and a central community space with picnic tables.</p>
Interpreting George Kewalo Kanalulu House	The Kanalulu House would become an interpretive site. Visitors would have access to the exterior of the house. Interpretive waysides would explain its significance, the Kanalulu family's ties to the area, and the house's connection to the plantation era.
Guided tours and service learning opportunities at Kapahu Living Farm	<p>The Kapahu Living Farm would continue to be managed by park partners. It would be the site of interpretive and service-learning programs that would include hands-on, traditional Hawaiian farming practices. These programs would be offered on a regular basis.</p> <p>Depending on visitation, the parking area could be improved to accommodate general visitors and service-learning program participants.</p>
Re-established dryland taro plantings	<p>Dryland taro patches located along the Pīpīwai Trail and in the parking lot terracing at the Visitor Center would be maintained and interpreted to allow visitors to more easily and readily learn more about traditional farming practices and the cultural importance of taro.</p> <p>The NPS or partners would also offer experiential learning programs that would focus on the cultural importance of taro, the mountain-to-sea connections within traditional land divisions, and traditional Hawaiian farming practices while allowing visitors to partake in farm work.</p>
Installing permeable surface driveway and concrete two-track park roads	<p>A permeable surface driveway (approximately 875 square feet) would be added from the informal baseyard parking area to the renovated bunkhouse to allow improved access for staff and equipment.</p> <p>Concrete two-track would be extended the remaining approximately 1,750 linear feet of the access road currently unpaved to improve vehicle accessibility to the water tanks.</p>
Rehabilitated bunkhouse	The 625-square-foot bunkhouse would be renovated and continue to serve as temporary housing for staff, volunteers, and researchers.
Permanent maintenance facilities	<p>The maintenance baseyard would remain in its existing location. A sustainable, permeable surface lot approximately 7,000 square feet in size would be added to formalize the employee parking area within the baseyard. The following temporary buildings would be replaced with permanent structures in the established baseyard that would be approximately the same sizes and at the same locations as the current, temporary buildings:</p> <ul style="list-style-type: none"> ▪ Resource management office and storage (350 square feet) ▪ Law enforcement office and storage (325 square feet) ▪ Maintenance buildings, office, and storage (530 square feet) <p>Additional heavy equipment and vehicle storage (a closed-bay garage) and maintenance shed would be constructed on the <i>mauka</i> side of the highway near the current rock yard. The approximately 4,500-square-foot garage would have closed bays for mechanical equipment and vehicles and offer covered open-air maintenance staff workspace. The approximately 1,950-square-foot maintenance shed would provide hazardous material storage and general storage space. A vegetative screen of native and/or culturally appropriate species would be planted near the road to block views of the new storage facilities from the highway.</p>

ACTION	Description
Pedestrian crossings installed on Hāna Highway	The pedestrian crossing would be formalized in consultation with the Hawaii Department of Transportation. Solar-powered signs could also alert drivers to the pedestrian crossing.
Formalizing existing park helipads	The two park helipads (0.7 acres each) would be graded and paved. A landing site would be painted on the helipad and additional navigation and safety features would be added (wind sock, etc.) according to the Interagency Helicopter Operation Guide (IHOG) requirements.
Staff housing	The action alternatives would build housing for up to three required occupants according to the park housing management plan. The locations for development of housing units include on the northwest side of the maintenance baseyard, near the project helipad on the <i>mauka</i> side of the highway, and near the water tanks and solar array.
Accessibility	The National Park Service is obligated to ensure that all services, activities, and programs, when viewed in their entirety, are accessible to visitors and employees per Section 504 of the Rehabilitation Act of 1973, which prohibits discrimination against individuals based on disability. Any new construction or alteration to a facility requires the NPS to provide accessible experiences throughout that facility and program.

Piḡwai Trail and Overlook Platform



ALTERNATIVE 2 (PREFERRED ALTERNATIVE)

In alternative 2, visitor opportunities would be dispersed among a variety of available experiences and expanded to include opportunities to learn about Native Hawaiian culture. Visitors would be able to experience the Pools of ‘Ohe‘o at their own risk. Additionally, access to new visitor opportunities is central to this alternative. Facilities and services emphasize providing visitor opportunities and experiences on the trails, in the visitor center area, and at the Pools of ‘Ohe‘o. In this alternative, facilities such as a new fee station, visitor plaza area, campground host amenities, and formalized picnic areas would accommodate high levels of visitor use. Detailed area maps are included in Appendix A.

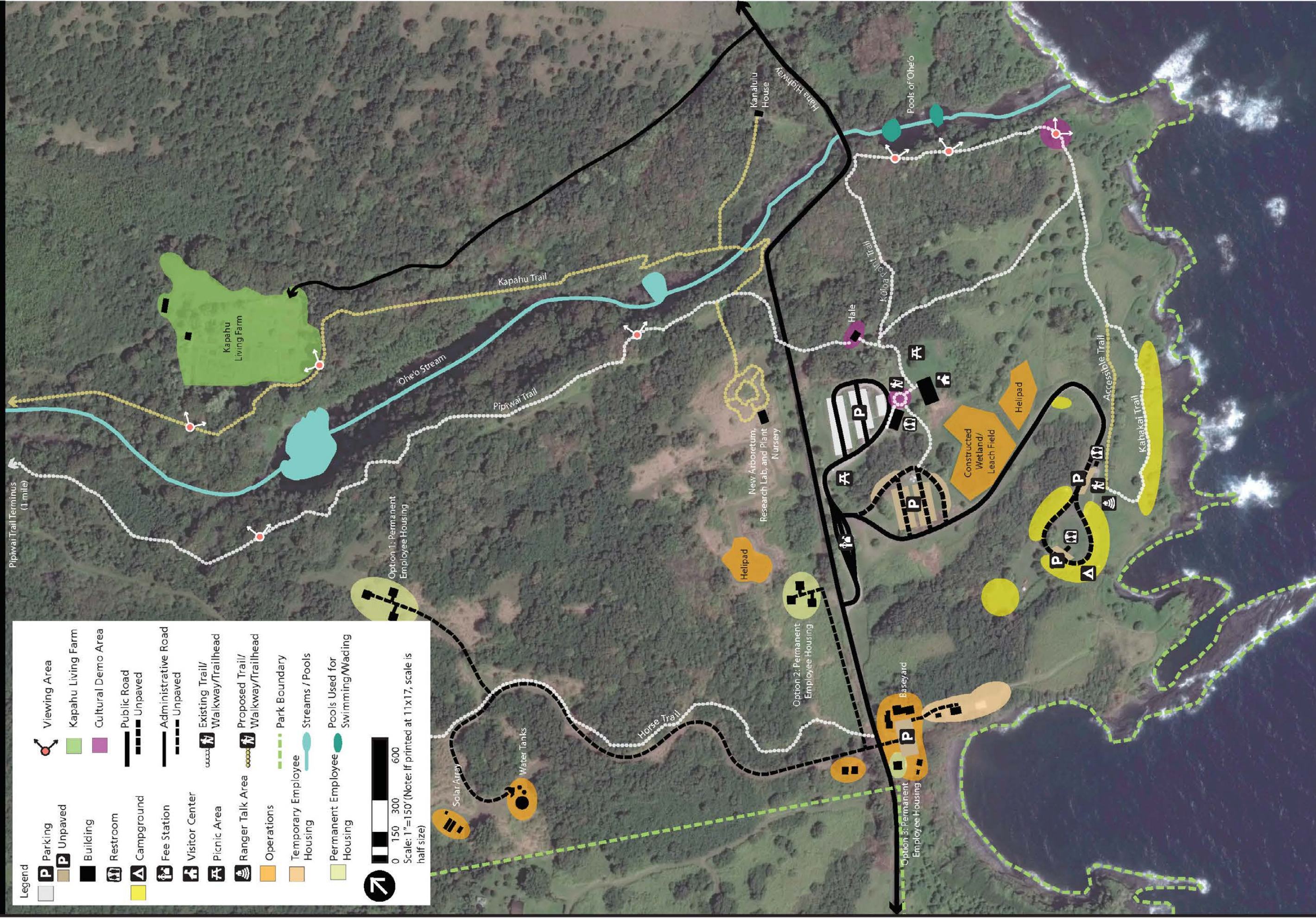
Table 3. Alternative 2

ALTERNATIVE 2 ACTION	DESCRIPTION
Visitor Center expansion	Under alternative 2, the current visitor center would be expanded by up to 4,800 square feet to accommodate exhibits, sales, a film-viewing area, offices, storage and lanai (outdoor space) for visitor programming. The attached lanai would offer additional sun/rain cover for groups and provide an accessible location for community meetings, outreach, relaxing, and various events. The lanai would cut down on the size of the new visitor center as it would allow some functions to occur outside and a lanai would be less of a detriment to the ocean views. Expansion of the visitor center would be made with the goal of minimizing effects to the viewshed. The building’s design would incorporate traditional Hawaiian elements such as stone building material, allowing it to be used as an interpretive tool to connect visitors to the area. Accessibility improvements would also be made.
Orientation plaza	An orientation plaza would be created in front of the visitor center adjacent to the comfort station. This approximately 4,000-square-foot area would consist of a designed landscape that would lead visitors to park informational signage, the visitor center, and trailheads. The majority of visitor information and park messaging would be provided through signs in the open-air orientation plaza that would be the “hub” of the park’s developed area. Most park trails would begin at the orientation plaza, encouraging visitors to pass through the area and have access to safety updates, trail conditions, and program scheduling.
Fee station expansion	<p>The existing 76-square-foot fee station would remain in or near its current location, but would be expanded by approximately 200 square feet to include office space and employee restroom. Additional security measures, including a camera system and functioning alarms (intrusion, fire, panic), would also be added for employee safety and accountability.</p> <p>An overflow fee station would be constructed to accommodate an additional traffic lane. This would address concerns over staff directing traffic during periods of high-use, cut down on wait times during the peak hours of visitation, and limit lines from reaching the highway. The new fee station would be similar to the existing fee station in design and size (76 square feet), with room for one park staff.</p>
Oversized vehicle drop-off expansion	An expanded oversize vehicle drop-off area would be constructed adjacent to the comfort station near the visitor orientation plaza to accommodate minibuses and commercial tour groups.
Overflow parking lot for approximately 60 vehicles	A designated parking lot that blends into the area’s natural surroundings would be created at the current site of the grass overflow parking area. Approximately 20,000 square feet of the overflow lot would be covered with grass pavers and formally accommodate approximately 60 vehicles and include accessible spaces. This lot would also be used for oversized vehicle parking.
Campground management	The campground campsites would be numbered and formalized with an established limit to camping once all sites are filled, as described in “Actions Common to All Action Alternatives.”

ALTERNATIVE 2 ACTION	DESCRIPTION
	<p>A volunteer host would manage the campground. The host would be expected to monitor camper behavior and manage permits and sites.</p> <p>A 1,100-square-foot host site with RV electric hook-up would be added to the campground near the overflow parking area where all campers would need to check in on arrival. This location would also allow the host to monitor archeological resources (rock walls) near the campground and inform visitors of campground regulations.</p>
Campground program area	The campground would include an approximately 1,250-squarefoot, accessible, semi-circular seating area appropriate for ranger chats and safety briefings. This would be located near the formalized walk-in sites, slightly removed from the road. It would consist of secured benches.
Staff/volunteer temporary housing	<p>The bunkhouse would be renovated and continue to serve as temporary housing for staff and volunteers as described in the "Actions Common to All Action Alternatives."</p> <p>Space for volunteer and employee walk-in camping would be provided east of the bunkhouse in the maintenance baseyard. The area would include 5 tent pads with a central fire pit and picnic tables.</p>
Picnic areas	A new formal picnic area would be added near the parking lot. This approximately 0.25 acres area would include secured picnic tables under a picnicking shade and be accessible.
Hiking opportunities	<p>A new accessible boardwalk between the campground and ocean and an ocean overlook platform would be created as described in "Actions Common to All Action Alternatives."</p> <p>A 600-square-foot viewing platform for Waimoku falls would be constructed at the Pipiwai Trail terminus.</p> <p>The Kapahu Trail would be changed to make necessary adjustments to minimize impact to park resources and visitor exposure to hazards and then reopened for guided tours. The trail would retain its existing alignment where possible, but improved in some sections where erosion frequently occurs. Approximately 700 linear feet or 10% of the trail would be realigned as needed. Fencing or other barriers would be installed as needed for resource protection and visitor safety.</p>
Expanded cultural activity areas and opportunities to learn about Native Hawaiian culture	<p>Situated near the junction of the Pipiwai and Kūloa Point Trails, the Hale Ku'ai would be renamed Hale Hālāwai and re-envisioned as a "meeting place," with additional visitor seating areas, interpretive panels, and scheduled cultural activities. This space could also be used by community groups as open-air meeting space. Vegetation surrounding the Hale Hālāwai would be maintained to promote longevity of the structure. Regular trimming/clearing and routine grounds work would reduce rot and improve visitor access and usability of the space.</p> <p>Traditional farming techniques would continue at the Kapahu Living Farm. The farm would be open for regularly scheduled interpretive and service-learning tours.</p> <p>The park would construct an enclosed or fenced native plant arboretum across the highway from the park entrance and maintain the dryland taro plantings along the Pipiwai Trail and in the parking lot terracing, as described in "Actions Common to All Action Alternatives."</p>
Interpretation and education	<p>Interpretive and educational programs would be scheduled during peak visitation hours and would take place in the centrally located orientation plaza.</p> <p>Interpretive programming would also be provided at the George Kewalo Kanalu House, the Kapahu Living Farm, the arboretum, along trails, and at the campground.</p>

ALTERNATIVE 2 ACTION	DESCRIPTION
	Additional waysides would be installed along trails to educate visitors about a wide variety of park topics including Hawaiian culture, history of the land and park, geology, hydrology, vegetation, and other park resources. Some waysides would include Hawaiian language text.
Pools of 'Ohe'o as a "risk-aware area"	<p>Under this alternative the park would potentially implement scheduled pool closures for resource protection as well as when safety concerns are present. Visitors would be allowed to access the Pools of 'Ohe'o at their own risk.</p> <p>NPS would assess risks and eliminate or mitigate risks when reasonable and appropriate, and/or communicate risks to the public within the limits of available resources.</p> <p>The risk management role of the National Park Service from the perspective of geologic, water safety, and water quality hazards communications would be to provide visitors with the information needed to make informed decisions when taking on risk (D.O. #50). Such information could be in the form of a message based on the park setting within context, such as one written on a sign or spoken to visitors by a ranger. For example, streamlined and simplified safety messaging at the orientation plaza and at the pool entrance would provide visitors sufficient messaging to make informed decisions about their visit to the area. Where official access points exist, these access points typically contain both logistical information such as maps and signs warning of the hazards ahead.</p>
Maintenance facilities	The current temporary buildings would be replaced with permanent structures, the current employee parking at the baseyard would be formalized with a sustainable, permeable surface lot , and concrete two-track would be installed to improve park access roads as described in "Actions Common to All Action Alternatives."
Staff housing	Up to three staff housing units would be built as described in "Actions Common to All Action Alternatives."

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Back of Alternative 2 Overview Map

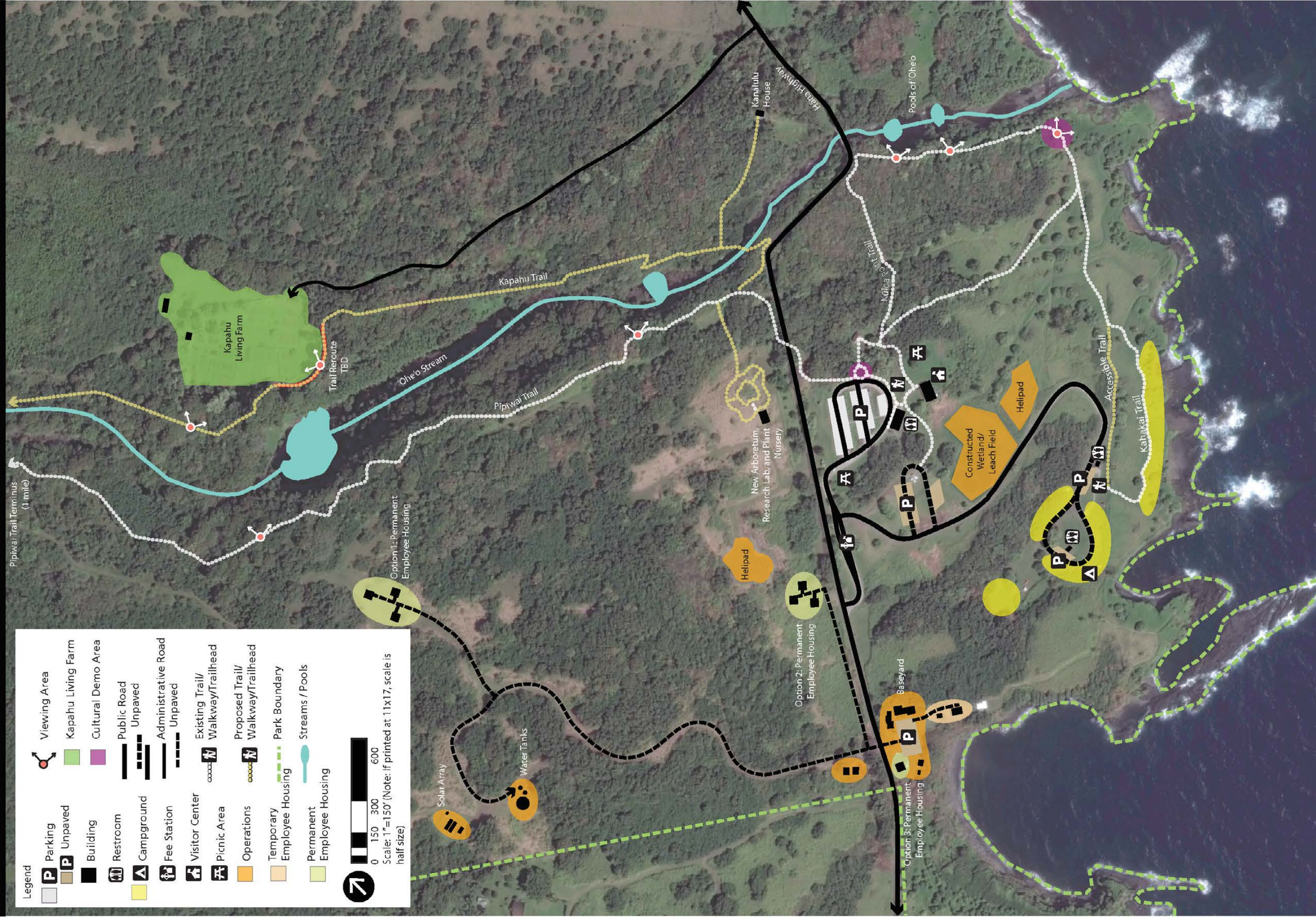
ALTERNATIVE 3

In alternative 3, visitor activities would focus on opportunities such as hiking, cultural experiences, and sightseeing. The Pools of ‘Ohe‘o would be closed for swimming or wading and designated as a closed area. Facilities and services provide visitor opportunities and experiences on the trails and in the visitor center area as well as serving essential park administrative functions.

Table 4. Alternative 3

ALTERNATIVE 3 ACTION	DESCRIPTION
Visitor Center renovation	Under this alternative, the current visitor center would be renovated and be made accessible, the interior reconfigured to provide additional space for exhibits and offices. The visitor center would remain at its current size of approximately 640 square feet.
Orientation plaza and visitor contact station	<p>A visitor contact station and adjacent orientation plaza would be located on the east side of the main parking lot. The approximately 1,400-square-foot contact station would include space for a bookstore and a large park map. The majority of visitor information and park messaging would be provided through signs in the open-air 4,000-square-foot orientation plaza that would be the “hub” of the park’s developed area. All park trails, except the accessible coastal trail, would begin at the orientation plaza, allowing all visitors to pass through the area and have access to safety updates, trail conditions, and program scheduling.</p> <p>Some grassy areas would be retained as community space suitable for group orientations or meeting spots, cultural demonstrations, interpretive programs, and relaxing.</p>
Fee station	The 76-square-foot fee station would remain in its current location at its current configuration as described in the no-action alternative.
Oversized vehicle drop-off	The existing parking lot and drop-off area would remain at its current size in its current location as described in the no-action alternative.
Overflow parking lot for approximately 30 vehicles	A designated parking lot that blends into the area’s natural surroundings would be created at the current site of the overflow parking area. Approximately 9,100 square feet of overflow lot would be covered with grass pavers and would formally accommodate approximately 30 vehicles and include accessible spaces. This lot would also be used for oversized vehicle parking.
Campground management	<p>The campground campsites would be numbered and formalized with an established limit to camping once all sites were filled, as described in “Actions Common to All Action Alternatives.”</p> <p>No additional actions would take place as part of this alternative. The park would not develop additional visitor facilities in the campground.</p>
Staff/volunteer temporary housing	The 640-square-foot bunkhouse would be renovated and continue to serve as temporary housing for staff and volunteers as described in the “Actions Common to All Action Alternatives.”
Picnic areas	The park would continue to promote dispersed picnicking at picnic tables in the grassy area near the visitor center and along trails as described in the no-action alternative.
Hiking opportunities	<p>A new 2,100 linear feet accessible boardwalk between the campground and ocean and an ocean overlook platform would be created as described in “Actions Common to All Action Alternatives.”</p> <p>Under this alternative, approximately one third of the Kapahu Trail (2,100 square feet) would be rerouted to allow self-guided hikes. If rerouting or mitigations for the trail are determined</p>

ALTERNATIVE 3 ACTION	DESCRIPTION
	not to be technically feasible, the Kapahu Trail would be closed and revegetated with native and/or culturally appropriate species.
Cultural activity areas and opportunities to learn about Native Hawaiian culture	<p>The park would construct an enclosed or fenced native plant arboretum composed of five, 2-acre trailside parcels across the highway from the park entrance, and maintain the dryland taro plantings along the Pīpīwai Trail and in the parking lot terracing, as described in “Actions Common to All Action Alternatives.”</p> <p>Cultural activities would primarily take place near the orientation plaza near the rehabilitated visitor contact station and adjacent to the George Kewalo Kanalulu House.</p> <p>The Hale Ku’ai would eventually be removed through a traditional Hawaiian deconstruction method and the area would be revegetated with native and/or culturally appropriate species.</p> <p>Traditional farming techniques would continue at the Kapahu Living Farm. The farm would be open for self-guided tours and park/partner-led service-learning programs.</p>
Interpretation and education	Interpretive programming would occasionally be provided at the visitor contact station and plaza area, the George Kewalo Kanalulu House, the Kapahu Living Farm, the arboretum, along trails, and at the campground group campsites.
Closure of the Pools of ‘Ohe’o	<p>Under this alternative, the park would close to pools to all visitor activities. The Pools of ‘Ohe’o would be designated a closed area defined as an undeveloped location where visitors are not expected to be warned of hazards by signs (NPS Geologic Hazard and Risk Sign Policy Draft; Walsh & Bilderbeck).</p> <p>The park would remove access points into the gulch by removing steps and existing railings leading to the pools and adding additional barriers along the Kūloa Point Trail.</p> <p>Additional viewing areas would be installed or improved along the ‘Ohe’o Gulch on the Kūloa Point Trail to provide an alternative visitor experience.</p>
Maintenance facilities	The current temporary buildings would be replaced with permanent structures; the current employee parking at the baseyard would be formalized with a sustainable, permeable surface lot; and concrete two-track would be installed to improve park access roads as described in “Actions Common to All Action Alternatives.”
Staff housing	Up to three staff housing units would be built as described in “Actions Common to All Action Alternatives.”



Back of Alternative 3 Overview Map

VISITOR USE MANAGEMENT: INDICATORS, THRESHOLDS, AND VISITOR CAPACITY

Indicators and Thresholds

Indicators translate desired conditions into measurable attributes (e.g., lineal extent of visitor-created trails) that when tracked over time, may be used to evaluate change in resource or experiential conditions and are common to all action alternatives. Indicators are critical components of monitoring the success of the plan and are considered common to all action alternatives. The interdisciplinary NPS planning team considered the central issues and developed related indicators that would help identify when the level of impact becomes cause for concern and management action may be needed. Those described below were considered the most critical, given the importance and vulnerability of the resource or visitor experience affected by types of visitor use. The team also reviewed the experiences of other park units with similar issues to identify meaningful indicators.

Thresholds represent the minimum acceptable condition for each indicator and were established by considering qualitative descriptions of the desired conditions, data on existing conditions, relevant research studies, professional judgement of staff from management experience, and public preferences. Although defined as “minimally acceptable,” thresholds still represent acceptable conditions. Establishing thresholds does not imply that no action would be taken prior to reaching the threshold. Thresholds identify when conditions approach unacceptable levels and serve as mechanisms to alert managers and the public that corrective action must be taken to keep conditions acceptable. Ultimately, indicators and thresholds set managers up with good monitoring protocols to allow desired conditions to be met and tracked over time.

Indicators and thresholds for the Kīpahulu District are described below and would be applied to both action alternatives described within this plan. Rationale for each indicator and threshold, as well as monitoring protocols and associated management strategies are included as Appendix B.

1. Crowding at Facilities and Visitor Use Areas

Indicator: Percent of time the overflow parking lot is full each month.

Threshold: Overflow parking lot is full no more 75 % of time each month.

2. Damage to Archeological Resources

Indicator: Percent change over time of archeological site condition (poor, fair, good, excellent, destroyed, cannot be found) due to visitor use.

Threshold: No more than one documented incident of downgrading site condition as recorded in Archeological Sites Management Information System (ASMIS) due to visitor use impacts.

3. Nonnative Species

Indicator: Number of new nonnative species

Threshold: Zero new ecosystem-modifying nonnative species (e.g., *Miconia*, *Albizia*, *Cortaderia jubata*, faya tree, fire ant), or species that pose threats to human health and safety (e.g., little fire ant).

4. Natural Soundscapes

- 1) **Indicator:** Increase in dBA over natural ambient at the Pools of ‘Ohe‘o

Threshold: Anthropogenic (human-caused) noise will not increase above natural ambient more than 3 dBA at Pools of ‘Ohe‘o (ST8) and Kīpahulu Coastal Measurement Site (PO3) for 90% of daytime hours from 6 a.m.–6 p.m.

- 2) **Indicator:** Anthropogenic noise percent time audible at specific point along Pipīwai Trail
Threshold: Anthropogenic noise percent time audible should not exceed 10% within a bamboo forest approximately 1 mile up about halfway up the trail, away from trailhead noise on the Pipīwai Trail during daytime hours from 6 a.m.–6 p.m. This means that natural only sounds should occur 90% of the time and anthropogenic sounds are only audible 10% of the time during daylight hours.
- 3) **Indicator:** Nighttime noise events at Kīpahulu campground
Threshold: Nighttime from 6 p.m.–6 a.m. noise events at Kīpahulu campground do not exceed 45 dBA and no more than two noise events per night.
5. Visitor-created Trails
 - 1) **Indicator:** Number of visitor-created trails leaving designated trails per trail
Threshold: No more than 10 visitor-created trails leaving designated trails.
 - 2) **Indicator:** Number of visitor-created trails leaving designated trails that access sensitive resources or unsafe areas (to include stream travel)
Threshold: No new visitor-created trails leaving designated trails that access sensitive resources or unsafe areas.
6. Visitor Safety
Indicator: Percentage increase in incidences of accidents, conflicts, or other safety issues that require law enforcement response (EMS or Search and Rescue) per total visitation
Threshold: No more than one incident requiring law enforcement assistance every two weeks.
7. Water Quality
Indicator: Concentration of oxybenzone, benzophenone, and other organic chemical sunblocks harmful to the ecosystem in the Pipīwai Stream
Threshold: 165 parts per billion (ppb) of benzophenone-2 in the water column.

Visitor Capacity

Visitor capacity is a component of visitor use management defined as the maximum amount and types of visitor use that an area can accommodate while sustaining desired resource conditions and visitor experiences, consistent with the purpose for which the area was established. Visitor capacity will be used to inform and implement the management strategies selected as part of plan.

The primary goal of this planning effort is to preserve the fundamental resources and values of Haleakalā National Park and achieve the plan purpose and need and visitor use management is one component. By establishing and implementing visitor capacities, the National Park Service can help ensure that resources are protected and that visitors have the opportunity for a range of high-quality experiences. Through this planning effort, the park has an important opportunity to proactively safeguard the highly valued experiences and resources throughout the park unit.

The full analysis and identified visitor capacity and implementation strategies can be found in Appendix C.

MONITORING GUIDELINES AND MITIGATION MEASURES FOR THE ALTERNATIVES

The National Park Service places a strong emphasis on avoiding, minimizing, and mitigating potentially adverse environmental impacts. To help ensure the protection of natural and cultural resources and the quality of the visitor experience, protective measures would be implemented as

part of the action alternatives to minimize potential environmental impacts of actions associated with this plan. The National Park Service would conduct an appropriate level of monitoring throughout the implementation of the chosen alternative to help ensure that protective measures are properly applied and achieved their intended results.

A complete list of monitoring guidelines and mitigation measures associated with the implementation of this plan/EA is included in Appendix D.

PRELIMINARY OPTIONS CONSIDERED BUT DISMISSED FROM DETAILED EVALUATION

According to NPS Director's Order 12: *Conservation Planning, Environmental Impact Analysis, and Decision-Making Handbook*, reasons to eliminate alternatives include:

- Technical or economic infeasibility.
- Inability to meet project objectives or resolve need.
- Duplication with other, less environmentally damaging or less expensive alternatives.
- Conflict with up-to-date and valid park plan, statement, purpose and significance, or other policy such that a major change in the place or policy would be needed to implement the alternative.
- Too great an environmental impact.

The following actions and concepts were considered but dismissed from detailed evaluation:

- **Lo'i (terraced wetland taro farming) maintained by park staff.** Comments received during public scoping period and stakeholder workshop sessions suggested providing additional lo'i at the park. This option was dismissed from analysis because of the engineering efforts and adverse impacts to natural resources that would be associated with creating a new lo'i within the developed area of the Lower Kīpahulu Valley. Diverting enough water from the stream to support a wetland taro planting in the area addressed in this comprehensive plan would require construction of a major pipeline through the park. Construction of a pipeline would be costly, it is unknown if the stream could support the amount of water needed to support a lo'i, and the diversion of water could result in significant impacts to vegetation and aquatic resources. Ultimately, the National Park Service determined that the management and maintenance of additional lo'i were technically and economically infeasible based on water availability and park resources.
- **Removing the visitor center function from Kīpahulu, and replacing it by leasing, sharing, buying, or building a visitor center in Hāna.** Local residents who participated in the public scoping process asked if park visitor orientation and welcome functions could be better incorporated into the community of Hāna through an off-site visitor center. Public and staff indicated the need for an on-site hub of visitor activity, interpretation, education, and safety messaging. Park staff believe resources are best monitored through an on-site presence, and visitors are better served by on-site staff. Therefore, creating an additional visitor center in Hāna was dismissed due to its inability to meet project objectives or resolve need.
- **Additional coastal trails to the west of the campground.** The National Park Service considered expanding the Kahakai Trail to the west to expand visitor opportunities along the

coast. An additional trail would duplicate an experience already offered by the park. In addition, the resources required to maintain new trail, monitor sensitive resources in the area, and provide a safe visitor environment would be economically infeasible at this time.

- **Relocating the park's maintenance facilities.** The National Park Service considered relocating the park's maintenance facilities and operations from the established baseyard to other park locations including the NPS-owned parcel to the west of the Lower Kīpahulu Valley and across the Hāna Highway near the park water tanks and solar array. Both these options were dismissed as being technically and economically infeasible due to utility needs such as water and power, as well as potential noise impacts to park neighbors.

Chapter 3

Affected Environment and Environmental Consequences



Kupu interns at at Kapahu farm



Historic wall



Hula dancers at Nānā I Ke Kumu

Chapter Three Divider Back

CHAPTER 3: AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The National Environmental Policy Act requires that environmental documents discuss the environmental impacts of a proposed federal action, feasible alternatives to that action, and any adverse environmental effects that cannot be avoided if an action is implemented. This chapter analyzes the environmental impacts of implementing the three alternatives on water quality, archeological resources, ethnographic resources and traditional cultural properties, visitor use and experience, and socioeconomics. This analysis is the basis for comparing the beneficial and adverse effects of implementing the alternatives. By examining the environmental consequences of all alternatives on an equivalent basis, decision makers can evaluate which approach would create the most desirable combination of benefits with the fewest adverse effects on the park.

This chapter begins with a brief explanation of general methods, followed by a discussion of how cumulative impacts are analyzed for the alternatives. Following this section, the impact analysis is presented. Each of the alternatives, including the no-action alternative (continuation of current management), is analyzed for adverse or beneficial changes that would occur to the existing conditions of each impact topic, as outlined in Chapter 1. After describing the impacts of the alternative, the cumulative effects of each impact topic are discussed and a conclusion stated.

METHODS AND ASSUMPTIONS FOR ANALYZING IMPACTS

In accordance with Council of Environmental Quality (CEQ) regulations, the direct, indirect, and cumulative impacts for each alternative are described (40 CFR 1502.16), and assessed in terms of context and intensity (40 CFR 1508.27). The analysis assumes that the monitoring and mitigation measures identified in the appendix, “Monitoring Guidelines and Mitigation Measures for the Alternatives,” would be implemented for the action alternative. Overall, the National Park Service based its impact analyses and conclusions on review of existing literature and park studies; comments provided by the public; and input from experts from the National Park Service and other federal agencies.

The following terms are used in the discussion of environmental consequences to assess the impact intensity threshold and the nature of impacts associated with each alternative.

- **Type.** Impacts can be beneficial or adverse. A beneficial impact is an impact that would result in a favorable change in the condition or appearance of the resource. An adverse impact is an impact that causes an unfavorable result to the resource as compared with the existing conditions.
- **Context.** The significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of the proposed action. For instance, in the case of a site-specific action, significance usually would depend on the effects in the locale rather than in the world as a whole. In many cases, the term “localized” is used, intending to provide the context that impacts would only occur within a relatively small

- Area (i.e., a few acres) as opposed to throughout the whole Kīpahulu District, or into the neighboring areas. Both short- and long-term effects are also relevant.
- **Duration.** Duration of impact is analyzed independently for each resource because impact duration is dependent on the resource being analyzed. Impacts may last for the implementation period, a single year or growing season, or longer.
- **Direct and Indirect Impacts.** Direct effects are caused by an action and occur at the same time and place as the action. Indirect effects are caused by the action and occur later or further away but are still reasonably foreseeable.
- **Intensity.** This refers to the severity of impact. The following should be considered in evaluating intensity:
 - The degree to which the proposed action affects public health or safety.
 - Unique characteristics of the geographic area, such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.
 - The degree to which the effects on the quality of the human environment are likely to be highly controversial.
 - The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.
 - The degree to which the action may establish a precedent for future actions having significant effects or represents a decision in principle about a future consideration.
 - Whether the action is related to other actions that have individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.
 - The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in, or eligible for listing in, the national register or may cause loss or destruction of significant scientific, cultural, or historical resources.
 - The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.
 - Whether the action threatens a violation of federal, state, or local law or requirements imposed for protection of the environment.

CUMULATIVE IMPACTS ANALYSIS METHOD

Cumulative impacts result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions, regardless of who undertakes such other actions. Cumulative impacts can result from individually minor, but collectively important, actions taking place over a period of time.

Cumulative impacts are considered for both the no-action and action alternatives. They were determined by combining the impacts of the alternatives proposed in this document with the impacts of other past, present, and reasonably foreseeable future actions. Cumulative actions are categorized as past actions, present actions, and reasonably foreseeable future actions that could contribute to cumulative impacts. These identified actions make up the cumulative impact scenario. Unfunded and unapproved conceptual plans, which broadly focus on long-term goals and objectives, have not been included in the cumulative impacts scenarios.

ACTIONS AND PROJECTS INSIDE HALEAKALĀ NATIONAL PARK

The implementation of an air tour management plan. The air tour management plan governs commercial air tour operators flying over the park. There are currently 12,796 helicopter flights per year, but 26,325 flights are authorized under the interim operating authority (IOA). Although the number of air tours flying over or adjacent to the park could increase to the IOA level, in recent years the number of tours reported by operators has been declining. Thus, for purposes of analysis it is assumed the number of air tours flying over or adjacent to the park will stay at current levels.

‘Ohe‘o Gulch rockfall mitigation. On January 3, 2017, after several weeks of rain, a rockfall occurred in the lower pools of ‘Ohe‘o Gulch, which are popular for swimming and wading. A rockfall mitigation project to significantly reduce the potential for future rockfall hazards or falling debris in an area where visitors may be located was completed in early 2018. The park removed vegetation, loose soil, rocks likely to fall in the near future, and debris on the cliff face and above the cliff face extending horizontally up to 20 feet from the face. The park will also be periodically reassessing changing conditions on the rock face and cliff and may repeat scaling activities periodically in the future to protect public safety.

Fire management plan. Completed in 2005, the park fire management plan provides programmatic direction to reduce the threat of wildfire within and adjacent to Haleakalā National Park in response to the park’s natural and cultural resource objectives, and to provide for safety considerations for park visitors, staff, neighbors, and developed facilities. The plan allows for the park to implement wildland fire suppression and the reduction or removal of hazardous fuels by mechanical means.

Commercial services plan. The National Park Service is implementing a commercial services plan (CSP or plan) for the non-wilderness areas of Haleakalā National Park. Signed in 2013, the park’s commercial services plan identifies appropriate commercial visitor services provided at the park and provides details on how the park’s commercial service providers will be managed to achieve overall park goals and meet desired resource conditions and visitor experiences. The plan states that road-based tours to the Kīpahulu District are not limited and are expected to compete with noncommercial vehicles for available parking spaces. As of January 1, 2018, road-based commercial tours are managed under four concession contracts instead of the commercial use authorizations (CUAs) that were used in the past. There is no limit on the number of commercial service providers that offer hiking tours of the District in the plan, but group size for all hiking tours is limited to a maximum of 12 people, including employees. The plan also reduced the number of commercial service providers able to offer horseback riding tours in the Kīpahulu District to one provider offering one trip per day, up to 5 days a week, to a maximum of 12 people at a time, including employees. However, the horse trail has not had a commercial operator for several years, and the trail has been closed and not maintained.

ACTIONS AND PROJECTS OUTSIDE HALEAKALĀ NATIONAL PARK

Improvements to Hāna Highway. The Hawai‘i Department of Transportation is overseeing an approximately \$5.8 million capital improvement project to repair the 32-mile section of the Hāna Highway from Heulo to Hāna. The project, which was released for bid in early 2017, includes roadway and drainage improvements; replacing and installing metal guardrails, installing soil retaining walls and rubble masonry walls; rockfall mitigation; and slope stabilization of the highway.

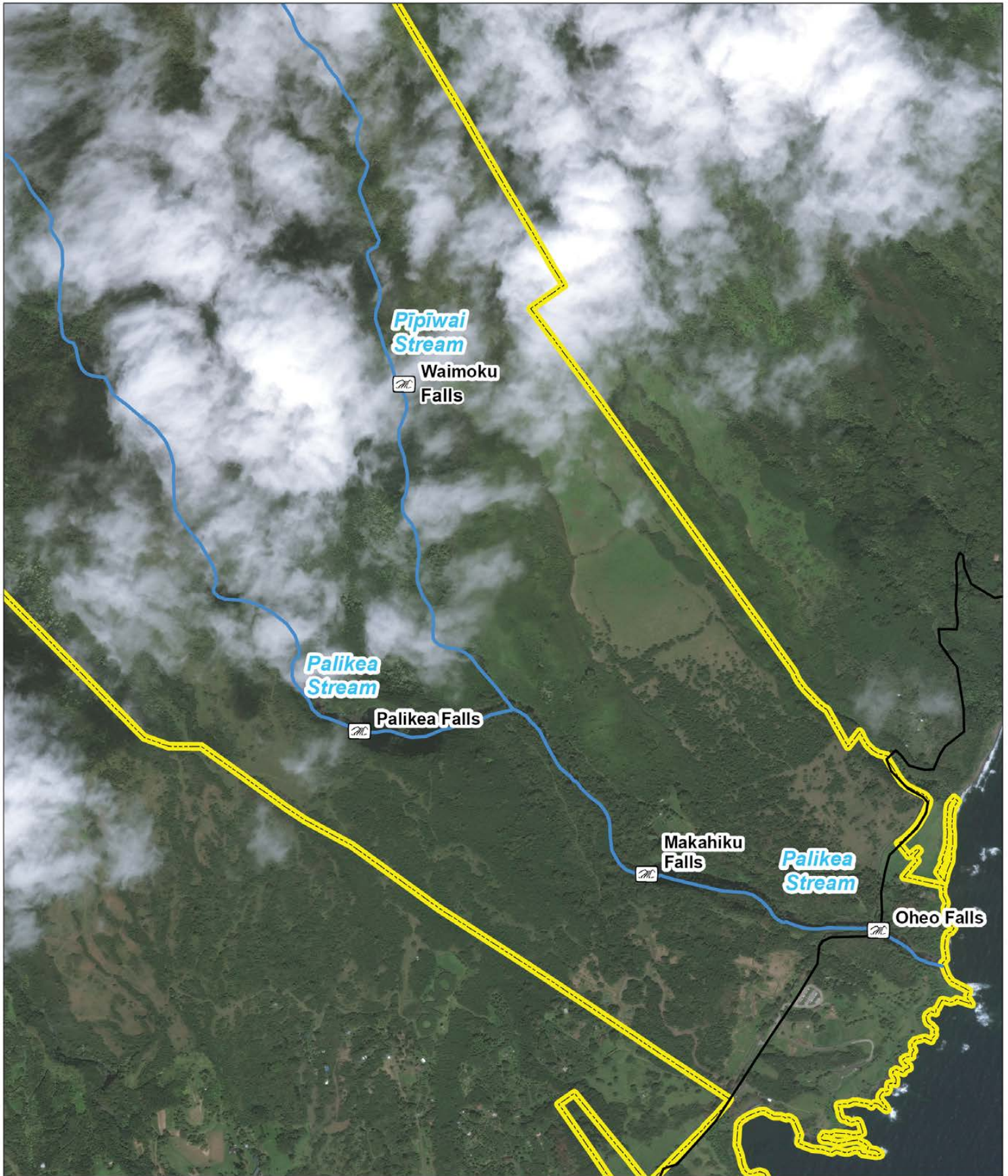
WATER QUALITY

Affected Environment

In the Kīpahulu District of the park, two inland freshwater streams, the Palikea and the Pīpīwai, join and flow along the ‘Ohe‘o Gulch, creating numerous small pools before meeting with the ocean. Perennial streams also occur in the Kīpahulu Valley and in adjacent drainages, which flow into the ocean along the park’s coastal boundaries. Several federal and state water quality monitoring systems are located within the park, including a station at Palikea Stream below the diversion dam near Kīpahulu, as well as outside the park (NPS 1999). All of the streams in the Kīpahulu area gain volume from the high rainfall in the upper Kīpahulu Valley and are quite responsive to periodically heavy precipitation. Rapid changes in current velocity and discharge volume and fluctuations in water chemistry are common and are accentuated by influxes in allochthonous organic material and terrestrial sediment (Kinzie & Ford 1997). The periods of greatest flow are typically in April, November, December, and January and coincide with the rainy season. Periods of low precipitation, usually experienced in the summer months, can result in little to no flow along the Palikea Stream into the Pools of ‘Ohe‘o.

Because Haleakalā has a porous substrate, surface water rarely accumulates in most areas of the park. Soils in the lower elevations in Kīpahulu are derived primarily from volcanic ash and weathered volcanic rock, are rich in clay and organic material and are relatively deep, ranging from 2–4 feet deep (NPS 1978). Land use within and adjacent to the park can create conditions that expose soil to runoff, increase transpiration of water to the atmosphere, and decrease fresh water infiltration into ground water. With disturbances to native vegetation and soils, more fresh water moves across the surface instead of being absorbed, and therefore carries more sediment to the ocean, especially during large rainfall events. Nonpoint source pollution from motor vehicle oil accumulated in parking lots and on roads; nutrient runoff from yard maintenance; and agricultural inputs such as fertilizer can impact water quality, but the low population density and low agricultural use in the Kīpahulu area lowers these specific potential threats (NPS 1999, Kīpahulu Malama Ke Kai 2012).

Visitor activities in the Kīpahulu District, including swimming and wading in the streams and pools, can also affect water quality by adding pollutants commonly found in sunscreen and personal care products, such as oxybenzone and octinoxate. These chemicals may harm downstream marine organisms and slow coral growth. Oxybenzone has been detected in the water and sediment of the Pools of ‘Ohe‘o and water samples collected in the park during the 2017 closure of the pools show a low concentration of the chemical persists even in the absence of visitors (Downs et al. 2016, NPS Briefing Statement 2018). A statewide ban on the sale of sunscreens containing oxybenzone and octinoxate takes effect in 2021; however, visitors will be able to purchase sunscreen with these chemicals in Hawaii over the next few years and will still be able to use sunscreen purchased outside Hawaii after the ban is enacted.



Park Boundary



Waterfalls



Hale Streams



Major Roads

1:15,000

0 75 150 300 450 600 Meters



Coord. Sys: NAD 1983 UTM Zone 4N

Environmental Consequences of Alternative 1: No Action

Under the no-action alternative there would be no new impacts to water quality in the project area. Visitor swimming and wading in the Pools of 'Ohe'o would continue to contribute to sedimentation and oxybenzone levels; these ongoing impacts have the potential to negatively affect water quality and downstream marine life. The level of sedimentation and sunscreen-related pollutants is directly related to how often the pools are officially closed for hazardous conditions. No current baseline exists for oxybenzone during open pool visitor use. In combination with the future ban of oxybenzone and octinoxate, no new measurable environmental consequences to resources are projected as a result of no action. Off-trail visitor use would continue to result in vegetation and soil disturbances, potentially adding to surface runoff, erosion, and sedimentation in the Kīpahulu District's streams and pools. Existing paved parking lots, roads, and other impervious surfaces would also continue to contribute to storm runoff in the District at current levels. All of these existing factors would result in no new impacts on water quality under the no-action alternative.

Environmental Consequences of Alternative 2 (Preferred Alternative)

Under alternative 2 there would be a variety of actions taken that may contribute a small adverse impact on water quality in the project area, primarily through an increase in impervious surfaces, a reduction in vegetated area, and an expansion or rerouting of trails. Additional construction-related impacts are anticipated in the short term, although they would be mitigated through the application of stormwater best management practices and conscientious timing. These impacts, although relatively minimal in scope, are relevant due to the importance of water quality to native Hawaiian biological diversity and to the waterfalls and clear pools that contribute to the visitor experience in the Kīpahulu District.

In total, the additional facilities and improved roads and trails common to both alternatives 2 and 3 sum up to approximately 2.2 acres of permeable and impermeable surfaces. These proposed actions include improving maintenance facilities, adding accessible campsites, and formalizing the existing helipad. Proposed changes unique to alternative 2 with potential impacts on water quality sum up to an additional .17 acres. These changes include expanding the visitor center and fee stations, establishing a host site, and establishing a campground program area.

The additional 2.37 acres of permeable and impermeable surfaces proposed in alternative 2 account for less than 100th of a percent of the existing acreage in the 810-acre project area. That being said, the addition of new impervious surfaces would increase runoff, likely impacting the natural hydrology and leading to an increase in erosion rates and higher sediment loads within the District. This, in turn, can result in higher levels of turbidity, lower levels of light transmission, and changes in temperature in water bodies within the project area. Impervious surfaces used by motor vehicles generate additional water contaminants such as heavy metals, petroleum products, and debris. Sedimentation and other pollutants have a number of downstream effects on both aquatic organisms and visitor experience, and impacts may be detected in marine and coastal ecosystems associated with the Kīpahulu watershed.

Mitigation measures included in this plan would minimize adverse water quality impacts associated with initial construction and additional impervious surface area. Best management practices such as stormwater catchment and filtration systems, slope protection, grass strips (native or local species), temporary sediment traps, silt fences, diversion trenches, and provisions for washing vehicles before leaving construction sites are all means to reduce short-term and long-term runoff pollution. The use of porous paving systems such as geoblocks, grass pavers, or Grasscrete for parking areas, as well as other devices used to maximize water infiltration, would also minimize additional long-term runoff. When the mitigation measures are accounted for, in combination with the watershed's natural ability

to filter water through its porous substrate, the net impacts resulting from alternative 2 are unlikely to affect the overall water quality in the District or impact the integrity of related natural resources in a meaningful way.

Environmental Consequences of Alternative 3

Under alternative 3 there would be a variety of actions taken that may have a small adverse impact on water quality in the project area. These impacts would substantively be the same as those noted under alternative 2.

As described above, a total of approximately 2.2 acres of permeable and impermeable surfaces would be added as a result of the actions proposed in alternative 3. The most significant action unique to alternative 3 relevant to water quality is the closure of the Pools of 'Ohe'o. Managing of the Pools of 'Ohe'o as a closed area would reduce the number of visitors who use the area and consequently lower the amount of sediment brought into suspension from swimming and decrease potentially negative effects on related to pollutants from sunscreen.

The impacts of new impervious area under this alternative would be the same as noted under alternative 2. In addition, the potential closure of the Kapahu Trail would lead to marginally reduced compaction and runoff pollution. The mitigation factors noted above would help offset impacts from both initial construction and longer term changes to runoff patterns in alternative 3.

Cumulative Impacts

Any past ground disturbing activity (construction of facilities, trails, overlooks, roads, and parking lots) has resulted in an increase of impervious surface and increase of sediment in water bodies, contributing to cumulative impacts on water quality. In particular, recent improvements to the baseyard, rehabilitation of parking lots, and scaling and vegetation removal for rockfall mitigation would have cumulative effects on water quality. Activities conducted as per the fire management plan could increase denuded area and create hydrophobic soils, further adding to the potential for erosion and high sediment loads. Considering the extent of actions proposed in both alternatives 2 and 3 that could affect water resources, both alternatives would contribute slightly to, but would not substantially change, the water quality impacts that are already occurring in the District. While the actions described in alternative 2 result in a slightly higher (.17 acres) amount of impermeable surface when compared the alternative 3, this difference is minimal within the context of the 810-acre project area. The impacts of our action combined with the past, present, and reasonably foreseeable actions would be minimal and the relative contributions of our actions would be a minimal portion of the overall cumulative effect. The impacts are minimal due to the natural capacity of the watershed to infiltrate and filter water and due to the fact that the project area represents a small fraction of the total watershed.

Conclusion

Under the no-action alternative, no new impacts to water quality would occur. Visitor swimming in the Pools of 'Ohe'o, off-trail visitor use, and existing paved roads would continue to contribute to sedimentation, vegetation and soil disturbances, and ongoing storm runoff respectively.

While both of the action alternatives would result in additional facilities and improved roads and trails which may increase runoff pollution and localized potential degradation in water quality, many of these adverse effects would be minimized through best management practices such as the use of permeable surfaces. Minimal adverse impacts to water quality from sedimentation caused by construction would be short term and largely mitigated by the use of best management practices. In combination with cumulative impacts from recent construction projects and implementation of the fire management plan, the action alternatives may result in a slight decrease of water quality across a

number of metrics directly downstream from the project site into the ocean. These impacts would be minimized by the size and natural buffering capacity of the watershed, and the likelihood of any demonstrable adverse impacts to the integrity of water quality at a park scale would be minimal.

The closure of the Pools of ‘Ohe‘o as described in alternative 3 would likely result in improved water quality of the project site in the long-term. Formalizing the campground and trails as described in alternative 2 would reduce soil compaction and vegetation disturbances, positively impacting water quality in the long-term.

ARCHEOLOGICAL RESOURCES

Affected Environment

As defined by *NPS Management Policies* 2006, the term “archeological resources” refers to any material remains or physical evidence of past human life or activities and includes precontact and historic sites and features. The specific nature and location of archeological resources may be withheld from disclosure to the public under section 304 of the National Historic Preservation Act and section 9 of the Archeological Resources Protection Act, if the federal land manager determines that disclosure may (1) cause a significant invasion of privacy; (2) risk harm to the resources or to the site at which such resources are located; or (3) impede the use of a traditional religious site by practitioners.

The Kīpahulu District of Haleakalā National Park contains 38 individual archeological sites recorded to date, composed of hundreds of features (Dye et al. 2002, Carson and Reeve 2008, Tomonari-Tuggle 2013, NPS In Process). These inventory surveys were based upon archeological base maps developed by Ladd (NPS 1974, NPS 1975b) and Rosendahl (NPS 1975c and 1976a). Prior to the more detailed archeological surveys, Kīpahulu Historic District (Hawai‘i Register of Historic Places Site No. 50-50-17-299), was proposed for nomination to the National Register of Historic Places (NRHP) in 1973, 1975, and 1976. The NRHP nomination was largely based on NPS Pacific Historian Russell A. Apple’s 1975 “Historic Resource Study of Kīpahulu Historic District, Haleakalā National Park (Historical Data).” The historic district encompasses 3,278 ha (810 acres) of lands around ‘Ohe‘o Gulch, from sea level to about 1,640 feet (500 meters) above sea level. The period of significance extends from the pre-historic period through the 1900s. The pre-historic and historic archaeological features, as well as agricultural, engineering and transportation features, are all significant. The 810-acre District was, at the time, considered one large integrated archeological complex, due to the interconnected nature of Native Hawaiian life, the cultural environment, and structures within the ahupua‘a land division system and importance of context when discussing the historic and archeological significance of features within the District. The Kīpahulu Historic District encompasses the lower sections of five traditional ahupua‘a within the larger ancient moku (district) of Kīpahulu. These are Kaumakani, Papauluana, ‘Alae Iki, ‘Alae Nui, and Kakalehale. Most of the Kīpahulu ahupua‘a extend from mauka (upland) to makai (the sea) and include all resources needed for survival. For generations, Polynesians and Native Hawaiians living within the ahupua‘a fished along the coast, tended upland farms, and gathered materials from the forest to support themselves (NPS 1975a; NPS 1976a; NPS 2003; NPS 2012).

The individual archeological sites in the Kīpahulu District, all of which have been determined eligible for listing in the National Register of Historic Places through consultation with the Hawai‘i State Historic Preservation Division, represent occupational periods from pre-historic (pre-1778) through to the modern period (1850–present) and are associated with agriculture and animal husbandry, permanent residences, temporary encampments, and ceremonial purposes. Site types include mounds, terraces, walls, burials, platforms, enclosures, walled shelters, trails, and rockshelters, with rock mounds, walls, and terraces making up the majority of recorded archeological features (NPS

1975; NPS 2012). Land clearing operations associated with the 20th-century plantation and ranching eras destroyed many archeological sites and evidence of past land use and habitation, but areas that have not be previously cleared—gulches, steep slopes, ridges, and bedrock outcroppings—retain archeological resources related to prehistoric upland farming and habitation (NPS 1976a). Archeological sites and *in situ* resources located near areas of visitor use and visitor-created “social” trails are vulnerable to inadvertent damage, vandalism, and unauthorized collecting that could result in the destruction of archeological resources, alteration of surface artifact distribution, alteration of vertical and horizontal distribution of buried archeological resources and their contextual environment.

Environmental Consequences of Alternative 1: No Action

Under the no-action alternative, there would be no new impacts to archeological resources in the Kīpahulu District. Archeological features in and adjacent to the campground would continue to be vulnerable to inadvertent damage due to camper behaviors including using stones to build temporary fire rings and cairns, establishing visitor-created trails to the coast, and setting up camp on unmarked archeological sites. Effects to archeological resources in and adjacent to the campground would continue to be localized; due to the nature of archeological resources, all effects would be permanent.

Environmental Consequences of Alternative 2 (Preferred Alternative)

Alternative 2 includes numerous visitor facility development projects including expansion of the existing visitor center, creation of a formal overflow parking area, and construction of a platform at the terminus of the Pīpīwai Trail. Park facility improvements included in both action alternatives are the construction of permanent maintenance buildings, the construction of staff housing units, and the paving of the park’s two helicopter pads. Trail improvements common to both action alternatives include the construction of an accessible trail with ocean overlook platform and pedestrian pullouts, the creation of trail spurs connecting the Pīpīwai Trail to the new arboretum and the Kapahu Trail to the Kanululu House. These actions, which would likely include land clearing, use of heavy equipment, and/or ground disturbances, have the potential to damage *in situ* archeological resources or destroy archeological sites. All construction activities related to actions proposed within alternative 2 would comply with *The Secretary of Interior’s Standards and Guidelines for Archeology and Historic Preservation* and Director’s Order 28: *Cultural Resource Management*. Any individual project or action resulting from this plan would be sited to reduce effects to, or avoid when possible, known archeological sites. These associated actions would be subject to future Section 106 consultation with the Hawai’i State Historic Preservation Division. Mitigation measures outlined in this plan or included in future NEPA or section 106 documentation would be implemented to minimize potential effects.

Under alternative 2, a 20-by-30-foot wood platform would be constructed at the Waimoku Falls terminus of the Pīpīwai Trail, as indicated on Page 29. Construction of the platform would include auguring and/or digging to insert posts into the ground to secure the platform into place above the stream bank. As stated above, any construction activity that includes heavy equipment or ground disturbance has the potential to damage *in situ* archeological resources or compromise archeological sites directly through digging or through erosion caused by construction activities. While some posts may be able to be secured to exposed rocks to minimize ground disturbances, it is likely that additional post holes would be needed to properly support the platform structure. No discrete archeological sites or features have been identified in the vicinity of the Pīpīwai Trail terminus or the proposed equipment staging area during past surveys; an archeological evaluation of the site would be completed before construction and archeological monitoring would continue during construction to ensure archeological resources were avoided as much as possible. If previously undiscovered archeological resources are uncovered during construction, all work in the immediate

vicinity of the discovery would be halted until the extent of the archeological resources/sites could be identified and documented and an appropriate mitigation strategy developed in consultation with the Hawai'i State Historic Preservation Office and Native Hawaiian Organizations. Adverse effects related to the construction of the Waimoku Falls platform would be localized but permanent.

Additional archeological survey, compliance, and/or mitigation activities would be completed to reopen the Kapahu Trail to ranger-guided tours; mitigation actions may include minor trail rerouting, installing fences near sensitive resources, and installing educational signage. While installing fencing or other resource protection measures could contribute to ground disturbances during construction and maintenance, overall these techniques would limit future visitor impacts to sensitive archeological resources adjacent to the trail. Frequency of visitor-related impacts would also be minimized by limiting trail access to ranger-guided hikes that would allow staff to monitor visitor actions.

Creating a campground host position to manage camping permits and provide additional resource protection, archeological resource monitoring, and visitor education would ideally limit impacts from visitors. Formalizing the campground, an action common to both action alternatives, would decrease the likelihood of visitor impacts to archeological sites by using landscape design elements to direct visitors away from sensitive resources, by providing delineated campsites located away from known archeological resources, and by implementing a permitting and reservation system to better track visitor use within the campground. Active campground management by an onsite host would also help minimize inappropriate visitor behaviors and inadvertent damage to aboveground archeological features.

Environmental Consequences of Alternative 3

Under alternative 3, an additional visitor contact station would be constructed, the overflow parking area would be formalized, and viewing areas would be created along the Kūloa Point Trail. Additional archeological survey, compliance, and/or mitigation activities would be completed to reroute the Kapahu Trail to avoid sensitive archeological resources. The new trail route would then be opened for self-guided hiking. While unguided visitor access to the trail could result in more frequency of inadvertent damage to exposed archeological features, surface disturbances, or vandalism as a result of visitor use, the rerouted trail would guide visitors away from sensitive archeological features that are affected by the trail's current route.

Park facility improvements included in both action alternatives are the construction of permanent maintenance buildings, the construction of staff housing units, and the paving of the park's two helicopter pads. Trail improvements common to both action alternatives include the construction of an accessible trail with ocean overlook platform and pedestrian pullouts, the creation of trail spurs connecting the Pipiwai Trail to the new arboretum and the Kapahu Trail to the Kanululu House. These actions, which would likely include land clearing, use of heavy equipment, and/or ground disturbances, have the potential to damage *in situ* archeological resources or destroy archeological sites. All construction activities related to actions proposed within alternative 2 would comply with *The Secretary of Interior's Standards and Guidelines for Archeology and Historic Preservation* and Director's Order 28: *Cultural Resource Management*. Any individual project or action resulting from this plan would be sited to reduce effects to, or avoid when possible, known archeological sites. These associated actions would be subject to future Section 106 consultation with the Hawai'i State Historic Preservation Division. Mitigation measures outlined in this plan or included in future NEPA or section 106 documentation would be implemented to minimize potential effects.

Formalizing the campground, an action common to both action alternatives, would decrease the likelihood of visitor impacts to archeological sites by using landscape design elements to direct

visitors away from sensitive resources, by providing delineated campsites located away from known archeological resources, and by implementing a permitting and reservation system to better track visitor use within the campground.

Cumulative Impacts

Any past ground disturbing activity, including construction of the current visitor and maintenance facilities, has contributed to the cumulative effects on archeological resources in the Kīpahulu Historic District. Recent NPS projects, such as paving the existing parking lot, constructing the restrooms, and maintaining trails, would have been completed in accordance with NPS management policies and would have considered how best to minimize effects to archeological resources and the broader historic district. Activities included in the park's fire management plan, including mechanical fuel reduction, and road projects along the Hāna Highway could also disturb *in situ* archeological artifacts and manipulate the surface/vertical distribution of artifacts and important environmental context.

Considering the extent of actions proposed in the alternatives that could affect archeological resources, both action alternatives have the potential to contribute slightly to the archeology impacts that have already occurred in the District. However, the cumulative impacts of past actions, ongoing activities, and the action alternatives would not affect the integrity of individual archeological sites or the Kīpahulu Historic District as a whole due to the minimal extent of these actions on archeological resources and the mitigation measures, thoughtful project siting, and monitoring by cultural resource professionals associated with NPS actions.

Conclusion

Under the no-action alternative, minor potential impacts to archeological resources would continue. Minor but permanent effects could include surface disturbances from visitor-created trails, inadvertent damage to resources located in the campground and adjacent to informal campsites, and vandalism at sites located near visitor facilities.

While both of the action alternatives could result in permanent, localized impacts to *in situ* archeological resources and sites, most of these adverse effects are linked to construction activities. Any construction project related to this comprehensive plan would be sited to minimize effects on known archeological resources and mitigation measures would be implemented to ensure the highest level of resource protection possible. Rerouting the Kapahu Trail and formalizing the campground, actions included in both action alternatives, would decrease the likelihood of visitor-related impacts to nearby archeological resources; alternative 2 offers additional protection through use of ranger-guided hikes and the onsite campground host that could provide additional visitor education and monitoring. Any archeological site or feature that can be accessed by visitors is susceptible to inadvertent damage or vandalism. Due to the nature of archeological resources, all adverse impacts from any of the alternatives would be permanent, but most impacts would be minimized by mitigation or avoided by project siting and visitor education efforts.

ETHNOGRAPHIC RESOURCES AND TRADITIONAL CULTURAL PRACTICES

Affected Environment

As defined in NPS Director's Order 28: *Cultural Resource Management Guidelines* (NPS 1998) ethnographic resources can be both natural and cultural resources that have been identified as having cultural significance by culturally associated users. They can include subsistence and ceremonial sites, structures, objects, and rural and urban landscapes assigned cultural significance by traditional users. The Kīpahulu Valley has been determined eligible for the National Register of Historic Places as a *traditional cultural property* because of its association with the cultural practices or beliefs of a living community. Approximately 300–500 Hawaiians enter the Kīpahulu area of the park for traditional cultural practices annually. Cultural practices known to occur in this section of the park include performance of ceremonies and spiritual training, and farming.

Native Hawaiians have strong cultural and spiritual connections to the resources and land located within Haleakalā National Park. Archeological resources, recorded and oral histories, and Native Hawaiian traditions provide valuable information related to cultural land use, settlement patterns, and ethnographic practices within the Kīpahulu District. The ethnohistory of Kīpahulu and 'Ohe'o Gulch is that of a largely isolated, precontact, wet-valley Polynesian community (NPS 1976b). The Kīpahulu *moku* (district) was established under the Polynesian land division system. Sandwiched between the Kaupo District—an Eastern Maui population center traditionally associated with high chiefs during the Polynesian period—and the Hāna District, the location of a bay and spot for defense, Kīpahulu has been associated with agriculture. Sections of the Kīpahulu District near the 'Ohe'o Stream and coastline were used for irrigation and dryland horticulture during the early 1800s, but terraced farming in this area may date to precontact times (NPS 1976b). While the first sugar plantation in Kīpahulu was established in the mid-1800s, most Native Hawaiians in the Kīpahulu area continued to practice traditional fishing and horticultural activities. Taro, a crop important to Hawaiian culture for its use in the dietary staple *poi*, was grown throughout the district into the 20th century. The development of the sugarcane industry and general population decline in the late 19th and early 20th centuries led to many Native Hawaiian Kīpahulu families moving elsewhere, and the abandonment of many traditional agricultural lands, including taro terraces. Oral histories and historical records indicate that the irrigated and dryland taro terraces on the east side of the 'Ohe'o Gulch in the area of the Kapahu Living Farm were farmed in the 1800s and may have been farmed in precontact times. The Kapahu Living Farm is now managed by the park and a nonprofit partner as a traditional Hawaiian taro farm, with other indigenous food crops also under cultivation.

As tourism in East Maui ramped up during the 1940s and 1950s, the Pools of 'Ohe'o were marketed by the local resort as the “Seven Sacred Pools” in an attempt to increase tourist interest in the area. While the pools were never historically known by that name, they are culturally important to Native Hawaiians with familial ties to Kīpahulu. The lower Pools of 'Ohe'o were and still are the location of cultural rites of local Native Hawaiian families with 'aumakua (ancestral spirits) associated with the sea. Today, swimming in the pools provides Native Hawaiians a way to connect with their *kūpuna* (ancestors) and 'aumakua (NPS 1975; NPS personal correspondence, September 2017; NPS Na Koa Ikaika o Ka Lahui Hawai'i correspondence, April 2018).

Environmental Consequences of Alternative 1: No Action

Under the no-action alternative there would be no new impacts to traditional cultural practices and ethnographic resources in the project area. Kapahu Living Farm would continue to be managed by the park and a nonprofit partner and offer limited, guided visitor opportunities to learn about taro and traditional Hawaiian agricultural practices. Native Hawaiians, as well as other members of the public, would continue to be able to access the Pools of 'Ohe'o when the area is not closed by the park due to hazardous conditions.

Environmental Consequences of Alternative 2 (Preferred Alternative)

Under alternative 2, the Pools of ‘Ohe‘o would be open for visitors to experience at their own risk. This would not impact the ability of Native Hawaiians to access the pools for cultural reasons and therefore there would be no new impacts to traditional cultural practices or ethnographic resources related to this action.

Kapahu Living Farm would continue to offer the same level of visitor opportunities related to taro and traditional Hawaiian agricultural practices. Maintaining the dryland taro planting along the Pipiwai Trail and the creation of an arboretum to support research related to native and traditional cultural plant species would support plant species connected with Native Hawaiian culture and traditional agriculture and provide additional opportunities for visitors to learn about Native Hawaiian culture and the ethnographic importance of the park’s resources. Together, these actions—common to both action alternatives—would provide beneficial impacts to Hawaiian cultural practitioners and visitors. These impacts would continue as long as the arboretum and taro plantings are actively managed and maintained by park staff or partners.

Environmental Consequences of Alternative 3

Alternative 3 would close the pools to all visitor activities; related management actions would include removing the existing steps and railings leading to the pools and adding additional barriers to indicate that the pools are managed as a closed location due to visitor safety concerns. Restricting access to the pools would impact the ability of Native Hawaiians to swim in the pools, a traditional cultural activity that allows individuals with familial ties to Kīpahulu to connect to *kūpuna*. This adverse impact would be immediate and continue as long as the pools were managed as a closed location.

Maintaining the dryland taro planting along the Pipiwai Trail, increased visitor opportunities at the Kapahu Living Farm, and the creation of an arboretum to support research related to native and traditional cultural plant species would better support ethnographic resources found in the park. These actions would provide additional opportunities for Native Hawaiians to use the park for traditional cultural practices and for visitors to learn about Native Hawaiian culture and the ethnographic importance of the park’s resources. These actions would provide long-term beneficial impacts to Hawaiian cultural practitioners as well as visitors.

Cumulative Impacts

Access to the pools was restricted during the of ‘Ohe‘o Gulch rockfall mitigation project (2017–2018) and has been limited for short periods of time in the past due to safety closures. Temporary pool closures would continue under alternative 2 and would not contribute additional impacts to ethnographic resources and Native Hawaiian practices. Alternative 3 represents a long-term closure that would impact Native Hawaiian access to the pools in the near future. Taro farming would continue at Kupuna Living Farm under all alternatives and there are no additional impacts related to this ethnographic resource from ongoing or proposed projects. Together, actions proposed in this plan that may affect ethnographic resources and traditional cultural practices would support current beneficial impacts related to traditional taro farming and would either continue or expand pool closures. Other planning efforts and ongoing projects in the vicinity of the Kīpahulu area do not directly affect the traditional cultural practices or ethnographic resources in the Lower Kīpahulu Valley or would contribute meaningful cumulative impacts to these resources.

Conclusion

Minor beneficial impacts would result from maintaining the park’s dryland taro planting along the Pipiwai Trail and creation of an arboretum that would support research and education related to

culturally important plant species, actions that are common to both action alternatives. Overall, alternative 2 would be beneficial for ethnographic resources.

Beneficial and adverse impacts to ethnographic resources and traditional cultural practices would occur as a result of alternative 3. Minor beneficial impacts would result from maintaining dryland taro plantings and creation of a plant arboretum that would support research and education related to culturally important plant species, actions that are common to both action alternatives. Closure of the pools would result in an adverse impact to traditional cultural practices as it would restrict Native Hawaiians' ability to swim in the Pools of 'Ohe'o.

VISITOR USE AND EXPERIENCE

Affected Environment

Visitor Use and Experience at Kīpahulu

The Lower Kīpahulu Valley is one of the two destinations that are most frequently visited in Haleakalā National Park on the island of Maui. The area contains the 'Ohe'o Gulch, a popular, unique, and primary visitor attraction. The area offers a variety of recreation opportunities, including self-guided interpretive trail and hiking experience, ranger-led interpretive hikes, a commercial tour of the area by vehicle, sightseeing, camping, and learning about Native Hawaiian culture. Visitors to Kīpahulu are treated to views of waterfalls, sweeping ocean views, and Hawaiian cultural experiences. Main attractions for visitors in Kīpahulu included explorations of the Pools of 'Ohe'o (85.1%), swimming in the pools (48.6%), and hiking to Waimoku Falls (44.4%). During Pools of 'Ohe'o closures due to high water, visitors reported hiking (89.0%) and taking photographs (76.0%). Visitors also reported exploring the visitor center (28.3%), learning about Hawaiian culture (19.1%), or bird watching (13.0%) as main attractions during Pools of 'Ohe'o closures (Lawson *et al.*, 2008).

The Kīpahulu Valley is a popular destination for local, regional, and international visitors seeking outdoor opportunities. Most visitors to the Kīpahulu Valley claim U.S. residency (93.5%), with only 1% being Native Hawaiian. This suggests that a majority of visitors are off-island, non-local U.S. residents. See Figure 7 for the recreation visits collected at the Kīpahulu District entrance station. Counts were conducted by a traffic counter and multiplied by the parks' person per vehicle average (PPV). This area of the park has a traffic count multiplier of 2.5, which means that on average about 2.5 people are in each vehicle that enter this area of the park (Ziesler, 2017). In years where it appears visitation decreased the graph could be a reflection of temporary pool closures for things such as construction of a new comfort station/parking lot construction and other events requiring closure.

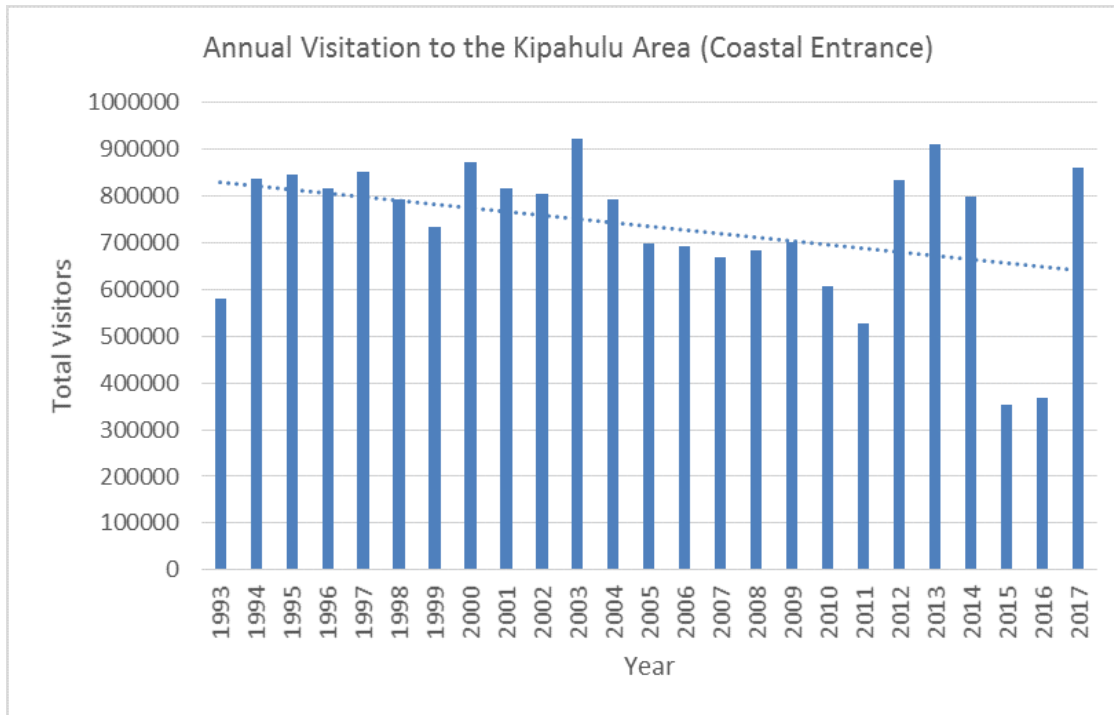


Figure 7. Annual Visitation to Kīpahulu Area

Average visitation for Kīpahulu from 1992–2017 was nearly 790,000 visitors each year. In 2002 and 2013, the area received its highest levels of visitation, with both years reaching nearly 1 million visitors. Haleakalā National Park receives approximately 1.2 million visits annually, suggesting that more than half of the total visitors to Haleakalā National Park visit the Kīpahulu Valley during their visit. A substantial decrease in visitation in 2015 and 2016 was observed, with annual visitation below 400,000. Visitation doubled to over 800,000 visitors in 2017. This 2017 increase is on par with the rest of the national park system, in that most park units experienced a rise in visitation.

Like many national parks, the Kīpahulu visitation patterns follow a similar pattern in which visitation increases in the summer months with peak visitation occurring in July (Figure 8). Visitation remains steady in the winter months, most likely due to Hawaii’s mild winters. Rainfall is concentrated in the winter, most notably in December and January.

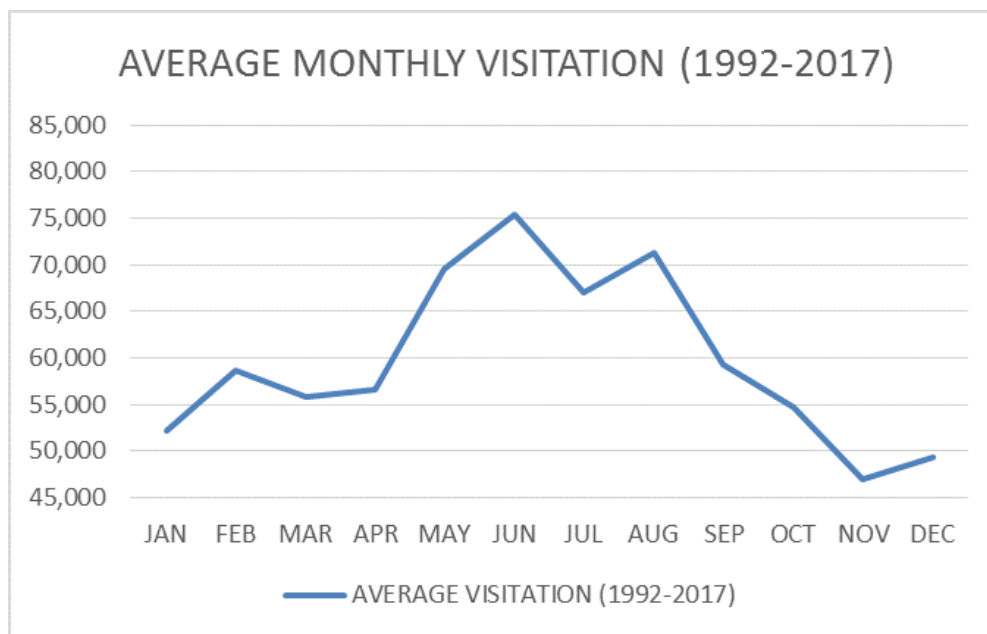


Figure 8. Kīpahulu District Average Monthly Visitation

Visitor Access to a Diverse Range of Visitor Opportunities and Experiences

Visitors can access the lower valley of Kīpahulu via the long winding Hāna Highway from the north through the community of Hāna or via the Pi'ilani Highway from the west by either personal or commercial vehicle. Of particular visitor safety concern is where the 'Ohe'o Gulch Bridge and nearby Pipīwai Trail crosses the Hāna Highway. This crossing is located in a forested area where driver visibility is limited; visitors who park along the narrow Hāna Highway during high park visitation days or visitors who walk along or in the road for direct access to the bridge are at risk. The designated pedestrian crossing has recently been improved with a designated crosswalk and signs, but may require additional strategies.

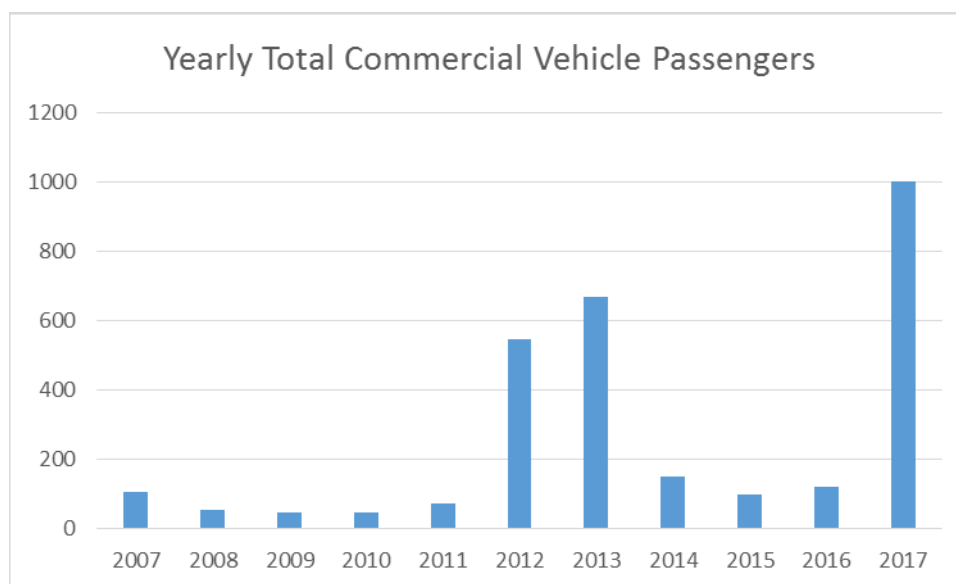


Figure 9. Yearly Total Commercial Vehicle Passengers

The main parking area holds 82 passenger vehicles and is approximately 1.2 acres in size. An additional overflow parking area that can accommodate approximately 63 passenger vehicles and mini-buses and 6 tour buses is located on the access road to the campground and is about half the size of the main parking area (.5 acres). There is a drop-off area for oversized vehicles and tour buses located in front of the visitor center. These parking areas serve as the only access point to support all of the unique experiences the Kīpahulu District has to offer, including the visitor center, Pools of ‘Ohe‘o, self-led hikes, and ranger-led programs. All areas mentioned above are currently crowded and congested during high-use times.

Visitor Activities

Hiking. Several trails exist in Kīpahulu, including The Pīpīwai Trail, Kūloa Point Trail, and Kahakai Trail. Each trail can be accessed via the parking and visitor center area, and are used for visitors seeking ocean vistas, the Pools of ‘Ohe‘o, and other opportunities for nature or cultural study. There is one trail reserved for commercial equestrian use only. In general, trails have limited accessibility for wheelchairs or persons requiring assistance.

The Pīpīwai Trail is considered the only backcountry trail in the Kīpahulu District and receives heavy use. It is a moderately strenuous 4-mile roundtrip to the terminus near Waimoku Falls, and is classified as one of the most scenic hikes on the island.

The Kūloa Point Trail is a short and easy half-mile loop trail, with some limited accessibility opportunities, that leaves from the Kīpahulu Visitor Center and continues past Hale Ku‘ai--a reconstruction of a traditional Hawaiian *hale* (house), important Hawaiian archeological sites, and Native Hawaiian coastal forest plantings, including *hala* (*Pandanus tectorius*). The trail then takes hikers to Kūloa Point, which sits at the mouth of ‘Ohe‘o Gulch and features ocean vistas and a historic wall.

Kahakai Trail (Coastal Trail) is a short and easy quarter-mile trail that sits between Kūloa Point and the Kīpahulu campground, featuring both cultural and natural features. The trail is known for its ocean vistas and a historic wall. Limited accessibility opportunities currently exist on this trail.

Camping. The campground does not provide water or electricity hookups, but does have basic amenities such as picnic tables, pedestal grills, and pit toilets and is an experience without a fee. Current visitor use issues related to the campground include litter, human waste, damage to amenities such as tables and grills, and increased amounts of trash and recycling. Also, without designated campsites or reservation sites, large, loud social groups gather, creating less-than-peaceful experiences for other types of visitors.

Messaging. Challenges associated with information dissemination exist. Risks associated with swimming at the pools include pathogens, slippery rocks, flash flooding, water-carried debris, underwater obstacles and rockslides. Swimming is not recommended, even when the pools are open. Messaging in airports, hotels, online, on-site, and through commercial tour operators exists about visitor safety, pool closures, and the variable weather systems that sweep through the valley, and also via a Traveler Information Station (1610 AM) that broadcasts 3–5 miles on either side of the Kīpahulu District.

Pools of ‘Ohe‘o. The Pools of ‘Ohe‘o are the main attraction for visitors to the Kīpahulu District, and are cultural, experiential, and natural resources. The Pools of ‘Ohe‘o provide tranquil escape to those who visit, with access to the pools by foot only. However, reports of crowding and congestion

are common. It has been noted that the Pools of ‘Ohe‘o are among the most important attractions to the area, and visitors could take it upon themselves to create trails in seeking access. In doing so, visitors have created three recreation sites at the pools, two of which were found to have a high level of recreation-related damage (Marion 2009). However, the Pools of ‘Ohe‘o are closed to swimming nearly 60% of the time for safety purposes. From January 2017 to April 2018, the pools were closed due to hazardous conditions presented by rockfall. Safety incidents, including fatalities, have typically involved visitors falling or jumping off rocks into pools along the ‘Ohe‘o Stream, or being washed out of the pools by a flash flood.

Environmental Consequences of Alternative 1: No Action

Under the no-action alternative, visitor access to diverse opportunities on trails is likely to see continued or increased adverse impacts. When trail and recreation site impacts were evaluated by a team of researchers (Marion 2006, 2009), several concerns associated with high use levels and congestion on trails were identified, most of which stem from visitors leaving designated trails. Effects of visitors going off-trail include trail widening and erosion, a network of visitor-created trails, and associated safety concerns that adversely impact visitor safety and the overall quality of the visitor experience.

Under the no-action alternative, the issues in the campground caused by visitor use are such that most of the time the desired visitor experiences and resources conditions are not being achieved and would continue to result in adverse impacts to the visitor experience. Visitors are expanding beyond the natural footprint of the campsites, decreasing the overall quality of the visitor experience. With current minimal visitor management, lack of designated sites, and lack of campground hosts, the campground environment is not family-friendly. Instead, the campground is the scene of unauthorized camping, large groups, and partying into the night, making it difficult for visitors to experience a peaceful setting or natural soundscapes. This, too, would result in continued or increased adverse impacts to visitor access to diverse experiences, as opportunities to hear the natural soundscape are diminished alongside the quality of the camping experience.

Given strategies in the no-action alternative, the opening and closure of the Pools of ‘Ohe‘o would continue to be based on visitor safety. Under the present closure of the pools due to rockfall hazards, adverse impacts are occurring to the visitor experience because swimming and wading in the pools have been primary experiences visitors expect in the Kīpahulu District. The closure of the pools has resulted in a decline in visitation to Kīpahulu. When the pools are open, safety messages would continue to make visitors aware of risks in the area, benefiting visitor safety by informing visitors of their risks.

The visitor-created access to the pools presents challenges for visitor management and visitor safety. Adverse impacts occur to the visitor experience when access to key experiences is from multiple, dispersed, non-designated locations. Visitor safety is also compromised as visitors navigate the rocky cliffs to gain access to the pools. Despite the adverse impacts, when the pools are open they would remain as a first-come, first-served experience and provide all visitors opportunities to engage in wading and swimming.

Visitor safety where the Pipīwai Trail crosses the Hāna Highway northeast of the park entrance would also adversely impact the visitor experience. Currently, the trail’s pedestrian crossing across the county-maintained highway is marked by signage and a crosswalk, but is still an area of risk. Visitors must cross the Hāna Highway, which has limited driver visibility due to the forested environment and winding path, without the aid of a stop sign or a traffic light. In addition, visitor safety risks would continue to adversely impact the visitor experience at the Kūloa Point Trail and on the Kahakai Trail, where the trails follow the rugged ocean coastline but do not have formally

designated safe viewing opportunities. Emergency response times are lengthy at all times, and are particularly prolonged during peak visitation in the midday hours when heavy visitor vehicle traffic can delay emergency responders coming from Hāna.

Environmental Consequences of Alternative 2 (Preferred Alternative)

Under alternative 2, adverse and beneficial impacts are likely to occur to visitor access to diverse opportunities on trails. Implementing visitor capacity on trails and at recreation sites within Kīpahulu could result in beneficial impacts by decreasing crowding and congestion on trails.

There are a range of actions in alternatives 2 and 3, as well as adaptive management strategies associated with implementing the identified visitor capacity, that would address the issue of congestion. Not all strategies, specifically the reservation or permit systems, would necessarily be implemented concurrently or immediately, but would be implemented based on feasibility, staff resources and park funding or as needed when thresholds are approached or as a part of managing visitor capacity. Strategies include the temporary or permanent closure of areas, trails, parking lots and/or the Pools of ‘Ohe‘o; as well as a permit or reservation system for trails, parking lots, and/or the Pools of ‘Ohe‘o. Beneficial impacts to the visitor experience could occur from strategies that decrease congestion.

While temporary or permanent closure of areas, trails, parking lots, or the Pools of ‘Ohe‘o for safety risk or high levels of oxybenzone in the water would result in decreased congestion, visitors are also likely to experience adverse impacts. In the short term, temporary closures are likely to result in moderate adverse impacts to visitors’ experience as they could return another time in the same day or wait for the experience to become available. However, permanent closures are likely to result in decreased visitation and decreased range of visitor opportunities.

Under alternative 2, a permit or reservation systems for trails, parking lots, the campground, or the Pools of ‘Ohe‘o would be implemented upon approaching thresholds (as a tentative future action) or as needed upon implementation of visitor capacity. A camping fee would also be implemented. Beneficial impacts result from providing security of access to some visitors through a confirmed reservation and/or permit that ensures time of entrance/location and access to key park experiences. Permit or reservation holders would also benefit by having access to these experiences that are actively managed to prevent crowded conditions. Adverse impacts can occur to visitors who do not obtain a reservation and are unable to access the Kīpahulu District and its key experiences. Adverse impacts could also occur to visitors who would have to pay an entrance fee and the new camping fee, which might alter and adversely impact visitor access to the camping experience. The impact would be minor on overall visitor access and use of the Kīpahulu campsite.

Beneficial impacts occur from strategies that provide visitor information through multiple outlets and convey NPS actions related to reducing congestion. The beneficial impacts are the result of visitors’ enhanced understanding of the impacts of their actions on resources and other visitors. Increasing maps, signage, and wayfinding would also result in beneficial impacts as visitors would more easily be able to reach an intended destination or be able to find an alternative destination, if a site cannot accommodate additional people.

Removal of visitor-created trails and campsites would guide where and how visitors access sites. By restoring these areas to deter access, visitors are less likely to unintentionally go to areas that may pose unknown risks to them.

The proposed project to add a viewing platform at the trail terminus overlooking Waimoku Falls will result in beneficial impacts to visitor access to a diverse range of opportunities and experiences. Providing a formal viewing platform would also enhance visitor safety.

Additional visitor access to a diverse range of opportunities would be provided and would result in beneficial impacts from actions related to connecting trails, new trails, new spur trails and linking to new visitor experiences. Specifically, accessibility improvements would provide additional visitor opportunities resulting in beneficial impacts by expanding the range of opportunities and experience.

Under alternative 2, the actions at the campground greatly enhance the quality of the visitor experience. Accessibility at the campground would be improved. Enhancements to campground management that would require a managed access system for specific sites could also enhance visitors' ability to plan in advance.

Under alternative 2, communication messaging at the pools would result in beneficial impacts by providing messages necessary to make informed decisions. This would result in beneficial impacts to visitor safety as visitors are informed and empowered to make decisions about risk-taking and participation in recreation activities around the pools.

Beneficial impacts to visitor safety occur by providing a safe viewing platform at the Kūloa Point Trail, adaptive strategies to manage visitor safety during high water events, and actions to enhance and formalize the Pipiwai Trail crossing at the highway. Visitor safety would be benefited as reduced emergency response times could result from the provision of park housing within the Kīpahulu District.

Environmental Consequences of Alternative 3

Much of the impact analysis from alternative 2 also applies to alternative 3, including impacts from actions to resolve crowding and congestion, temporary and/or permanent closure of key park experiences, developing a permit or reservation system (as a tentative future action), messaging, and revegetation of visitor-created trails. Accessibility would be improved. Enhancements to campground management that would require permits for specific sites could also enhance visitors' ability to plan for the semi-primitive experience that the Kīpahulu campground offers. However, alternative 3 does not recommend a campground host and therefore adverse impacts are likely to occur to visitor experiences as opportunities to hear the natural soundscape may be diminished.

Under alternative 3, the park would manage the Pools of 'Ohe'o as a closed area. This would adversely impact visitors' opportunities to participate in this unique key park experience. However, beneficial impacts would occur to visitor safety. The addition of viewing areas would improve and provide alternative experiences near the 'Ohe'o Gulch, adding some beneficial impact to visitor access to the experience. Visitor safety impacts remain largely the same as alternative 2 and further enhance visitor safety by adding barriers and safety measures by cliff edges and around the Pools of 'Ohe'o. Communication messaging would result in beneficial impacts to visitors' orientation by providing messages necessary to make informed decisions about locations where visitors are not expected to be warned of hazards by signs (Hazard and Risk Sign Policy Draft; Walsh & Bilderbeck).

Cumulative Impacts

'Ohe'o Gulch rockfall mitigation could result in long-term beneficial impacts to visitors and recurring short-term adverse impacts when the pools are closed for scaling. Closing the pools for the long term, as proposed in alternative 3, will result in adverse effects to the visitor experience as visitors will be displaced to other areas such as Waioka Pond ("Venus Pool") and the red sand beach. There is no formal parking at Waioka, and increased roadside parking would result in increased traffic congestion in the local community as well as damage to roadside resources. Similar impacts would be seen in Hāna, as there are no parking lots at the red sand beach and a visit would require

parking in the town. The trail to the beach is undeveloped, and the steep and narrow trail can be hazardous, especially in wet conditions. Additionally, there would be no staff at Waioka to warn visitors of flash floods, and there would be increased risk of an injury at the red sand beach due to increased use. The result is potential long-term, minor, displacement effects on visitor use and experience, as visitors would be displaced to seek other opportunities in the park or island.

The CSP will affect commercial visitors to Kīpahulu on road-based tours. Commercial visitors will be limited to select a road-based tour from four companies, a decrease from 19. While the number of companies providing tours will not be limited, these companies can provide the same level of service. The selected companies are also required to provide their clients with an educational/interpretive booklet specific for their NPS audience. Employees are also trained to minimize their impacts on park resources. Combined, these requirements add to the beneficial impacts of the alternatives. Overall, implementation of the CSP will provide beneficial long-term impacts through the duration of implementation for the CSP. Adverse impacts could occur throughout implementation from a lack of diversity of service availability resulting from limiting the number of companies providing road-based tours.

The effects of other past, current, and reasonably foreseeable future actions by others, in combination with the effects of the NPS action alternatives, would result in minor, beneficial, cumulative effects. Combining the effects of implementing the NPS action alternatives with the effects of other past, current, and reasonably foreseeable future actions described above, the cumulative long-term visitor use and experience impacts would be localized (to Maui), minor, and mostly beneficial.

Conclusion

The no-action alternative would likely result in some beneficial and adverse impacts to visitor access to diverse opportunities and visitor safety. Visitor access to diverse experiences would be adversely impacted due to continued crowding and congestion. Beneficial impacts would occur to visitor access as the Pools of ‘Ohe‘o and the campground would remain open as first-come, first-served opportunities. Beneficial impacts would result from communication about the risks associated with accessing the pools by providing information necessary for visitors’ to make informed decisions, but the safety risks, such as those from rockfalls, would remain.

Desired conditions for resources and visitor experiences are more likely to be achieved in alternative 2 than under the no-action alternative. Beneficial impacts would result from communication information about the risks associated with accessing the pools by providing messages necessary for visitors’ to make informed decisions. Overall, alternative 2 would likely result in greater beneficial impacts to the visitor experience with some minor and temporary adverse impacts over the no-action alternative.

Alternative 3 would be similar to those described in alternative 2. However, the closure of the Pools of ‘Ohe‘o would result in adverse impacts to visitor access to diverse opportunities and increased safety risks. Given how important the pools are to the Kīpahulu experience, this impact would likely result in a continuation of decreased visitation to the area that is currently seen during times of temporary closure. Overall, alternative 3 would likely result in greater adverse impacts to the visitor experience with some beneficial impacts over alternative 2, but would result in greater beneficial impacts than the no-action alternative.

SOCIOECONOMICS

This section describes the aspects of socioeconomics that may be affected by the Kīpahulu Comprehensive Plan alternatives. The following topics are discussed:

- Contributions of Tourism to the Local Economy
- Changes in Demographics
- Housing
- Quality of Life

Economic data, visitor use data, expected future visitor use, park records, and future developments of the Kīpahulu District as well as studies of similar actions and impacts were all considered in identifying, discussing, and evaluating expected impacts on the socioeconomic environment within the area of influence. The geographic area of influence analyzed for potential impacts on the socioeconomic environment is the surrounding communities around the Kīpahulu District including Hāna, Nāhiku, Wailua, Ke‘anae, Kaupō and Kēōkea, which collectively make up Census Tract 301 in Maui.

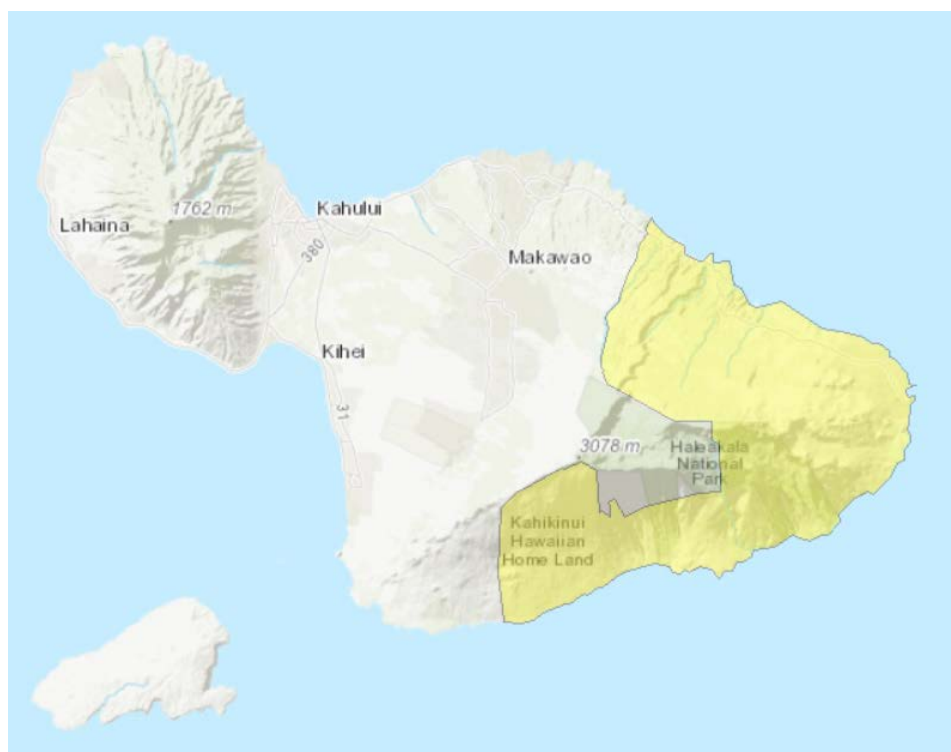


Figure 10. Kīpahulu Surrounding Communities, Census Tract 301

The effects of the alternatives of the socioeconomic environment were analyzed quantitatively and, where data lacked, qualitatively.

Affected Environment

Tourism plays an important role in the local and regional economy of Hawai‘i. Haleakalā National Park is a major tourist destination for visitors with one-half of all county of Maui visitors coming to the park annually (see Figure 23). The Kīpahulu District is located on the southeastern edge of the island of Maui, where approximately a third of all visitors coming to the county come annually to explore the pools and waterfalls of ‘Ohe‘o Gulch, hike in the multiple trails throughout the District’s forests, and camp overlooking sweeping ocean vistas.

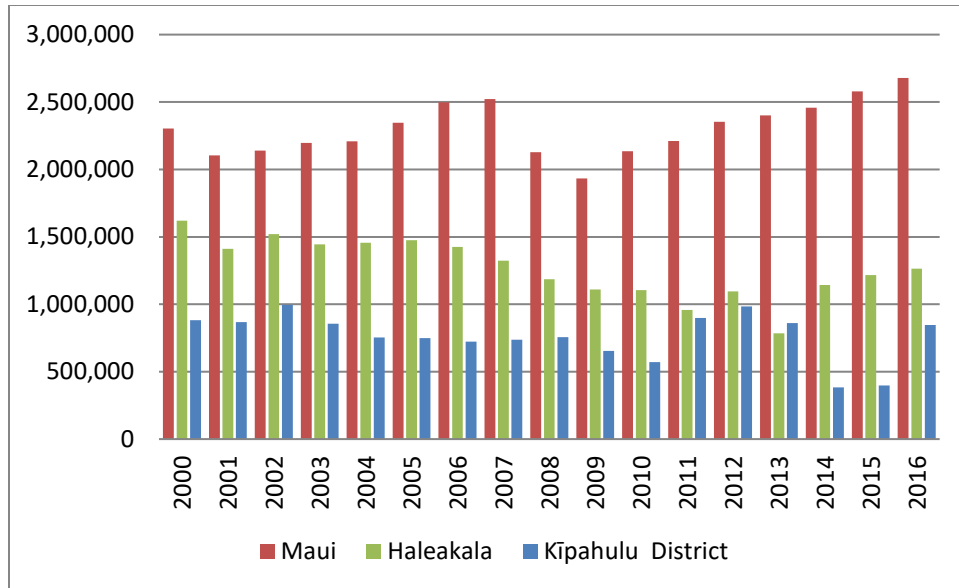


Figure 11. County of Maui and Park Total Visitors, 2000-2016

Source: DBEDT, Historical Visitor Statistics; NPS Visitor Use Statistics

In 2016, the population of the County of Maui was estimated at 165,384 while the population of the communities surrounding Kīpahulu was estimated at 1,755 (U.S. Census Bureau, 2012–2016 American Community Survey 5-Year Estimates). From 2000 to 2016, the resident population in the county increased by 29% while Kīpahulu’s surrounding communities population decreased by 5%. The population of the county is increasing faster than the state overall population, with a projected annual rate of 1.4% until 2040 (DBEDT 2012).

The economy of the county of Maui has a high reliance on the visitor industry, with 34,400 jobs or approximately 41% of all jobs in the county being visitor-related in the categories of food services, accommodation, retail trade, and arts, entertainment, and recreation (DBEDT 2018). Overall economic conditions for the county of Maui are positive with 2% unemployment rate, a net gain of 1,500 jobs, a 6.6% increase in visitor arrivals by air, and an 8.5% increase in visitor expenditure in the fourth quarter of 2017 (DBET 2018).

Reflecting the economic recovery that began in 2010, the number of visitors to the County of Maui has steadily increased since 2010 and visitor spending has followed the same trend (see Figure 24). After a couple of years of slowdown during the recession, the latest annual visitor research report (2016) indicates that visitor spending in the County of Maui has increased significantly to a record \$4.5 billion (DBEDT Historical Visitor Statistics 2017). The Department of Business, Economic Development, and Tourism projects visitation and spending will continue to continue to grow in the near future (DBEDT Tourism Forecast 2018).

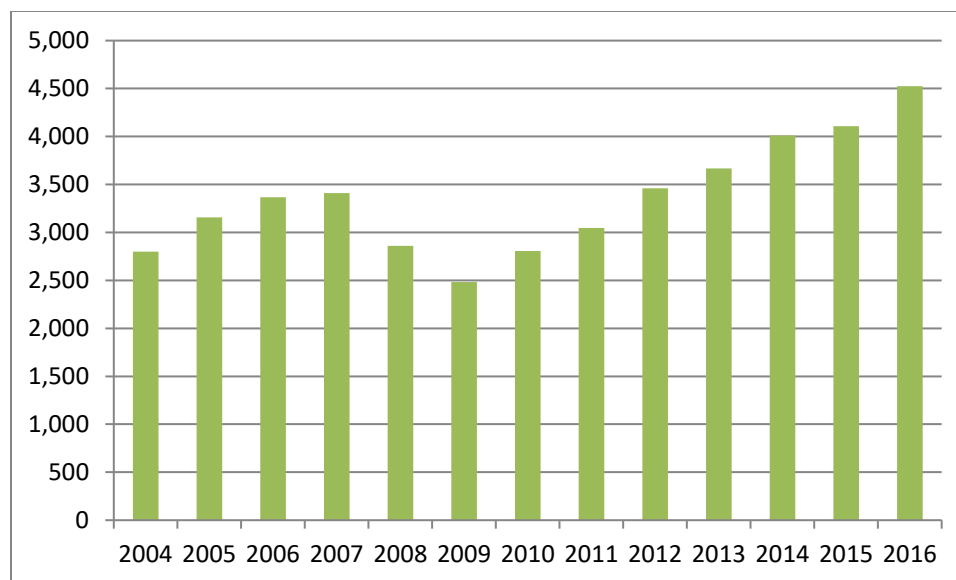


Figure 12. County of Maui Total Visitor Spending (in millions of dollars)

Source: DBEDT, Historical Visitor Statistics (pre-2004 data not available)

In 2016, an estimated total annual visitor spending of \$81.1 million was associated with the 1.26 million recreational visits to Haleakalā National Park. This visitor spending supported an estimated 951 jobs with an estimated labor income of \$37.1 million in the regional economy (Cullinane and Koontz 2017). Current commercial uses in Haleakalā National Park include hiking and bus tours.

The majority of visitors travel to Kīpahulu by way of the state and county-maintained Hāna Highway through the community of Hāna. The Kīpahulu District receives over 500 cars a day and about 1,500 to 1,800 people per day during peak times. The Hawai'i Department of Business, Economic Development & Tourism studies on the socio-cultural impacts of tourism report that local community members have raised concerns related to dispossession of previous residents or entrepreneurs, effects of new development associated with visitor accommodations, reliance on tourism, and questions about the quality of tourism employment (DBEDT 2004b). Social issues associated with increased area tourism and further development of the Hāna Highway include community identity, peace and quiet, and concerns with loss of ability to continue traditional subsistence practices.

The Kīpahulu District of Haleakalā National Park encompasses a significant portion of the traditional Hawaiian district of Kīpahulu, the smallest of the eight East Maui *moku* (districts). Fishing and farming continue to take place in the Kīpahulu area. The *lo'i* (taro fields) at Kapahu Living Farm are actively tended and serve as a community focus, particularly for East Maui youth.

The East Maui communities along the Hāna Road to Hāna and the Kīpahulu District experience high levels of tourism. Residents of the communities that lie along the highway have expressed concern with congestion on the highway, as well as the number of tourists visiting and using their communities (DBEDT 2004a-b).

Between 2000 and 2017, housing availability in East Maui increased, but housing prices rose as well. The median price of a single-family home increased from \$275,000 to \$695,000; or \$420,000 (153%) higher than in 2000 (DBEDT 2018). The number of housing units in the surrounding communities increased from 872 in 2000 to 1135 in 2010, the last year for which community level data is available. This represents a 30% increase from 2000 to 2010. As of 2018, there is no park housing in the Kīpahulu District.

Environmental Consequences of Alternative 1: No Action

Alternative 1 (no-action alternative) would not result in any change to current contributions that park visitation and operations have on the local and regional economy. The dynamic and interdependent relationship between the Kīpahulu District and neighboring communities would remain unchanged. Because alternative 1 would maintain the status quo, visitor spending, traffic on East Maui roads, and local housing conditions would be expected to remain as they are today. Housing for both permanent and seasonal employees would continue to be a challenge due to the limited availability of affordable housing in the communities near Kīpahulu.

Because visitor commercial services would generally continue as currently managed, business operators would not realize any economic changes due to the alternative. Service-related businesses supported by park visitation would continue to benefit from visitor expenditures inside the park and in the surrounding communities. Contributions to the local and regional economies that result from park visitation would continue to be beneficial.

Environmental Consequences of Alternative 2 (Preferred Alternative)

The analysis of economic impacts was based on one-time capital expenditures, such as construction projects, as well as the assumption of some level of increased visitation (given accessibility improvements, additional trails, and updated facilities). The proposals in alternative 2 are expected to affect visitor spending patterns and contributions that park operations make to the local economy. In terms of capital expenditures, alternative 2 would produce \$7.0 million in total construction costs over the next 20 years. Capital investments would include a new small visitor contact station, new entrance kiosk, improved trails and new trail connections, campground improvements, formalized overflow parking and emergency landing zone areas, rehabilitation to the baseyard (maintenance, resource storage, and work areas), expanded storage, and new park housing. The expanded range of visitor opportunities and experiences afforded by aforementioned capital investments has the potential to increase visitation.

Visitor-related businesses such as retail, arts, entertainment, accommodation, and food services would realize financial gains from increased visitation and associated increased visitor spending. Six NPS jobs would be created as a result of implementing alternative 2. This represents \$300,000 in direct labor income effect as the result of new park staff needed to operate and maintain new and improved facilities, trails, and visitor services in the Kīpahulu District. Employment in communities surrounding Kīpahulu (census tract 301) is approximately 809 (2016 estimate), so the additional jobs would increase employment by 0.7%. Therefore, the long-term impacts associated with sales in visitor-related businesses and local employment would be localized, negligible, and beneficial. Cost to overnight visitors will be affected by the new camping fee. The camping fee would be set based on a comparison of park facilities, services, and rate structures to similar, private and public facilities and services in the area. This increase in cost associated with visitor amenity use has the potential to displace lower-income visitors and have minor impact on overall visitation and use of the Kīpahulu campsite.

The addition of four permanent and two temporary positions as well as temporary jobs due to construction activity could translate into greater demand for housing, if most of the additional employees come from outside the neighboring communities and need housing near the Kīpahulu District. Greater demand for housing, if felt at all, would likely be concentrated in the surrounding communities as housing for additional park staff or temporary employees may be difficult to obtain and could make it difficult to recruit and maintain these positions. The construction of three housing units within the District and rehabilitation of the bunkhouse for short-term volunteers and staff use would mitigate the increased demand for housing in the surrounding communities. Therefore, the long-term impacts related to housing would be localized, negligible, and beneficial.

Additional vehicles on East Maui roads from increased visitation would further aggravate the neighboring communities' concerns associated with traffic problems in and around Kīpahulu and the effects of high number of visitors in the community's social fabric and way of life. The addition of a second fee station to be used during peak time would reduce or eliminate instances of vehicles waiting to enter the park extending onto the highway. The additional vehicles from increased visitation would have a localized, adverse impact on local quality of life and the impacts on road congestion at the park entrance would be mitigated by the addition of a second fee station that would expedite entrance time to the park.

Environmental Consequences of Alternative 3

Analysis of economic impacts under alternative 3 was based on the closing of the Pools of 'Ohe'o, potential closure of the Kapahu Trail, visitor access improvements in other areas of the Kīpahulu District, and the estimated one-time capital expenditures, which, in turn, would affect visitor spending patterns as well as contributions that park operations make to the local economy. In terms of capital expenditures, alternative 3 would produce \$7.7 million in total construction costs over the next 20 years.

With the main attraction of the Kīpahulu District closed to the public under this alternative, which in turn would likely result in a decrease in visitation, adverse economic impacts would be expected on the local tourism industry and associated service-related businesses. Promoting and expanding the new and improved visitor opportunities at Kīpahulu, such as increased access to the Kapahu Living Farm, new arboretum, and new cultural programming, would mitigate impacts on visitation and could improve visitor experience from higher quality dispersed visitor use. To the extent that additional information, orientation, and programming maintains visitation levels and disperses use, this alternative would represent a long-term beneficial impact to the local and regional tourism and recreation economy.

Cost to overnight visitors will be affected by the new camping fee. The camping fee would be set based on a comparison of park facilities, services, and rate structures to similar, private and public facilities and services in the area. This increase in cost associated with visitor amenity use has the potential to displace lower-income visitors and have minor impact on overall visitation and use of the Kīpahulu campsite.

Similar to alternative 2, long-term housing impacts, if noticeable at all, would be minimal and beneficial and would be concentrated in Kīpahulu area as the creation of six jobs and three park housing units are not large enough to create a discernable impact on the housing market at the county level. However, providing park housing units would address the neighboring communities' concern of adding pressure to the already existing housing shortages and further contributing to housing demand and cost increases. Consequently, the long-term impacts related to housing would be localized, negligible, and beneficial.

Cumulative Impacts

Improvements to the 32-mile section of the Hāna Highway from Huelo to Hāna would have short-term, adverse impacts on East Maui tourism economy due to roadwork activity. Kīpahulu District visitors are an important economic driver that contribute to the local and regional economy through the wide variety of activities they engage in when visiting—eating out, shopping at local stores, exploring local attractions, going on tours, etc. However, large numbers of visitors have other impacts on the local community, including increases in traffic congestion on East Maui roads and changes to the town character that locals wish to preserve. Short-term employment impacts as a result of road improvement activities would likely be beneficial and short-term if most of the temporary employees come from the neighboring communities. The improvement of the Hāna Highway may ultimately result in additional visitors being drawn to and accommodated in southeastern Maui communities. The action alternatives could result in long-term, beneficial economic effects on tourism-related business and adverse impacts on local traffic, due to the changes in visitor use, visitor distribution and levels.

The effects of other past, current, and reasonably foreseeable future actions by others, including the improvements of the Hāna Highway, the implementation of the NPS Commercial Services Plan, in combination with the effects of the NPS action alternatives, would result in minor, beneficial, cumulative effects. Combining the effects of implementing the NPS action alternatives with the effects of other past, current, and reasonably foreseeable future actions described above, the cumulative long-term socioeconomic impacts would be localized and beneficial. The NPS action alternatives would contribute a very small increment to this cumulative impact.

Conclusion

Visitor access, in conjunction with high-quality visitor experiences, are the most influential factors in determining length of stay in an area and willingness to return for a visit. Longer length of stays and return visits tend to result in beneficial economic impacts on surrounding communities. Because there would be no change to current contributions from park visitation and operations within the surrounding activities under the no-action alternative, long-term and short-term impacts on the socioeconomic environment would be localized, negligible, and neutral. As a result, traffic and housing, as well as economic activity related to park visitation and operations for communities along the Hāna Highway, would remain unchanged.

The most notable impact of alternative 2 is the improvement of visitor access and additional opportunities for visitors to learn about Native Hawaiian culture and the cultural importance of the Kīpahulu District's resources. The implementation of alternative 3 would result in the closing of the Pools of 'Ohe'o and removal of the Hale Ku'ai which would reduce the visitor enjoyment opportunities in the District. Alternative 3 would have localized adverse impacts on the socioeconomic environment.

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Chapter 4

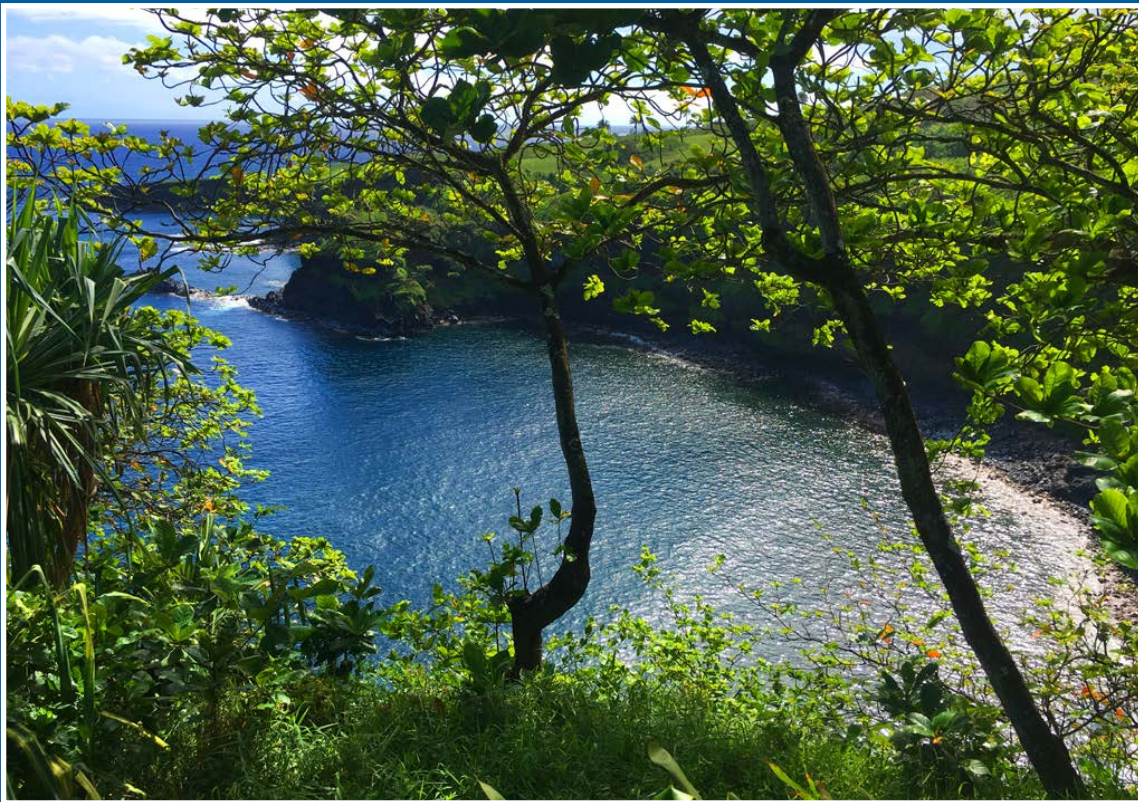
Preparers and Consultants and References



Hale with interpretive panel



Banyan tree on Pipiwai Trail



View from bunkhouse to ocean

Chapter Four Divider Back

CHAPTER 4: PREPARERS AND CONSULTANTS AND REFERENCES

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Hawai'i Department of Land and Natural Resources – Division of Forestry and Wildlife
Hawai'i Department of Land and Natural Resources – Land Division
Hawai'i Department of Land and Natural Resources – State Historic Preservation Division
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Aha Moku O Maui, Inc.
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Brian Kaniela Nae'ole Na'au
George K. Cypher 'Ohana
Kīpahulu 'Ohana
Kuloloi'a Lineage
Kumu A'o
Na Koa Ikaika Ka Lahui Hawaii
Nekaifes 'Ohana
Waiehu Kou Phase 3 Association

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Appendixes



Handmade leis of fresh leaves and flowers



Ocean view at Kūloa Point



Pools of 'Ohe'o

Appendix Divider Back

APPENDIX A: ALTERNATIVES MAPS – DETAILED AREAS

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Back of Detail Area Overview Map

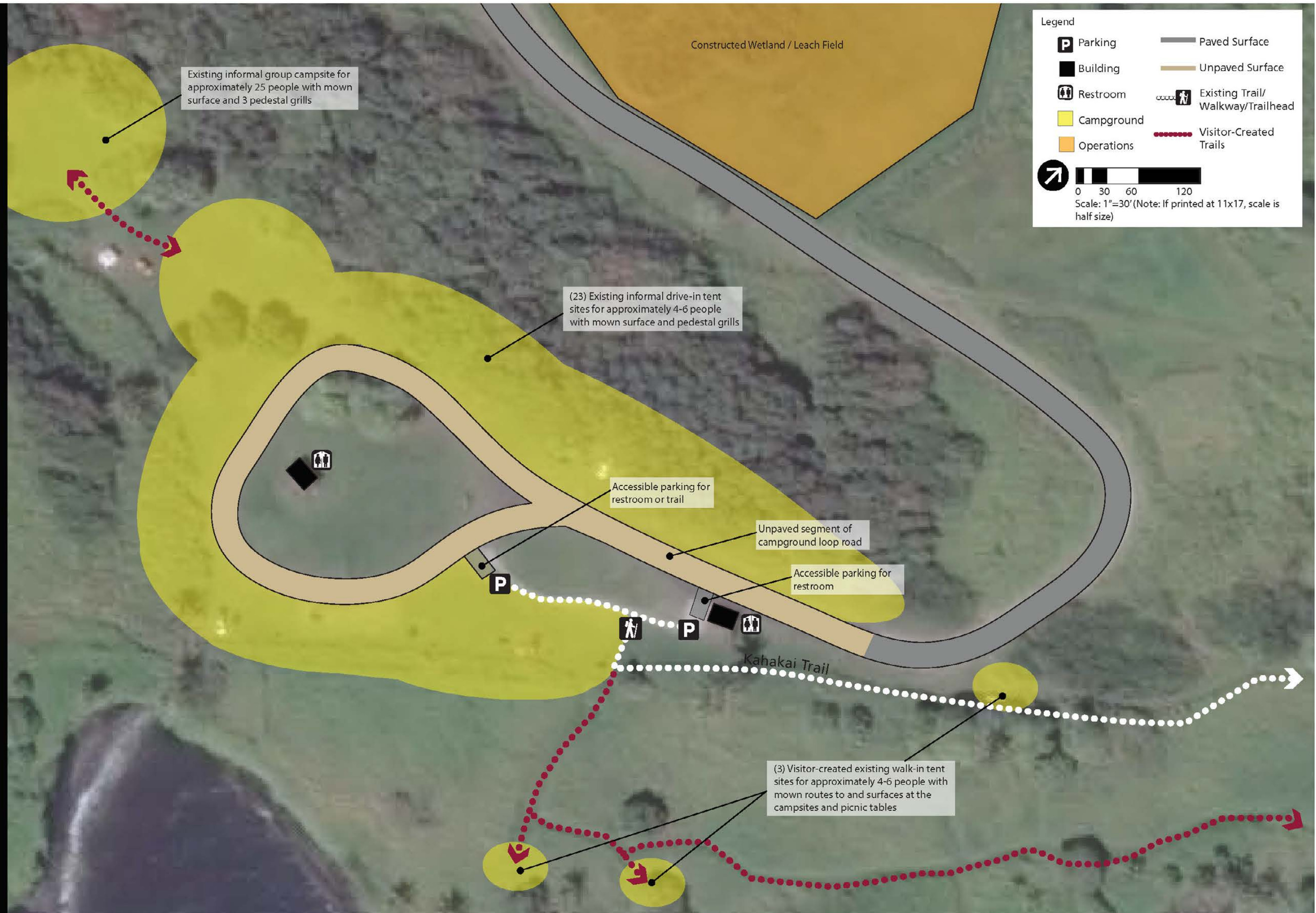


Back of Alt. 1 Baseyard Map



National Park Service
U.S. Department of the Interior

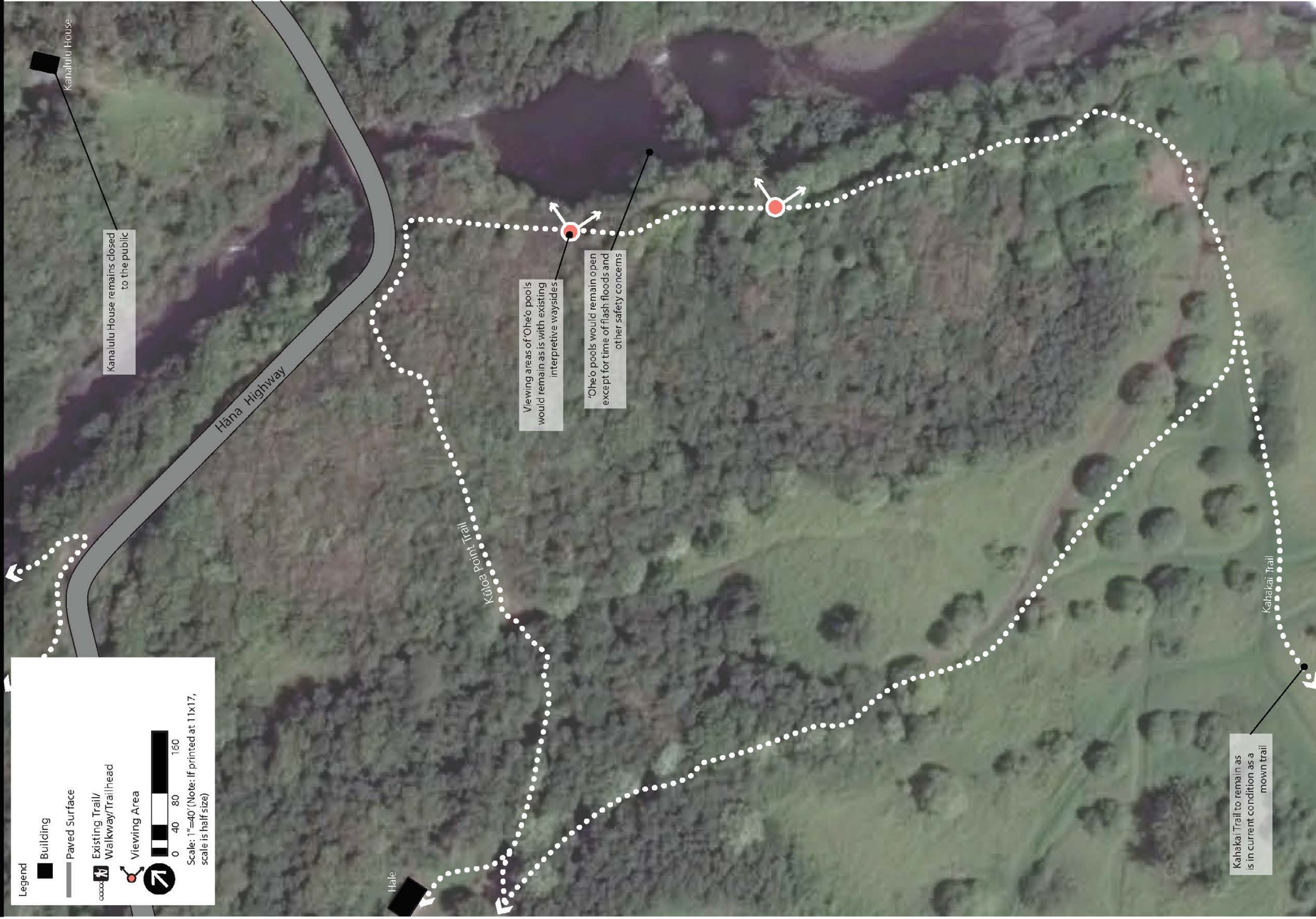
Haleakalā National Park
Kīpahulu Comprehensive Plan
Alternative 1: No-Action (Campground Detail)



Back of Alt 1 Campground Map



Back of Alt. 1 Visitor Use Area Map



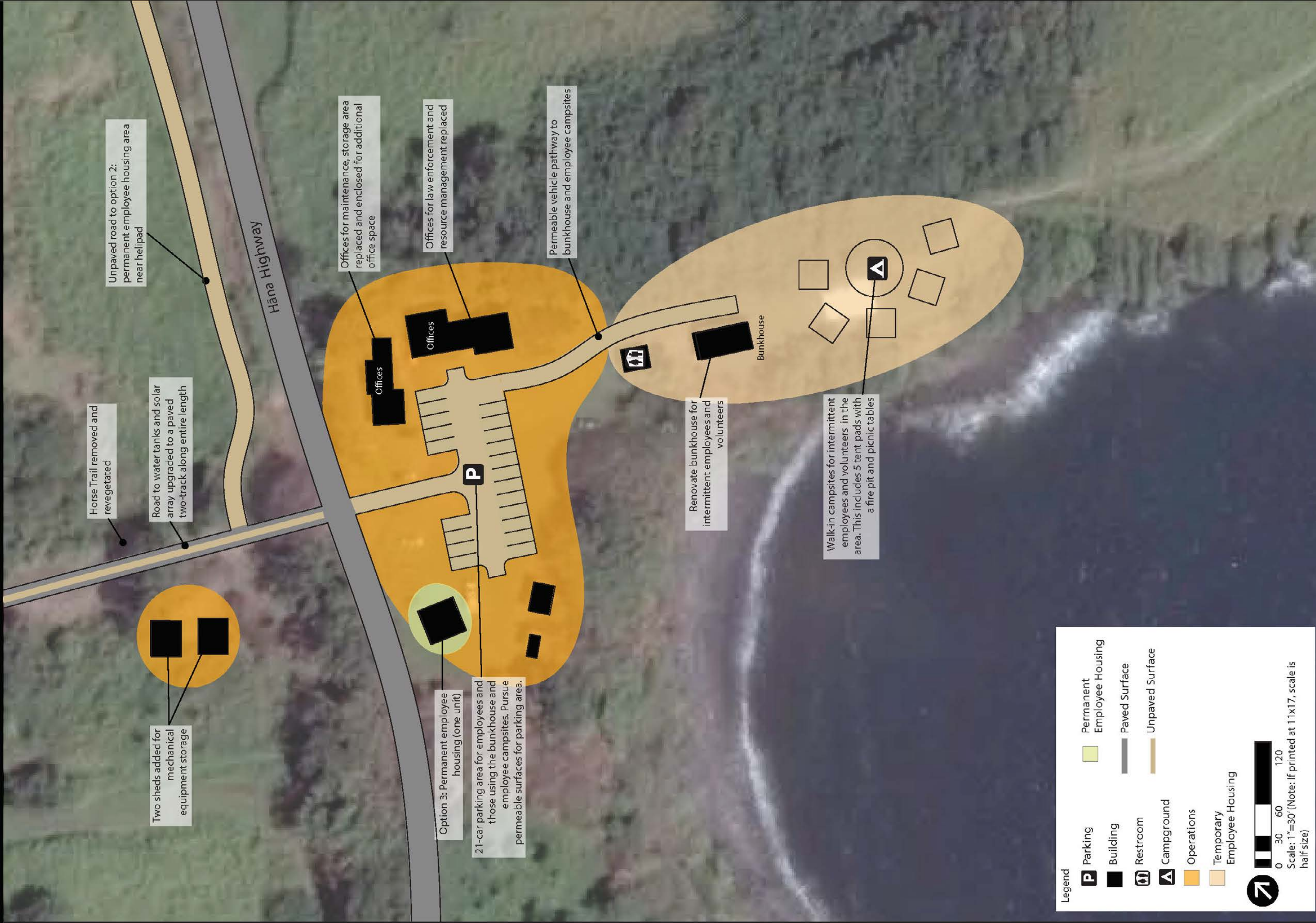
Back of Alt. 1 Trails Detail Map

Haleakalā National Park

Kīpahulu Comprehensive Plan

Alternative 2: Preferred Alternative (Baseyard Detail)

National Park Service
U.S. Department of the Interior

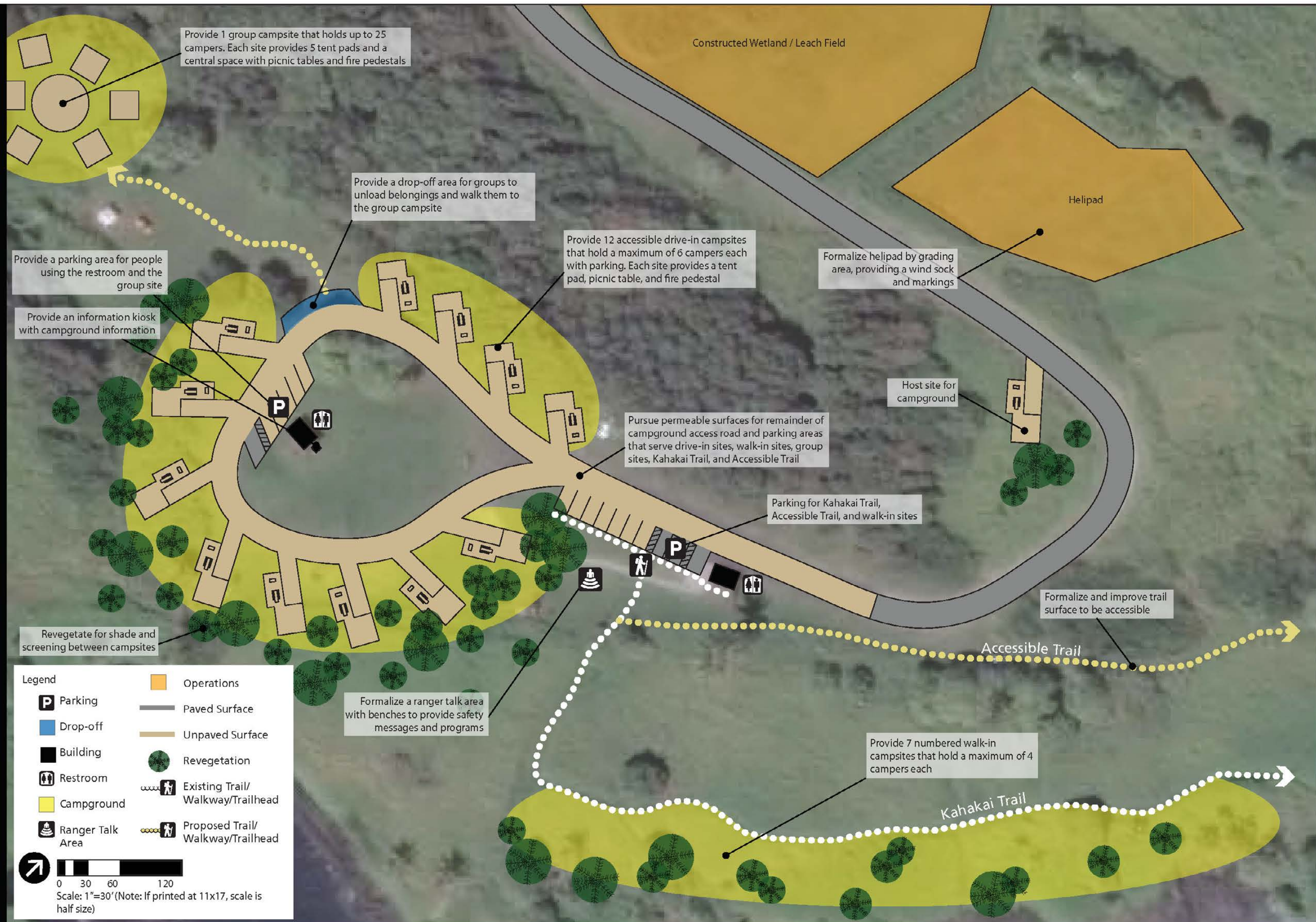


Back of Alt. 2 Baseyard Detail Map



National Park Service
U.S. Department of the Interior

Haleakalā National Park
Kīpahulu Comprehensive Plan
Alternative 2: Preferred Alternative (Campground Detail)



Back of Alt. 2 Campground Map



National Park Service
U.S. Department of the Interior

Haleakalā National Park

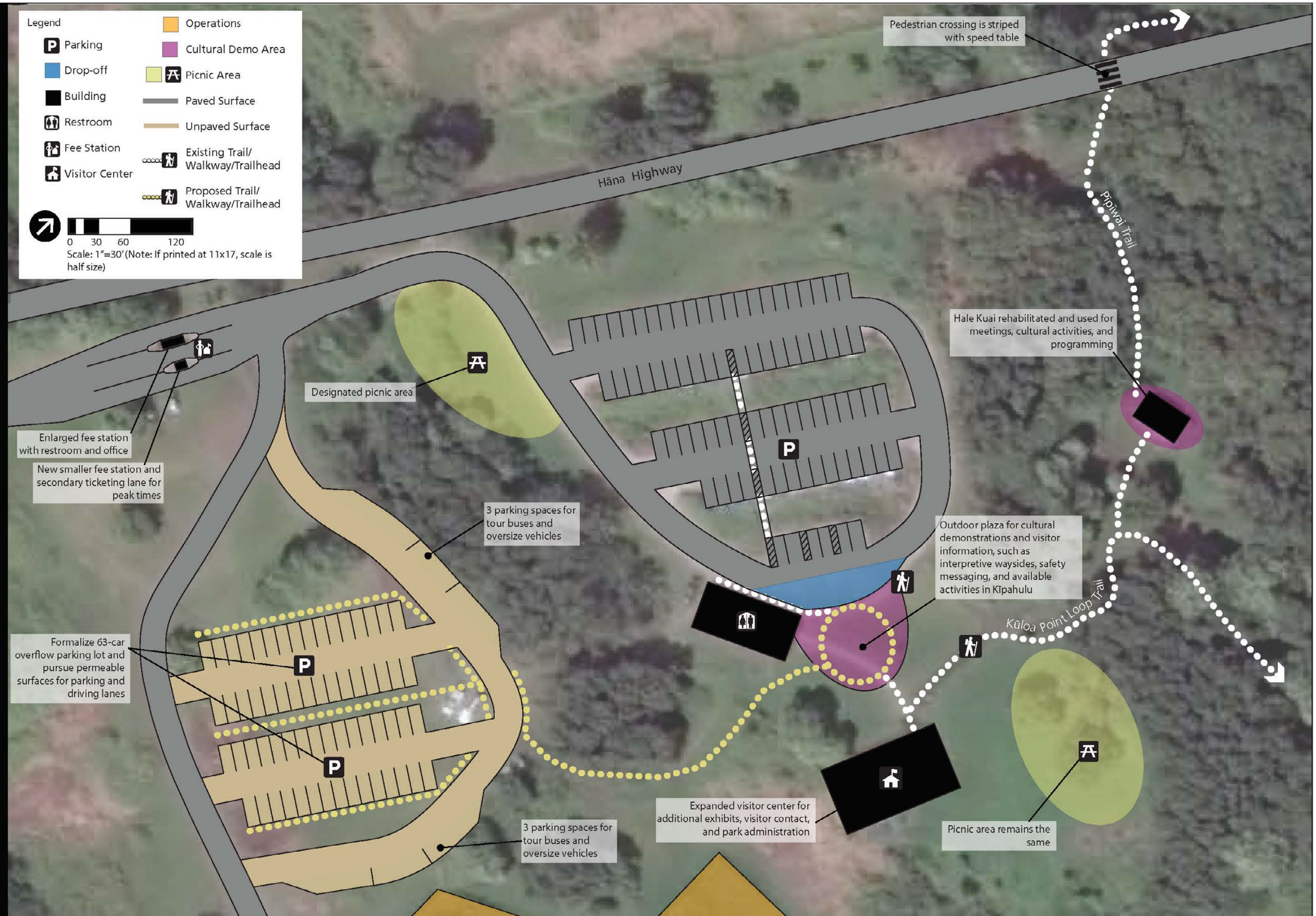
Kīpahulu Comprehensive Plan

Alternative 2: Preferred Alternative (Visitor Use Area Detail)

Legend

Parking	Operations
Drop-off	Cultural Demo Area
Building	Picnic Area
Restroom	Paved Surface
Fee Station	Unpaved Surface
Visitor Center	Existing Trail/ Walkway/Trailhead
	Proposed Trail/ Walkway/Trailhead

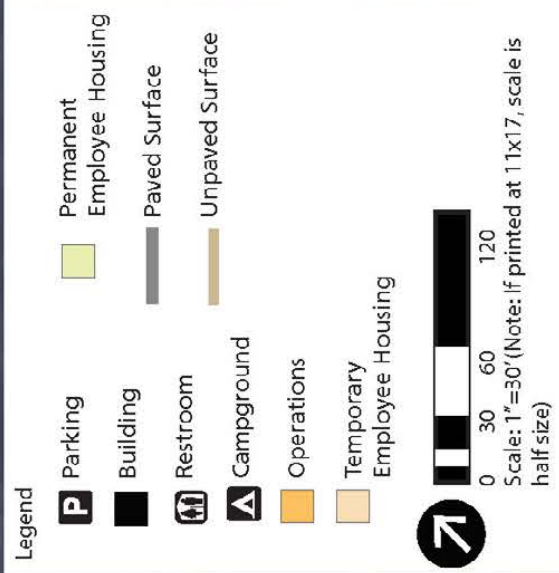
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Back of Visitor Use Area Map



Back of Alt. 2 Trails Detail Map

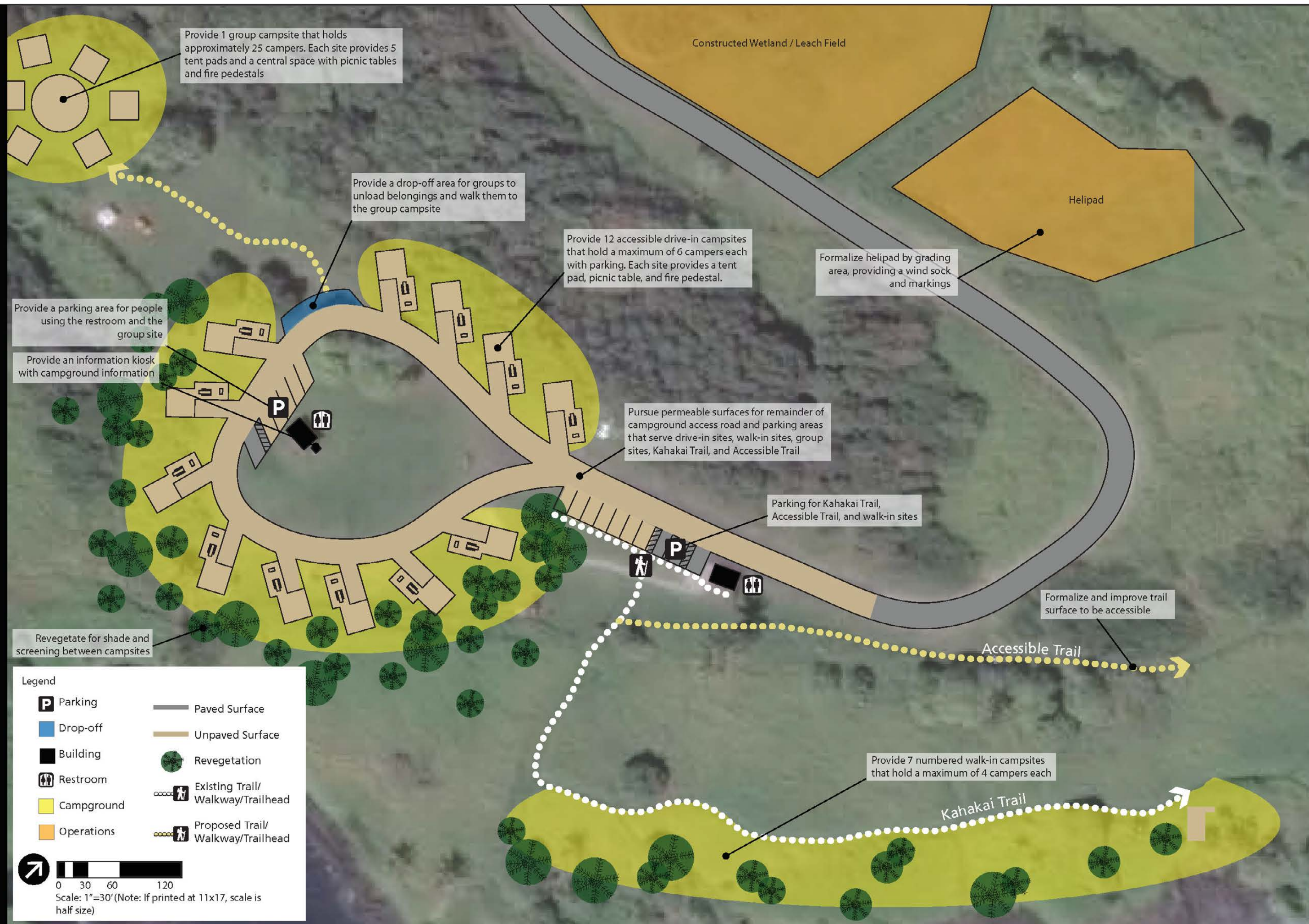


Back of Alt. 3 Baseyard Map



National Park Service
U.S. Department of the Interior

Haleakalā National Park
Kīpahulu Comprehensive Plan
Alternative 3 (Campground Detail)



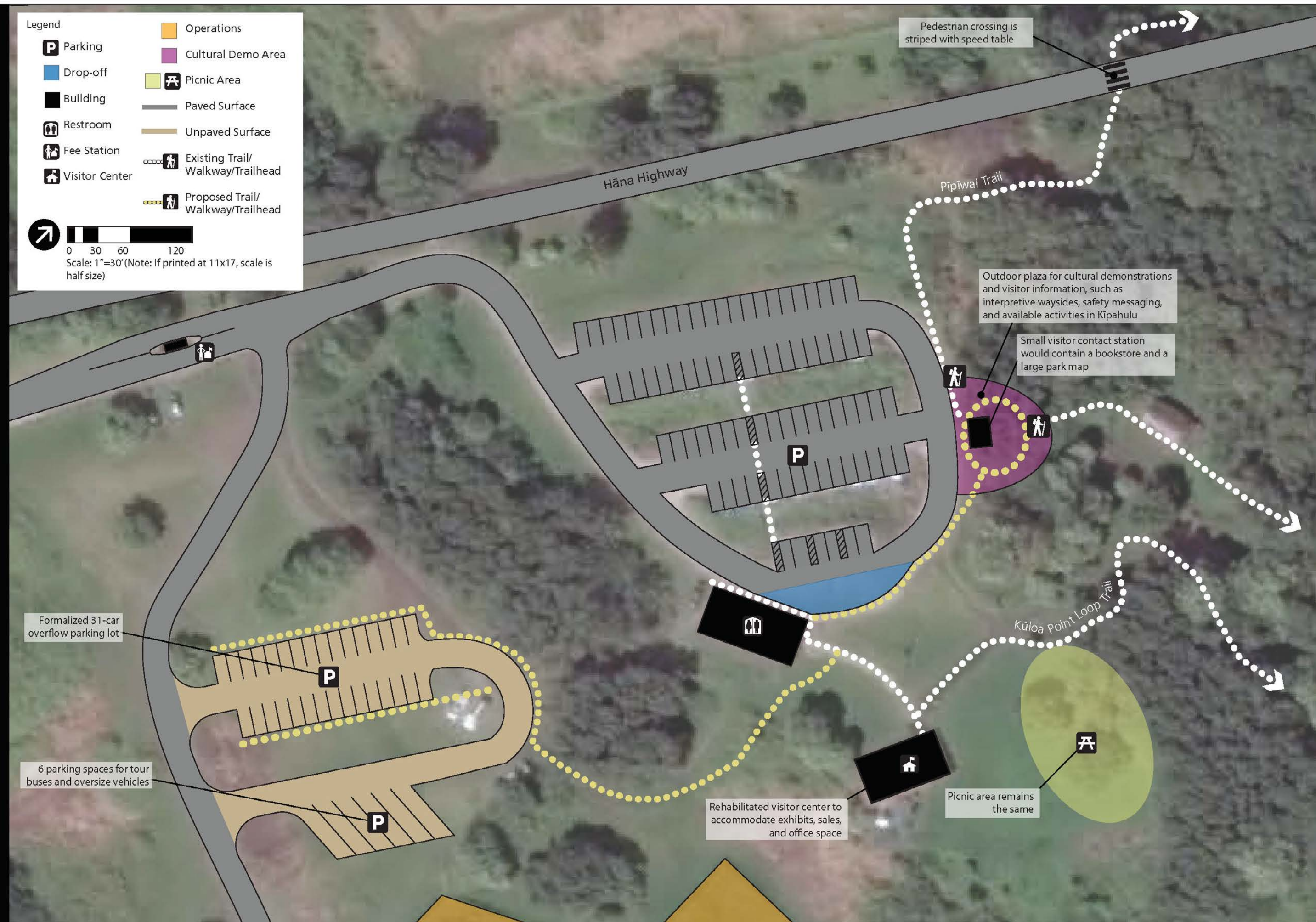
Back of Alt. 3 Campground Map



Legend

Parking	Operations
Drop-off	Cultural Demo Area
Building	Picnic Area
Restroom	Paved Surface
Fee Station	Unpaved Surface
Visitor Center	Existing Trail/ Walkway/Trailhead
	Proposed Trail/ Walkway/Trailhead

Scale: 1"=30' (Note: If printed at 11x17, scale is half size)



Back of Alt 3. Visitor Use Map



Back of Alt. 3 Trails Map

APPENDIX B: VISITOR USE MANAGEMENT INDICATORS AND THRESHOLDS

Indicators translate goals and objectives into measurable attributes (e.g., lineal extent of visitor-created trails) that when tracked over time, evaluate change in resource or experiential conditions. Indicators are critical components of monitoring the success of the comprehensive plan and are considered common to all action alternatives. The interdisciplinary planning team considered the central issues and developed related indicators that would help identify when the level of impact becomes cause for concern and management action may be needed. Indicators described below were considered the most critical, given the importance and vulnerability of the resource or visitor experience affected by types of visitor use. The planning team also reviewed the experiences of other park units with similar issues to identify meaningful indicators.

Thresholds represent the minimum acceptable condition for each indicator and were established by considering qualitative descriptions of the goals and objectives, data on existing conditions, relevant research studies, professional judgement of staff based on management experience, and public preferences. Although defined as “minimally acceptable,” thresholds still represent acceptable conditions. Establishing thresholds does not imply that no action would be taken prior to reaching the threshold. Thresholds identify when conditions approach unacceptable levels and serve as mechanisms to alert managers and the public that corrective action must be taken to keep conditions acceptable. Ultimately, indicators and thresholds set managers up with good monitoring protocols to allow maintain and achieve desired conditions for resources and visitor experiences and tracked over time.

Indicators, thresholds, monitoring protocols, management strategies, and mitigation measures would be implemented as a result of this planning effort and are described below and are considered to be a part of the alternatives and proposals of the plan. Indicators would be applied to both action alternatives described within this plan. The planning team arrived at the following indicator topics that would translate the desired conditions into measurable attributes that could be tracked over time:

1. Crowding at Facilities and Visitor Use Areas
2. Damage to Archeological Resources
3. Nonnative Species
4. Natural Soundscapes
5. Visitor-created Trails
6. Visitor Safety
7. Water Quality

CROWDING AT FACILITIES AND VISITOR USE AREAS

Indicator: Percent of time the overflow parking lot is full each month.

Threshold: Overflow parking lot is full no more 75 % of time each month.

Rationale for Indicator and Threshold: The number of times the overflow parking lot is full is an indicator for the quality of the orientation and support services experience. It is also a proxy for the congestion concerns and density of people at facilities. This is related to traffic congestion and safety associated with vehicles backing up on the highway and traffic on the highway at the entrance station.

Monitoring: The park is currently monitoring this informally through comment cards and through observation by entrance gate attendants. The park will develop a more formal monitoring protocol.

Management Strategies and Mitigation Measures:

- Provide real-time information regarding parking and access opportunities such as text alerts and radio station updates.
- Post signs indicating parking is at capacity and suggest returning at a later, designated time.
- Make greater public education efforts to encourage voluntary redistribution of use to off-peak times.

Adaptive Management Strategies

- Consider changing the commercial service schedule to bring visitors during non-peak times or for spacing out commercial buses and vans throughout the day.
- Consider a temporary closure until vehicles leave the area. Actions might include turning vehicles around and back out to the highway. Consider pursuing shuttle options between Hāna and park during peak seasons or times.

Damage to Archeological Resources

Indicator: Percent change over time of archeological site condition (poor, fair, good, excellent, destroyed, cannot be found) due to visitor use measured annually.

Threshold: No more than one documented incident of downgrading site condition as recorded in Archeological Sites Management Information System (ASMIS) due to visitor use impacts.

Rationale for Indicator and Threshold: There are numerous archeological sites located within the visitor use areas of Kīpahulu, such as rock walls and foundation remnants. Many of these sites sit close to areas with high visitor use including the campground and trails. Some of the sites are being impacted by unauthorized visitor use such as off-trail exploration, looting, and disturbing stone ruins.

Visitor damage to archeological sites can occur through both intentional and unintentional means. Both types can cause impacts that influence the integrity of these resources. Continued and increasing visitor use and the resulting deterioration of trail conditions coupled with increased vegetation growth could impact archeological sites. This indicator measures damage to identified park archeological sites.

Archeological sites are non-renewable resources and as a result, the threshold is low. By the nature of archeological resources, all impacts to archeological sites and artifacts are permanent. Much of the documented damage to the Lower Kīpahulu Valley's archeological sites is the result of vegetative overgrowth and wildlife, although visitor impacts have also been witnessed. Considering the level of damage attributed to intentional and unintentional visitor impacts, even slight changes in the indicator (archeological site condition) make a reasonable visitor use threshold to evaluate how the park can continue to preserve the archeological resources at Kīpahulu.

Monitoring: The Lower Kīpahulu Valley has 12 sites (with 60 features) recorded in ASMIS. The sites are on a schedule of monitoring set by the park, at an interval of five to 15 years. The monitoring is intensive and includes photo documentation to measure change over time from a variety of issues such as vandalism, erosion, and other issues. Ideally, the park will update the monitoring schedule to a shorter timeframe, such as every 5 years. The park will continue to explore photogrammetry and

implementation (3D imaging). The park will also continue to explore the change in condition (FCI) over time for FMSS maintained assets or change in deferred maintenance as a monitoring mechanism.

Management Strategies and Mitigation Measures:

- Educate visitors through interpretive panels, interpretive programming, and visitor outreach on the sensitivity of archeological resources and the need to protect historical sites.
- Establish regular communication mechanisms with local Native Hawaiian Organizations to understand traditional cultural resource locations and activities.
- Increase park presence or patrol of visible frontcountry archeological sites during times of high visitor use.
- Formalize campground to allow for additional archeological site identification and interpretation and to decrease unintentional visitor damage.
- Continue monitoring of known sites by park staff and/or park-trained site stewards.
- Document changing site conditions and damage analysis by NPS-approved archeologist.
- Prioritize documentation in high visitor use areas and frontcountry sites.
- Conduct archeological site testing and provide recommendations to inform management strategies.
- Add identified archeological sites to park FMSS database to allow for facilities-based projects and additional staff support for the preservation and care of archeological features.
- Increase enforcement for vandalism and looting.
- Erect physical barriers and/or reroute trails to protect exposed and highly visible archeological sites from visitor impacts.
- Consider area or trail closures if management strategies and mitigation measures have proven ineffective in addressing visitor impacts to archeological sites and resources.

New Nonnative Species

Indicator: Number of new nonnative species measured annually.

Threshold: Zero new nonnative species if it is an ecosystem modifying species (e.g., *Miconia*, *Albizia*, *Cortaderia jubata*, faya tree, fire ant) or species that pose threats to human health and safety (e.g., little fire ant) directly linked to visitor impacts.

Rationale for Indicator and Threshold: Knowing that the number of nonnative species may increase due to reasons beyond the NPS's control, for example, climate change, the rationale for this indicator is linked specifically to visitor-caused new nonnative species. Park staff and experts from the NPS Inventory and Monitoring program noted that invasive aquatic species are not a concern in the Lower Kīpahulu Valley and are therefore not considered as a part of this indicator and threshold.

The no tolerance threshold is important to the potential introduction of new nonnative species that are potentially ecosystem-modifying species or that pose significant threats to human health and safety. There is a great need to minimize the threat of these species through prevention, early detection, and rapid eradication or containment.

Upper Kīpahulu Preserve may serve as a baseline for nonnative species to directly link the increase in nonnative species to visitor use.

Monitoring:

- Vegetation monitoring efforts are outlined in the 2011 Focal Terrestrial Plant Communities Monitoring Protocol and the 2012 Established Invasive Plant Species Monitoring Protocol,

courtesy of the Pacific Island Network.

- Vegetation staff currently monitor for nonnative species invasions via aerial surveys and ground surveillance.
- Entities including the Hawai'i Department of Agriculture, the U.S. Geological Survey, and the Maui Invasive Species Committee conduct surveys and would alert the NPS if a new invasive species was detected on Maui.
- Newer approaches such as remote sensing and species distribution modeling would be used if appropriate and feasible.
- A comprehensive database of all nonnative plant species present in Hawai'i would assist early detection.
- Nursery and roadside surveys assist in early detection of nonnative species. The park will work closely with partners at the Kapahu Living Farm to monitor the establishment of potential invasive species.

Management Strategies and Mitigation Measures:

- Remove nonnative species via helicopter spraying, cutting and chemically treating stumps, and other manual or biological control methods.
- Provide education related to nonnative species and possible vectors associated with visitor use. This information could be provided at the airport, on airplanes, at rental car areas, and at the park.
- Provide wash stations for shoes and gear with signs explaining the purpose.
- Improve partnerships and collaborative action plans with other entities concerned with invasive species, such as the Rapid Ohia Death Working group and Maui Conservation Alliance.
- Close areas or trails if invasive species are detected to decrease the risk of further spread. Establish Special Ecological Areas to exclude invasive plants from designated areas.

Natural Soundscapes

1) ***Indicator:*** Increase in dBA over natural ambient at the Pools of 'Ohe'o

Threshold: Anthropogenic noise will not increase above natural ambient more than 3 dBA at Pools of 'Ohe'o (ST8) and Kīpahulu Coastal Measurement Site (PO3) for 90% of daytime hours from 6 a.m.–6 p.m.

2) ***Indicator:*** Human-caused noise time audible at specific point along Pipīwai Trail

Threshold: Human-caused noise percent time audible should not exceed 10% within a bamboo forest approximately 1 mile up (about halfway up) the trail, away from trailhead noise on the Pipīwai Trail during daytime hours from 6 a.m.–6 p.m. This means that natural only sounds should occur 90% of the time.

3) ***Indicator:*** Nighttime noise events at Kīpahulu campground

Threshold: Nighttime from 6 p.m.–6 .am. noise events at Kīpahulu campground do not exceed 45 dBA and no more than two noise events per night.

Rationale for Indicator and Threshold: The Kīpahulu area is one of the best areas in the park to experience the natural sounds and acoustical environment of the coastal and upland resources. Human-caused noise can affect cultural and natural resources, as well as visitor experience. In the Kīpahulu area, human-generated noise from air tours, trail users, and the campground users can disrupt visitor opportunities to experience the coastal soundscapes. More specifically, bamboo

forest clacking is a special experience, quiet at the campground is important, and access to the base of the 400-ft-high Waimoku Falls with its sounds is unique in the state.

A common measurement of an acoustic environment is sound pressure level (SPL). SPL is a logarithmic measure of pressure relative to a reference value and referred to as decibels (dB). National parks such as Zion, as well as the NPS Natural Sounds and Night Skies Division (NSNSD), rely on various metrics that capture different dimensions of the acoustic environment. One indicator of a change in the acoustic quality for local conditions is an increase in sound pressure level over natural ambient. Natural ambient is composed of the natural sound conditions in a park that exist in the absence of any anthropogenic noise (e.g., mechanical, electrical, and other non-natural sounds). Different from these previous examples, the indicator used in this situation incorporates a new weighting function more appropriate for protected areas (ANSI, 2014).

An increase of 3 dBA over existing or natural conditions, results in a 50% loss of listening area for wildlife and a 30% reduction in altering distance for both human and wildlife. Therefore, the threshold for anthropogenic noise will not increase natural ambient (natural L_{50}) more than 3 dBA at ST8 90% of daytime hours (6 a.m.–6 p.m.) measured over hourly periods (L_{50}) averaged across the measurement period. The daytime hours are comprised of 12 hours, which means L_{50} cannot exceed 3 dBA above natural ambient more than 1 hour each day. Alternatively, the threshold could be measured across the entire day where daytime hours include 720 minutes, which means L_{50} cannot exceed 72 minutes averaged across the measurement period. Data collected in 2003 found that most sites within the park met this threshold.

The addition of noise to natural ambient reduces the ability of a listener to hear sounds, known as a reduction in listening area. This “reduction of listening area” for humans and animals alike occurs most dramatically at the same frequency range of the noise, but also reduces other frequency ranges as well through upward spread of masking. For example, transportation noise generally ranges from 100 – 800 (Hz) and therefore, is extremely effective at masking natural sounds and human conversation in this range, but has a lesser impact on higher frequency sounds, such as bird songs, that generally range from 1,000 – 10,000 (Hz). However, when conducting a masking analysis it is impossible to determine the degree of masking from A-weighted sound levels (ANSI, 2005). Therefore, as a general rule, we consider an increase of 3 dB over baseline conditions (in this case natural ambient) to reduce listening area by 50%. For example, if the natural ambient is 30 dB, and transportation noise raises the ambient to 33 dB (a 3 dB increase), the listening area for humans (and many birds and mammals) is reduced by 50%. Increasing the ambient an additional 3 dB (to 36 dB) would reduce the listening area by half again, to 25% of the initial area.

Based upon the known noise impacts and desired conditions reduction in listening area at Pools of ‘Ohe‘o (ST8), time audible at a specific point along Pipiwai Trail, and nighttime noise events limited to less than 45 dBA at Kīpahulu Campground have been chosen as indicators of quality for the acoustic environment of the Kīpahulu area. Time audible measures the amount of time that noise is audible to visitors.

The percent of time visitors hear only natural sounds is an important part of the visitor experience with respect to natural quiet, sense of solitude, and special auditory experiences such as the bamboo forest clacking. A baseline ambient study conducted in 2003 measured the audibility of natural sounds in the Kīpahulu area (Federal Aviation Administration and NPS 2003). Because the bamboo clanking is a special auditory experience, it is important to manage for all human-caused noises including voices. Therefore, approximately 1 mile up the Pipiwai Trail within a bamboo forest, time audible (for noise) should be limited to 10% of daytime (6 a.m.–6 p.m.) ambient conditions (per hour) at a specially designated listening site (only natural sounds should comprise at least 90% of

ambient conditions). Therefore, any single hour cannot exceed an average of 6 minutes of percent time audible across the measurement period. Alternatively, the threshold could be measured across the entire day where daytime hours include 720 minutes does not exceed 72 minutes averaged across the measurement period.

The existing acoustic conditions at the site closest to the Kīpahulu campground were 47 dBA with estimated natural ambient at 45 dBA. Additionally, based on a Federal Interagency Committee on Aviation Noise (FICAN) study conducted in 1997, the likelihood of waking due to a noise event of 45 dBA is approximately 3% and recommended noise levels inside bedrooms is below 45 dBA. Because the estimated natural ambient in this area of the park is 45 dBA and individual noise events above 45 dBA increase the chance waking, noise events during the nighttime (6 p.m.–6 a.m.) should not exceed 45 dBA.

Monitoring: Because these preliminary thresholds are based upon 2003 data, park staff will work with NPS Natural Sounds Program to collect new data to inform management decisions with respect to these indicators and thresholds. The design of future monitoring of the soundscape at the park is dependent upon the results of this data collection. If existing ambient conditions are within the desired conditions of the park, the monitoring will be conducted every 5 years; if existing ambient conditions are nearing the thresholds describe above, the monitoring will be conducted every 3 years and some management actions (below) will take place; if existing ambient conditions do not achieve thresholds describe above, then monitoring will take place yearly and many of the management actions below will take place.

Management Strategies and Mitigation Measures:

- Consider identifying and designating key areas in Kīpahulu as “Quiet Zones/Area.” They could be identified on maps, through signs and interpretation. Visitors would be encouraged to be quiet enough to hear natural sounds in these areas. This would include encouraging visitors to be respectful of others by not shouting, yelling, having loud conversations, or producing other excessive noise.
- Add communications to website and other outlets about the importance of the natural soundscape.
- Continue to minimize noise generated by park management activities by strictly regulating NPS and concession administrative use of noise-producing machinery, including aircraft and motor vehicles.

Air Tour Noise

- Train staff on identifying and reporting low-level flights (below 1500 above ground level (AGL)).
 - Number of reports by staff to aviation manager of low-level flights (below 1500 AGL)
- Work with the FAA and the NPS Natural Sounds Program to develop an air management plan in accordance with National Parks Air Tour Management Act, as amended.
- Continue participation in the Air Tour Advisory Council (ATAC).

Transportation Noise

- Continue to collaborate with adjacent property owners and local, state, and federal agencies as well as organizations on the following:
 - Work with adjacent landowners to mitigate impacts of sources of noise from those lands.
 - Work with federal or local highway authority to implement no-honk zones, and speed limits.

Trail Noise

- Establish a quiet area along the Pipīwai Trail where bamboo clanking is a predominant sound.

- Use signs suggesting visitors are entering a quiet place.
- Use signs suggesting visitors should not use cell phones or talk loudly when entering the quiet place.
- Use signs at the trailhead informing visitors that amplified music is not allowed in the park per superintendent's compendium.
- Monitor sounds (i.e., percent time audible of natural sounds only) at this site.

Campground Noise

- Clearly posted quiet hours in the campground.
- Add additional signage about quiet hours.
- Provide a campground host.
- Provide consistent park presence such as a roving ranger or other NPS employee.
- Use a reservation system (education might be tied to the reservation for the camping permit/reservation).
- Give citations and warnings at campground during quiet hours (noise violations).
- Establish quiet hours in the campground (they are posted and not always cited) and reporting of overflights (while staff is working).
- Interpretation and education about soundscapes and acoustic environments, and listening exercises on guided walks.

Visitor-created Trails

- 1) **Indicator:** Number of visitor-created trails—also known as social trails, informal trails, etc.—leaving designated trails per trail measured annually.

Threshold: No more than 10 visitor-created trails leaving designated trails.

- 2) **Indicator:** Number of visitor-created trails leaving designated trails that access sensitive resources or unsafe areas (to include stream travel)

Threshold: No new visitor-created trails leaving designated trails that access sensitive resources or unsafe areas.

Rationale for Indicator and Threshold: Visitor-created trails and unauthorized visitor use cause resource damage, and vegetation and soil trampling from visitors going off trail. The Pīpīwai Trail shows the wear of heavy use, including several isolated eroded steep sections with large numbers of exposed roots. Trail widening and trail braiding are also problematic along many sections of the trail. This trail is managed as a frontcountry trail with extensive use of plastic wood decking and steps in places.

Monitoring: Visitor-created trails were mapped and counted, totaling 27 visitor-created trail segments on the the Pīpīwai and Kūloa Point trails. Park staff will continue to monitor these trails and evaluate any new segments. Park staff will also evaluate the number of visitor-created trails on other trail segments in the Kīpahulu area.

Management Strategies and Mitigation Measures:

- Educate visitors regarding sensitive resources and the importance of staying on trail.
- Restore and rehabilitate areas with visitor-created trails. One technique might include blocking the unwanted trail with native vegetation.
- Increase park staff presence.
- Minimize the number of culturally and ecologically harmful visitor-created trails.
- Improve trail identification and signage (e.g., scenic viewpoint of falls 500 feet ahead).

- Evaluate visitor-created trails to determine appropriate management action.
- Enhance trail design such as adding view scopes, rails, borders, boardwalks, or pavement to improve delineation of designated trails, as appropriate.
- Restrict off-trail travel.
- Potential area closures.
- Improve communication with visitors about trail stewardship.
- Improve maintenance and trail markings.
- Close and restore unacceptable trails using signage and brushing any visible portions of informal trails.
- Consider trail watch volunteers including trail stewardship programs.
- Potential creation of additional trails to minimize visitors passing each other and widening trails.

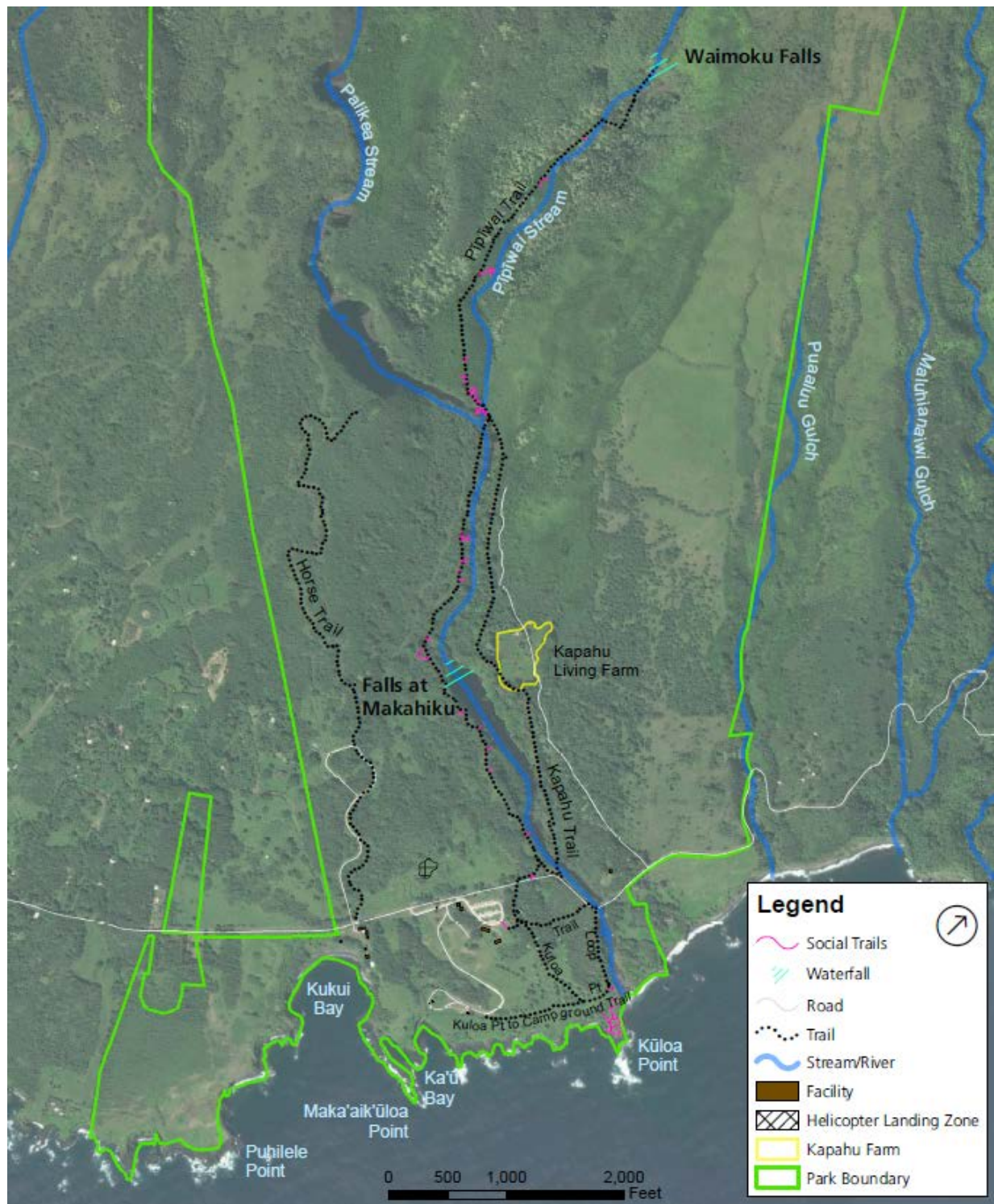


Figure 26. Visitor-created Trails, August 2016

Visitor Safety

Indicator: Increase in incidences of accidents, conflicts, or other safety issues that require law enforcement response (EMS or Search and Rescue) per total visitation

Threshold: No more than one incident requiring law enforcement assistance every two weeks.

Rationale for Indicator and Threshold: Visitor safety is a primary priority of the park staff. Visitor injuries and safety-related concerns are mitigated as much as possible but occur in areas of erosion and unauthorized visitor use and result in resource damage. Unauthorized visitor use and diversions such as visitor-created trails can result in increases in safety issues and accidents.

The threshold is based on the current number of incidents, estimated at 25 per year or one every two weeks, and best professional judgment for the minimally acceptable number of incidents per year. Strategies included below also provide mechanisms by which the park can mitigate the risk of future cliff side rockfall. Geologic hazard and risk are defined in the NPS Geologic Hazard Signage Draft Policy Guidance (NPS 2016).

Monitoring: Park staff will monitor through incident management analysis and reporting systems (IMARS) and EMS Reports.

Management Strategies and Mitigation Measures:

- Site management such as fencing.
- Monitor trails and safety related to trail conditions.
- Visitor education about hazards and risks.
- Signage following NPS Geologic Hazard Signage Draft Policy guidance should include:
 - signs should inform visitors about geologic hazards so that they can make informed decisions about their actions.
 - signs should encourage the public to make safe decisions.
 - signs should have minimal impact on the natural landscape.
 - signs should not expose the NPS to legal liability.
 - See Walsh and Bilderback (NPS 2018) for additional guidance on sign placement and content.
- Designate the ‘Ohe‘o Gulch as a Risk-Aware Area or Closed and Unmonitored Area.
- NPS Geologic Hazard Signage Draft Policy Guide (2016) states:
 - Risk-aware areas are those in which park visitors must take some degree of responsibility for their own safety. These areas include most popular trails and attractions that must be reached on foot. In risk-aware areas, the goal of the NPS should be to provide information about existing hazards so that visitors can make informed safety-related decisions. This is in line with Director’s Order #50C: 4.4 [1], which states that the NPS should “enable visitors to recognize and assess risks and determine what skills and experience are needed to participate in activities safely.” One important component of a “risk-aware” area is that official access points exist; these access points typically contain both logistical information such as maps and signs warning of the hazards ahead. When a visitor enters a “risk-aware” zone from a “risk-averse” zone, they should be made to understand that they are responsible for making decisions based on the information provided.
 - Closed areas are those areas in which the NPS considers the installation of signs to be inappropriate. Users are entirely responsible for their own safety in these areas. Users of closed areas are typically experienced adventurers who manage their own risks based on past experiences. The NPS informs visitors about risk in these areas at the

trailhead, which is typically within a risk-aware area; additional information is provided by backcountry rangers, online publications, and permit-issuing offices.

Adaptive Management Strategies

- Mandatory safety education training orientation (ongoing video on a constant loop, multilingual).
- Increase patrolling of risk-aware areas.
- Increase visitor contacts such as dedicating staff to orientation and education training.
- Re-evaluate key areas and identify safety hazards, risks, and mitigations.
- Temporary or permanent closure of areas with hazards followed by a risk assessment to determine acceptability of re-opening the area.

Water Quality

Given the sensitivity and importance of monitoring for water quality this indicator also has an associated trigger. The trigger is the point at which management action will be taken to ensure conditions stay within the minimally acceptable condition (the threshold). The trigger can be considered an intermediary step ensuring conditions remain acceptable.

Indicator: Concentration of benzophenone (an ecosystem harming chemical found in many sunscreens) at outflow of the Pools of ‘Ohe‘o

Threshold: 165 parts per billion (ppb) of benzophenone-2 in the water column.

Rationale for Indicator and Threshold: Toxicity studies examining larval coral and coral cells show a 24-hour LC50 (median lethal concentration) of 165 ppb and a 24-hour EC20 (20th percentile effects concentration) for deformities of 246 parts per trillion (Downs et al. 2014).

This indicator is most relevant to direct visitor contact and has the potential to affect the fish in the pools, which can be representative of the ecosystem both in the pools and in the near shore ocean adjacent to the pools. Visitors are not necessarily affecting nutrients; however, the sunscreen they use is more pervasive and possibly problematic. While reef-safe sunscreens are encouraged, some visitors still use sunscreens containing oxybenzone.

Monitoring: Pilot benzophenone monitoring studies to commence once pools open for public use. Results of the pilot studies will be used to evaluate the need for regular monitoring.

Management Strategies and Mitigation Measures:

- Selling or providing environmentally friendly sunscreen in the gift shop.
- Education about the dangers of oxybenzone and other potentially ecosystem-harming sunscreen components.
- Pool closures will be considered if necessary.

Trigger and Corrective Action

- The park will consider significant reduction in the number of people in the Pools of ‘Ohe‘o at .05 of the LC50.

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APPENDIX C: VISITOR CAPACITY IDENTIFICATION

OVERVIEW

This appendix provides additional information about the visitor capacity identification as it relates to the visitor use management framework for the Haleakalā National Park Kīpahulu Comprehensive Plan. Please refer to Chapter 1 of this plan for a description of this framework that is common to all alternatives. For additional resources in the VUM Framework please visit the following web address: <http://visitorusemanagement.nps.gov/> for a full description of the Interagency Visitor Use Management Council and Framework Guidance (IVUMC). IVUMC defines visitor capacity as the maximum amounts and types of visitor use that an area can accommodate while achieving and maintaining the desired resource conditions and visitor experiences that are consistent with the purposes for which the area was established. Visitor capacities were identified using best practices and examples from other plans and projects across the National Park Service. Based on these best practices, the planning team describes the process for identifying capacity following guidelines: 1) determining the analysis area, 2) reviewing existing direction and knowledge, 3) identify the limiting attribute, and 4) identifying visitor capacity.

THE ANALYSIS AREA

Key areas were selected as destinations where high levels of use are currently or are projected to cause impacts to natural and cultural resources, and visitor experiences and related directly to desired conditions. For these key areas a detailed analysis has been conducted to identify the visitor capacities. The visitor capacities will be used to implement management strategies for these sites as part of the plan. Four key areas were identified:

1. Kīpahulu Campground
2. Trails
3. Visitor Center Area
4. Pools of ‘Ohe‘o

To fulfill the requirements of the 1978 National Parks and Recreation Act (54 USC 100502), visitor capacity identifications are legally required for all destinations and areas that this planning effort addresses (IVUMC 2016). Together, the above four key areas comprise the majority of the visitor use areas within the Kīpahulu area. Future monitoring of use levels and indicators will inform the National Park Service if use levels are at or near visitor capacities. If so, adaptive management strategies as outlined in this plan would be taken (see Chapter 2: Indicators and Thresholds). For each location an overview of the analysis area is included in Chapter 3: Affected Environment, Visitor Use and Experience.

REVIEW OF EXISTING DIRECTION AND KNOWLEDGE

Kīpahulu Context at Haleakalā National Park

During this step the planning team developed desired conditions, indicators and thresholds, with particular attention to conditions and values that must be protected and are most related to visitor use levels. Desired conditions for these areas can be found in Chapter 2: The Alternatives. For each key area, relevant indicators are listed. The associated thresholds can also be found in Chapter 2. An overview of visitor use issues and current use levels for each key area can be found in Chapter 3: Visitor Use and Experience Affected Environment.

The amount, timing, and distribution of visitor use in the Kīpahulu area at Haleakalā National Park influence both resource conditions and visitor experiences. Arriving in the Kīpahulu District requires a four-hour drive from Kahului along the Hāna Highway and there are no roads through the park that connect the Summit and Kīpahulu Districts. Given the length of time it takes to arrive in

Kīpahulu, visitation tends to peak during midday in the summer months with visitors arriving by private vehicle and commercial van typically between 11–4 p.m. with peak crowding around 2 p.m. The levels and patterns of visitor use are causing moderate negative impacts to visitor experiences and more evident negative impacts to cultural and natural resources. These impacts influence the ability of the National Park Service to maintain desired conditions. Appropriate management strategies can then be selected and implemented to maintain desired resource conditions and visitor experiences consistent with the purposes for which the monument park was established.

Other data sources include visitor use research conducted from 2006–2009. This information was used to understand conditions during those years and used as estimated to begin to understand the appropriate amounts and types of visitor use areas in Kīpahulu can accommodate. Throughout the capacity analysis the following technical reports are cited

- *Research to Support Visitor Use Management and Resource Protection at the 'Ohe'o Pools in Haleakalā National Park* (Lawson, Hockett, Kiser, Reigner, Ingram, Barnes, & Dymond, 2008)
- *Social Science Research to Support Visitor Experience and Resource Protection (VERP) Planning in Haleakalā National Park* (Lawson, Kiser, Hockett, Reigner, Howard, & Dymond, 2007)
- *Backcountry Recreation Site and Trail Conditions* (Marion, 2009)
- *Frontcountry Recreation Site and Trail Conditions: Haleakalā National Park* (Marion, 2006)

In addition, the action alternatives were assessed for the primary differences related to the amounts, timing, distribution and types of use. The primary difference for visitor use issues between the two alternatives is in the type of access provided to the Pools of 'Ohe'o. In alternative 2, visitor activities would focus on dispersing use to a variety of available opportunities and experiences. Visitors would be allowed to access the pools at their own risk. In alternative 3, the Pools of 'Ohe'o would be closed for swimming or wading and designated as a closed area. Visitor activities would focus on expanding the range of available opportunities and experiences. The differences in the alternatives suggest the need to look at different capacities for alternatives regarding pool access. For the remaining areas, the visitor capacity will remain consistent across the alternatives.

The 1995 GMP/EIS identifies a day use visitor capacity for the Kīpahulu coastal area which is applied to Puhilele. Day use capacity is set at 1,300 persons per day based on an estimated average one-hour stay in the area, maximum visitation of 300 persons at one time during the peak times of noon to 3 p.m. For the Kīpahulu Comprehensive Area Plan, rather than identifying a total day use for the Kīpahulu area, the visitor capacity is divided into sections based on analysis areas. The analysis focuses on the desired conditions for each area and the maximum amounts and types of use that area could sustain while achieving those desired conditions. The capacity was also divided into areas because this is the level to which the staff in Kīpahulu has the ability to manage and implement visitor capacity.

IDENTIFY THE LIMITING ATTRIBUTE

This step requires the identification of the limiting attribute(s) that most constrain the analysis area's ability to accommodate visitor use. The limiting or constraining attribute(s) may vary across the analysis area and is described under each key area in the *Limiting Attribute and Relevant Indicators*. This is an important step given that a key area could experience a variety of challenges regarding visitor use issues.

IDENTIFY VISITOR CAPACITY

To identify the appropriate amount of use at key areas, outputs from previous steps were reviewed to understand current conditions compared to goals and objectives for the area. Visitation data collected annually by the National Park Service staff to track levels of visitor use parkwide and by area was used as a data source. The National Park Service also collects annual data including counts of fees, parking availability, trail counts, and other data.

ANALYSIS OF KEY AREAS

Kīpahulu Campground

The 1995 GMP/EIS identifies an overnight use visitor capacity of about 120 people per night for the Kīpahulu Campground. The capacity identified for the Kīpahulu Comprehensive Area Plan amends the GMP capacity by adding 5 additional people to the overnight use capacity.

The most limiting attributes constraining visitor use in the campground are the cultural resources sites and the desired visitor experience. The campground is surrounded by archeological sites that constrain the number and size of the campsites. Further, intentional and unintentional damage can occur to cultural resources including the rock wall and foundation remnants near the campground. The most relevant indicator to monitor changes in these resource conditions is related to the indicator topic is the *percent change over time of archeological site conditions due to visitor use*. The desired visitor experience for camping at the Kīpahulu campground is for visitors to be able to experience the natural sounds, viewsheds and dark night skies. Given the focus on this type of visitor experience, larger group camping sites and the addition of too many more campsites would change the type of visitor experience offered in Kīpahulu. The most relevant indicator to monitoring desired visitor experiences in the campground is related to the indicator topic natural soundscapes and includes *nighttime noise events at Kīpahulu campground*.

Park staff identified numerous strategies to implement the capacity for the Kīpahulu campground. Direct site management strategies include designating campsites as well as group sites that could serve as overflow for the individual campsites. Park staff also identified the need for a campground host to help with education, enforcement of quiet hours, and general information for visitors. Additional law enforcement staff would help to patrol and enforce vehicle numbers as well as provide tickets when necessary. Permitting and/or a reservation system will be developed by the park to aid in the management of the campground. Under the new campground capacity, campsites could have up to and no more than 2 vehicles per site. There are a total of 7 walk-in sites with a maximum of 2 tents and 4 people, totaling 28 people for walk-in sites. There are 12 drive-in sites with a maximum of 2 tents and 6 people, totaling 72 people for drive-in sites. There is one group site with a maximum of 25 people. The total visitor capacity for the Kīpahulu campground is 125 people per overnight stay.

Trails

The most limiting attributes constraining visitor use on the trails are both the resource impacts resulting from visitor use and the desired visitor experience. Visitor-caused resource impacts on the trail system are resulting in visitor-created trails and vegetation trampling and soil compaction in unauthorized areas. Visitor-created trails cause confusion for visitors about trail direction, disturbing the visitor experience as well as causing resource impacts. The most relevant indicator to monitor is the *number of visitor-created trails leaving designated trails per mile* and *number of visitor-created trails leaving designated trails that access sensitive resources or unsafe areas (including stream travel)*. Monitoring visitor-created trails will provide park staff the opportunity to take management action to achieve and maintain the desired visitor experience for clear wayfinding on the trail system and minimize resource damage.

One of the unique experiences in Kīpahulu is hiking the Pīpīwai Trail and the natural sounds and acoustic environment of the coastal and upland resources. In the bamboo forest, visitors can experience a one-of-a-kind soundscape, although bamboo is nonnative; it is an experience visitors are seeking. Protecting that experience requires park managers to protect the natural soundscape in the Pīpīwai Trail. The most relevant indicator for monitoring the natural soundscape is the *percent time audible at a specific point along the Pīpīwai Trail*.

Pīpīwai Trail

Park staff determined that their goal for visitor capacity on the trail system was to maintain current use levels. While some areas have higher densities of visitor use, other areas are underutilized. Therefore, the management strategies associated with maintaining current use levels as visitor capacity will aim to implement ways to disperse visitor use more evenly across key areas. For example, the Pīpīwai Trail would be connected to the reopened Kapahu Trail to create a loop. An additional spur would be created to connect the Pīpīwai Trail to the Kanalulu House via a spur off the Kapahu Trail. To achieve the goal of maintaining current use levels with better distribution of use across the trail, capacity was identified as no more than 1 person per 50 feet of trail (the average viewshed distance for visitors is about 50 feet), resulting in 180 people at one time (PAOT) on the Pīpīwai trail, given the 8,992 feet of trail.

Kūloa Point Trail and Accessible Trail

Park staff determined that the goal for visitor capacity on the Kūloa Point Trail is to maintain current use levels since this level of use is achieving desired conditions. The capacity was identified as 1 person every 30 feet, resulting in approximately 100 PAOT on the Kūloa Point Trail and the accessible trail given the total length of the trail at 2,767 feet. Under alternatives 2 and 3, the ocean overlook platform will provide for a destination and a turn-around point for the accessible trail.

Park staff identified strategies to implement the capacity for the trails. These strategies are relevant across the alternatives and include:

- Provide real-time information regarding parking and access opportunities (such as text alerts and radio station updates).
- Educate visitors regarding sensitive resources and the importance of staying on trail
- Post signs/close gates indicating parking is at capacity (return at a later, designated time).
- Make greater public education efforts to encourage voluntary redistribution of use to off-peak times.
- Consider trail watch volunteers including trail stewardship programs.
- Close and restore visitor-created trails using signage and brushing any visible portions of informal trails.
- Restore and rehabilitate areas with visitor-created trails. One technique might include blocking the unwanted trail with rocks or native vegetation.
- Enhance trail design using site management / design such as constructing boardwalks, adding view scopes, rails, borders, and pavement to improve delineation of designated trails, as appropriate.
- Restrict off-trail travel.
- Potential trail closures.
- Implement consistent seasonal trail monitoring if use levels are approaching capacity on a consistent basis.
- Increased park presence (staffing).
- Future concession contracts would:

- o Consider commercial service schedule for bus drops, before 10 a.m. or after 2 p.m., time to leave in between their buses.
- o Consider a temporary closure until more vehicles leave the area. Actions might include turning vehicles around and back to the Hāna Highway.
- o Consider pursuing shuttle options between Hāna and park (at least during peak season).
- Develop a permit or reservation system for the trails.

Visitor Center Area

The visitor center area includes the visitor center, lanai, plaza, bus drop-off area, restrooms, the picnic area, and the top of the trail to the Hale Ku'ai. The most limiting attribute constraining visitor use in the visitor center area is the desired visitor experience facilitated by the limited infrastructure. There are currently limited opportunities for visitors to engage in interpretation and education about the natural and cultural resources in the area. The most relevant indicator to monitor is the *percent of time the overflow parking lot is full each month*. Monitoring for this provides the park with an indicator for the quality of orientation and support services and crowding at facilities and major service areas.

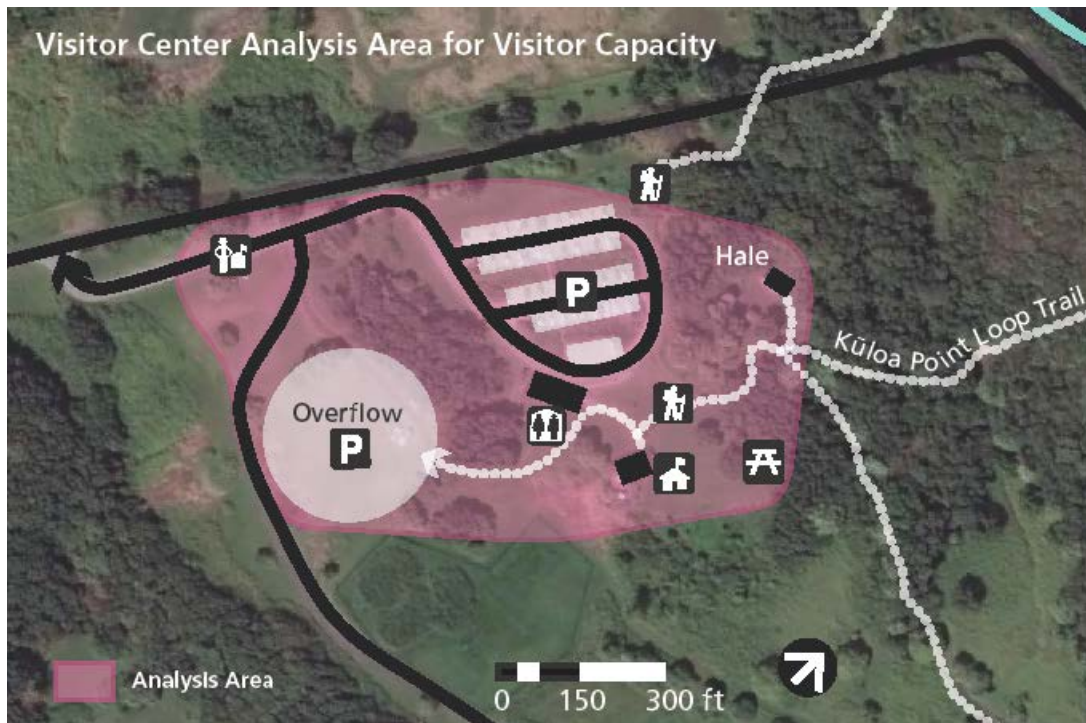


Figure 27. Visitor Center Analysis Area for Visitor Capacity

Alternatives 2 and 3

Park staff considered current use levels and the actions in alternatives 2 and 3 and identified that visitor capacity for the visitor center area could sustain additional or *increased* visitor use levels to include 100 PAOT. Actions in alternative 2 that would facilitate an increase in visitor use in this area include enlarging the visitor center area and focusing on visitor orientation and interpretation to the area's history and culture. In addition, the attached lanai and plaza would also expand program space at the visitor center. The opportunities offered by the covered space in the lanai would provide more areas for visitor orientation, activities/programming, weather and trail/pool status updates, and interpretation. Third, the orientation plaza would be another area/space for visitors to receive

information about the area and would facilitate access to the visitor center, trails, and pools. Similarly, under alternative 3, the current visitor center would be rehabilitated to provide visitor and office space. The addition of the small visitor contact station and adjacent orientation plaza would replace the function of the current visitor center. Similar to alternative 2, the open-air plaza would provide visitor information and park messaging and could facilitate additional amounts and types of use the visitor center area could sustain. The plaza would also provide information and wayfinding for trails.

Park staff identified numerous strategies to implement the capacity for the Visitor Center Area:

- Distribute visitor use to a variety of other recreation and interpretation opportunities away from the visitor center area.
- Place facilities elsewhere to disperse visitor use.
- Provide real-time information regarding parking and access opportunities (such as text alerts and radio station updates).
- Post signs indicating parking lots are full, encouraging visitors to return at a later or designated time.
- Make greater public education efforts to encourage voluntary redistribution of use to off-peak times.
- Future concession contracts would:
 - Consider commercial service schedule for bus drops, before 10 a.m. or after 2 p.m., and time to leave in between their buses.
 - Consider a temporary closure until more vehicles leave the area. Actions might include turning vehicles around and back to the Hāna Highway.
 - Consider pursuing shuttle options between Hāna and park (at least during peak season).
- Develop a permit/reservation system for parking lots.

Pools of ‘Ohe‘o

The most limiting attributes constraining visitor use for the Pools of ‘Ohe‘o are geologic hazards, resource damage, water quality and associated visitor safety, as well as the desired visitor experience. The quality of the visitor experience in the pools becomes degraded as crowding and congestion challenges continue to rise with increased visitation. The pools are a primary attraction in the Kīpahulu area. Visitor safety is a primary priority of the park staff and specifically for the Pools of ‘Ohe‘o experience. In 2017 to 2018, the park took steps to mitigate geologic hazards on the northeast side of the lower pools (below the bridge). The pools remained closed throughout the project. Strategies included below also provide mechanisms by which the park can mitigate the risk. Geologic hazard and risk are defined by Walsh and Bilderbeck in the NPS Geologic Hazard Signage Draft Policy Guide (2016). The water quality in the pools is also of high importance for reef fish, invertebrates, and coral health and visitor safety (see water quality indicator in Chapter 2). This indicator is most relevant to direct visitor contact and has the potential to impact natural resources. Monitoring visitor safety and water quality are the two most relevant indicators. When the associated thresholds are being approached, management strategies outlined in the indicators and thresholds will be implemented.

Park staff identified numerous strategies to implement the capacity for the Pools of ‘Ohe‘o. These strategies are relevant across the alternatives and include:

- Social media to promote alternative activities.
- Safety-related signage will be added in accordance with draft risk and hazard communication messaging guidance.
- During peak use times, park staff will offer additional programming such as guided hikes,

cultural demonstrations, kids' programs, and junior ranger programs at the visitor center, at the Hale Ku'ai, and along trails.

- Programming during specific times with signage to direct visitors to other activities (e.g., be here at 2 p.m.).
- Create the appearance of pop-up programming and tours to attract visitors in addition to pre-planned and advertised events.

Alternative 2

In alternative 2, a variety of available opportunities and experiences may disperse visitor use. The park would seek to achieve desired conditions for visitor experiences in Kīpahulu by providing *visitors the opportunity to engage in a diverse range of quality visitor experiences and recreation opportunities*. Visitors would be allowed to access the pools and to participate at their own risk given geologic hazards. In addition, the pools would be managed under the guidance of NPS Public Health: Protection and Prevention Reference Manual-83A. RM-83A provides guidance for public use of recreational water to reduce the risk of waterborne diseases by ensuring proper operation, maintenance, and monitoring. The guidance recommends specific monitoring for heavily used recreational waters and directs these recommendations based on linear feet of shoreline. To measure the linear feet of shoreline for the Pools of 'Ohe'o, only one side of the pools was included. If the circumference of the pools was included in the linear feet rather than one side, the visitor capacity would be unintentionally doubled. The RM was designed for long and linear environments similar to beaches but also applies to other recreational waters. Given what is required to manage and monitor the volume of people in recreational waters and the desired visitor experience at the Pools of 'Ohe'o, the visitor capacity for the area will be 39 people at one time (PAOT) per 100 linear feet of shoreline.

There are 310 lineal feet of shoreline along the two pools where visitors may easily access. The total number of lineal feet of shoreline was calculated based on the usable shoreline where visitors can access the pools rather than the total area of shoreline. This means up to approximately 117 people could be in the Pools of 'Ohe'o at any one time.

In addition to the strategies listed above the park may also consider the following:

- Continue to add signage and messaging about the dangers of the pools, including both natural hazards – such as floating debris – and those related to visitor behavior (e.g., jumping off of rocks into the pools).
- Self-regulation. Signs stating a capacity that ask people to limit their time at the pools or consider other activities while the pools are busy, and return later. Suggestions for other activities include hike the Pīpīwai Trail and return to the pools on their way down or vice versa. Park staff could make recommendations through roving rangers, fee station staff, and visitor center staff.
- Temporary closure of the pools during high use times if threshold is exceeded.
- Future concession contracts would:
 - Commercial service schedule for bus drops, before 10 a.m. or after 2 p.m.
 - Create a permit or reservation system. For example, wristbands might be employed as a potential one-in, one-out strategy to implement capacity.
 - Area open for commercial tour buses only or a shuttle service to Kīpahulu and closed for private vehicle access.
- Implement a permit/reservation system for the Pools of 'Ohe'o.



Figure 28. Lineal Feet of Shoreline for the Pools of 'Ohe'o

Alternative 3

In alternative 3, visitor activities would focus on expanding the range of available opportunities and experiences given the Pools of 'Ohe'o would be closed for swimming or wading and designated as a closed area. Viewing platforms would be developed. Given the full closure of the pools, the visitor capacity for the area would be zero.

In addition to the strategies relevant to both alternatives, park staff may consider the following strategies to implement pool closure:

- Reroute the Kūloa Point Trail so that it does not go to the gate to the pools.
- Removal of the stairs that provide access to the pools.
- Additional viewing overlooks would be provided for the pools.
- Conduct social science research to understand other desired visitor activities in the Kīpahulu area.
- Implement a permit or reservation system for parking lots

APPENDIX D: MONITORING GUIDELINES AND MITIGATION MEASURES FOR ALTERNATIVES

Natural Resources

- Areas used by visitors (trails, overlooks) would be monitored for signs of native vegetation disturbance and erosion. The park would use a variety of mitigation tools such as public education, erosion control, and barriers to control visitor use impacts on vegetation and soils.
- Consult with a NPS biologist before beginning construction to ensure impacts to vegetation and wildlife are kept to a minimum.
- During all construction activities, best practices for weed and erosion management would be used, including:
 - Minimize new ground/soil disturbance to the greatest extent possible and select previously disturbed areas for construction staging and stockpiling.
 - Fence or clearly mark construction limits to protect sensitive areas.
 - Enforce prevention of disturbances to vegetation and soil outside construction limits.
 - Ensure project personnel make daily checks of clothing, boots, laces, and gear to ensure no exotic plant propagates and no off-site soil is transported to the work site.
 - Thoroughly pressure-wash equipment to ensure all equipment and machinery are clean and weed free before being brought into the project area.
 - Cover all haul trucks bringing materials from outside the park to prevent seed transport and dust deposition.
 - Obtain all fill, rock, topsoil, or other earth materials from approved and/or inspected sites.
 - Enact erosion control measures such as siltation control devices to reduce erosion and capture eroding soils.
- After completion of construction activities, the following measures would be applied to maximize vegetation restoration efforts:
 - Salvage available topsoil or several inches of native soil from the project area for reuse during restoration of disturbed areas.
 - Monitor for and treat invasive species within disturbed areas year-round.
 - Revegetate disturbed areas with native species, as necessary, to minimize long-term soil erosion and exotic plant encroachment. An attempt would be made to restore vegetation by using seed of native genotype collected locally. The use of exotic species or genetic materials would be considered only where deemed necessary to maintain a cultural landscape or to prevent severe resource damage.
 - Use erosion-control blankets and wattles to reduce erosion and encourage seedling establishment.
 - Ensure park animal feed provided by the park is weed free.
 - Institute restoration activities immediately after construction is completed. Monitoring would be carried out to ensure that revegetation is successful, plantings maintained, and unsuccessful plant materials replaced.
 - Plan work on facilities in the park to reduce impacts on vegetation. Site-specific surveys would identify areas to be avoided because of terrain or resource concerns.

- Revegetate so as to reconstruct the natural spacing, abundance, and diversity of native plant species as much as possible. All disturbed areas would be restored as much as possible to pre-construction conditions shortly after work is completed.
 - Monitor vegetation for impacts caused by maintenance of all facilities and infrastructure associated with the implementation of this plan and general park operations.
 - The National Park Service would continue to follow guidance and participate in the Rapid ‘Ohia Death committee for the prevention and monitoring of the disease.
- All outdoor lighting should be shielded and faced downward to avoid attracting seabirds. Light attraction often results in seabird groundings (birds falling to the ground from becoming exhausted when flying around lights)
 - Avoid creating habitat that could cause nene-human conflicts including roadkills. Nene are attracted to areas with short grass and water (including water that accumulate in pot holes). Should nene start to nest during the time of the project, avoid loud, noise-producing work and clearing of land or vegetation during nene nesting season.
 - Avoid removal/disturbance of possible bat and bird roosting/nesting sites in trees and on cliff faces.

Cultural Resources

- The National Park Service would practice good resource stewardship with regard to archeological resources and ethnographic resources. Desired conditions and indicators and thresholds developed as part of this plan would signal when cultural resources were sustaining a maximum acceptable level of impact.
- The National Park Service would continue, and possibly enhance, ongoing cultural resource monitoring programs by its staff.
- In consultation with the State Historic Preservation Officer, Native Hawaiian Organizations, Advisory Council on Historic Preservation, and other interested parties the National Park Service would apply the following measures to avoid or minimize impacts on archeological and ethnographic resources:
 - All activities would comply with The Secretary of Interior’s Standards and Guidelines for Archeology and Historic Preservation and Director’s Order 28: Cultural Resource Management.
 - Archeological inventory and/or evaluation would precede any and all ground-disturbing activities (such as enlarging the visitor center, construction of staff housing units, or trail development) where inventories have not been previously conducted.
 - Archeological monitoring would continue during construction in areas where there is potential for buried resources.
 - Archeological resources would be identified and delineated prior to project work. All construction projects would be sited to avoid impacts as much as possible.
 - The National Park Service would ensure that all contractors, subcontractors, and lessees are informed of the penalties for illegally collecting artifacts or intentionally damaging archeological sites. Contractors and subcontractors would be instructed on procedures to follow if previously unknown archeological resources are uncovered during implementation.

- Equipment and material staging areas used during construction projects would avoid known archeological resources.
 - Fencing off highly sensitive archeological and ethnographic sites within the project area would be implemented as needed.
 - If previously undiscovered archeological resources are uncovered during construction, all work in the immediate vicinity of the discovery would be halted until the resources could be identified and documented and an appropriate mitigation strategy developed in consultation with the Hawai'i State Historic Preservation Office and Native Hawaiian Organizations. Newly discovered archeological sites would be assessed for significance and national register eligibility by an NPS-approved archeologist. The archeologist would then determine if the area should be excluded from construction activities and how the exclusion would be made. All project personnel would be briefed to stay out of areas of sensitive archeological resources.
- In the unlikely event that human remains, funerary objects, or objects of cultural patrimony are discovered during construction activities, applicable provisions of the Native American Graves Protection and Repatriation Act (Public Law 101-601) and its implementing regulations would be followed.

Visitor Experience and Safety

- Past and ongoing monitoring would inform future mitigation measures to avoid impacts on the cultural and natural resources of the Lower Kīpahulu Valley as well as on the visitor experience. These include:
 - Monitoring of visitation through various methods such as visitor surveys and transportation data.
 - Periodic visitor surveys and data collection to determine visitor use patterns, visitor characteristics, visitor use conflicts, and visitor preferences and satisfaction with visitor opportunities and other programs, services and facilities.
 - Documenting and monitoring of law enforcement incidents.
 - Resource condition surveys, as needed.
 - Proactive addressing of safety measures using signs, bulletin boards, and sharing of safety information during staff interactions with visitors.
- Future monitoring would also inform mitigation measures to minimize impacts on the cultural and natural resources of the Lower Kīpahulu Valley as well as the visitor experience. These could include:
 - Enhancing ongoing monitoring programs by park staff and partners.
 - Implementing measures to reduce adverse effects of construction on visitor experience and safety. Measures may include, but are not limited to, phasing construction, temporary closures, noise abatement, visual screening, providing information to visitors on the purpose and need for construction, and directional signage to help visitors avoid construction activities.
 - Using feedback from routine patrols and ranger interactions with visitors and results from other resource monitoring programs to analyze and manage current or future recreational activities and opportunities.
 - Developing a visitor education program with consistent messaging on behaviors appropriate to the Lower Kīpahulu Valley. Information could be shared through

additional appropriate signage, park staff and volunteer messaging, the park website, and printed / visual materials available to visitors throughout the unit. Additional efforts could reach visitors prior to their arrival, for example, through the cooperation of commercial operators.

- Ensuring that facilities, programs, and services of the National Park Service and its partners are accessible to and usable by all people, including those who are disabled. This policy is based on the commitment to provide access to the widest cross-section of the public and to ensure compliance with the Architectural Barriers Act and the Rehabilitation Act.
 - Responding to visitor conflicts and incidents using law enforcement protocols. Incidents would be reviewed by safety committees and incident reports generated and dispersed to park staff.
-
- Implement adaptive visitor use management, as outlined in the user capacity section of this plan, when resource and visitor experience conditions are trending towards or violating a user capacity standard. Management strategies may include visitor education, site management, visitor use regulations, rationing or reallocation of visitor use, and enforcement.
 - Consider visitor safety in all planning and projects and general operation.
 - Consider using the principles of operational leadership in planning safe visitor access to park features.

APPENDIX E: ESTIMATED COSTS ASSOCIATED WITH ALTERNATIVES

NPS decision makers and the public must consider the advantages and costs of various alternatives, including the no-action alternative. The purpose of cost estimates is to assist managers and the public make a relevant comparison among the alternatives and determine feasibility within the planning process. The costs presented in this appendix are estimates for comparison purposes only and are not to be used for budgetary purposes.

Implementation of the approved plan, no matter which alternative, would depend on future NPS funding levels; servicewide priorities; and partnership funds, time, and effort. Although the NPS hopes to secure funding to implement the preferred alternative and would prepare itself accordingly, the approval of this plan does not guarantee that funding and staffing needed to implement the plan will be forthcoming. Full implementation of the plan could be many years in the future.

The following applies to costs presented in this plan:

- The costs presented (in 2018 dollars) have been developed using NPS and industry standards to the extent available.
- Actual costs will be determined at a later date, considering the design of facilities and identification of detailed resource protection needs.
- The cost estimates represent the total costs of projects. Potential cost-sharing opportunities with partners could reduce the overall costs.

The NPS facility planning model was used to determine the needs for visitor service and administrative space. The estimates in this section include annual operating, staffing, one-time facility and nonfacility costs. These are defined as follows:

- **Annual Operating Costs** are the total costs per year for operations and maintenance (O&M) associated with each alternative, including utilities, supplies, staff salaries and benefits, and other materials. Cost and staffing estimates assume that the alternatives are fully implemented as described.
- **Staffing** is the total number of person-years of staff or full-time equivalency (FTE) required to maintain the assets of the park at an acceptable level, provide visitor services, protect resources, and generally support park operations. The number indicates NPS staffing levels, not volunteer positions or positions funded by partners. Staffing salaries and benefits are included in the annual operating costs. A value of 1 FTE is equivalent to 2,080 hours of work in one year.
- **One-Time Facility Costs** include those costs for the design, construction, rehabilitation, upgrade, or adaptive reuse of the visitor center, campground, picnic areas, roads, parking areas, administrative facilities, maintenance facilities, trails, and other visitor and support facilities.
- **One-Time Nonfacility Costs** include the development of a new film and visitor center exhibits and the establishment of a new arboretum in the Kīpahulu District.

Throughout the planning process, the NPS took into consideration the environmental and financial impact of the proposed capital investments to ensure that the plan is achievable over the next 20 years and sustainable over the life of the proposed capital investments. The proposed actions incorporate internal NPS policy and guidance for facilities management and capital investment. The

planning team analyzed the ability of Haleakalā National Park to undertake the proposed improvements and associated financial responsibilities in light of current and projected availability of funding and personnel. Recreation fees collected at the park would play an important role in realizing the capital investments outlined in this plan. Additionally servicewide funding sources that the park historically has been able to obtain were considered as part of the financial strategy for the proposed capital investments. The operations and maintenance over the life of the assets as well as the resources required to perform maintenance activities were analyzed and considered. Furthermore, the plan incorporates opportunities to maintaining and in some cases reducing the cost of operations and maintenance by updating critical systems such as ventilation and air conditioning. The proposed actions in this plan would address the deferred maintenance backlog associated with roads, parking, trails, maintained landscapes, and buildings in the Kīpahulu District. Table provides a high-level summary of cost estimates and staffing (FTE) levels for the no-action alternative and implementing the two action alternatives.

Table 5. Alternatives Cost Comparison

COST TYPE	ALTERNATIVE 1 (NO ACTION)	ALTERNATIVE 2 (PREFERRED)	ALTERNATIVE 3
Annual Operating Costs (ONPS)	\$1,777,000	+\$738,000	+\$699,000
Kīpahulu District Staffing (FTE)	17	+4.84*	+4.84*
One-Time Facility Costs	\$985,000	\$5,356,000	\$6,014,000
One-Time Nonfacility Costs	\$0	\$1,638,000	\$1,638,000

*The non-round number is a result of new permanent staffing positions being subject-to-furlough.

Staffing and Annual Operating Costs

Staffing levels expressed as FTEs shown under the no-action alternative in Table indicate current approved staffing levels, not existing actual levels, since actual staff levels vary over time. There were a total of 78 FTEs in the park in 2017, of which 17 were stationed in the Kīpahulu District. Salaries and benefits of these staff account for the majority of the annual operating costs for the park; the remainder consists of O&M expenditures for assets in the park.

Table 5 shows the number of proposed additional staff required above the 2017 funded staffing levels to implement the management strategies described under alternatives 2 and 3. The 2017 staffing levels are identified for the no-action alternative and serve as a baseline for comparison against the action alternatives. The increase in annual operating costs above the no-action alternative is due in part to the increased number of staff proposed to fully implement each action alternative. For this plan, the cost of an additional FTE is based on the grade of the required position and whether the position is permanent or seasonal, and a geographically based percentage adjustment for the Hawai'i locality pay area, per the definition of the Office of Personnel Management. In addition, there is an increase in annual operating costs for rehabilitated and rehabilitated parking, roads, structures, and grounds. These costs include annualized estimates for operations, preventive and recurring maintenance, component renewal, and unscheduled maintenance.

Volunteers and partners would continue to be key contributors to NPS operations under all of the alternatives. In FY 2017, there were 830 Volunteers-in-Parks (VIPs) who worked a total of 8,520 volunteer hours throughout the park, equivalent to approximately 4 FTEs. Volunteers and future

partners would continue to be an important part of ongoing management and a vital component of the park's efforts to implement any of the action alternatives.

The operations and maintenance requirements of all proposed visitor-related facility improvements would be covered by fee revenue. To the extent that surplus revenue is available over time, the maintenance needs of existing park facilities could be better supported, reducing deferred maintenance from its current level.

Alternative 1 (No Action)

Under the no-action alternative, future management would be a general continuation of what is being done now to provide visitor opportunities and to protect and preserve park resources. Costs associated with implementing this alternative are ongoing operations (base funding) and one-time projects that are already approved and funded including repairs to the water distribution system. The total funding approved for replacing the water distribution system in fiscal year 2018 is \$985,000 in facility costs. This amount is included in the estimates for all alternatives. The NPS staffing level in the park under the no-action alternative funded from park base operations would remain at 46 FTEs. Additional FTEs funded from projects and recreation fees would continue to support needed staffing.

Alternative 2

Alternative 2 would add a total of 4.84 FTEs in the interpretation, facility management, visitor and resource protection, and resource management divisions. Due to budget constraints, new staffing positions would be a combination of temporary seasonal and permanent subject-to-furlough. One new permanent subject-to-furlough interpretation staff would support event planning, cultural demonstrations, outreach, curriculum-based education programs, and ensure that the interpretation sections of this plan are fully implemented. Two permanent subject-to-furlough maintenance and custodial staff would provide capacity to maintain and service new and rehabilitated visitor support facilities. Two temporary seasonal visitor use assistant staff would provide staff capacity for a second fee both at peak times and one permanent subject-to-furlough resource management staff would support the new arboretum, new *lo'i* and additional cultural resource tours.

Alternative 3

Alternative 3 would add a total of 4.84 FTEs in the interpretation, facility management, visitor and resource protection, and resource management divisions. Due to budget constraints, new staffing positions would be a combination of temporary seasonal and permanent subject-to-furlough. One new permanent subject-to-furlough interpretation staff would support event planning, cultural demonstrations, outreach, curriculum-based education programs, and ensure that the interpretation sections of this plan are fully implemented. Two permanent subject-to-furlough maintenance and custodial staff would provide capacity to maintain and service new and rehabilitated visitor support facilities. Two temporary seasonal visitor use assistant staff would provide staff capacity for a second fee both at peak times and one permanent subject-to-furlough resource management staff would support the new arboretum, new *lo'i* and additional cultural resource tours.

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APPENDIX F: CONSULTATION AND COORDINATION

The National Park Service consulted with various agencies and interested persons, park Kūpuna groups, and Native Hawaiian Organizations in preparing this document. The public had numerous avenues for participation during the development of the plan—participation in public meetings and responding to newsletters by submitting comments via regular mail and electronically using the NPS Planning, Environment, and Public Comment (PEPC) system website.

PUBLIC INVOLVEMENT, INCLUDING SCOPING

August 2016 Meetings

NPS staff collected input about the potential management of the Kīpahulu District from the general public, park neighbors, and interested Native Hawaiian Organizations in the years leading up to the comprehensive planning effort through public engagement sessions, correspondence, and public scoping of earlier proposed actions related to this area of the park. The park formally reinitiated the Kīpahulu District comprehensive site plan in summer 2016 with the purpose of providing an overall design and visitor experience vision for the Lower Kīpahulu Valley. This comprehensive plan builds off the initial alternatives prepared in 2012 and incorporates additional information and issues that have emerged since that time. During the week of August 8, 2016, NPS staff held four informational meetings: two public meetings—one at the Kīpahulu visitor center and the other in the community of Hāna; a stakeholder meeting with the nonprofit partnering with the park to manage the Kapahu Living Farm (the Kīpahulu ‘Ohana); and a listening session with Native Hawaiian elders (the Kīpahulu and Summit Kūpuna Groups). The public meetings, with the purpose of discussing management issues and opportunities in Kīpahulu that could inform the plan, were advertised through the project PEPC website and a park press release. In total, 26 individuals signed in to the public meetings. Concerns and key issues voiced during the two public meetings included visitor safety, natural resource protection, visitor impacts on resources and park facilities, trail development, accessibility, trail usage, and the level of site development. Opportunities identified by meeting participants included additional information and public education/programming related to cultural activities, cooperation with related groups for management/programming, and defining visitor use in the area.

Winter 2016 Public Scoping Newsletter and Comments

In fall 2016, the National Park Service created a project newsletter announcing the comprehensive plan and outlining the purpose and need of the planning effort. The newsletter was posted on the project PEPC website and an electronic announcement was shared with the project’s email list via Constant Contact. The National Park Service printed 150 hard copies of the newsletter, approximately 30 of which were sent to individuals on the project mailing list. The remaining newsletters were distributed by park staff to residents of Kīpahulu and shared with community groups including: the Kīpahulu ‘Ohana; Kaupo community council; Kaupo Moku; Hāna Council; and Hāna Fire Department.

In an effort to solicit public opinions on the planning effort and potential alternatives for the Kīpahulu area, three public scoping questions were included in the newsletter and on the project PEPC website:

- What do you want us to know about the Lower Kīpahulu Valley? What should this comprehensive plan consider or be sure to include?

- What kinds of experiences do you want to have at Kīpahulu? What do you think would need to be done to facilitate those experiences?
- What concerns do you have related to this plan or future management of the Lower Kīpahulu Valley?

Individuals were encouraged to submit comments via the PEPC website, by directly emailing the superintendent of Haleakalā National Park, or by regular mail. Hard copies of the newsletter also included preprinted comment cards with the scoping questions and park address. Electronic and hard copies of the newsletters were distributed in early November 2016 and the public comment period ran from November 10 to December 15, 2016. The park received three responses: a letter from the Friends of Haleakalā National Park submitted via email; a letter from Kīpahulu ‘Ohana submitted via PEPC; and a comment from an unaffiliated individual submitted via PEPC.

February 2017 Stakeholder Workshop Sessions

The National Park Service held two stakeholder sessions on Wednesday, February 15, 2017 to allow participants another opportunity to comment on management issues at Kīpahulu and begin envisioning potential solutions. Invitations to these meetings were distributed via email, regular mail, and through phone calls from Haleakalā National Park staff. A Kīpahulu and Summit Kūpuna Groups combined listening session was also scheduled for that evening.

Summary of Public Scoping

The scoping phase of a comprehensive planning process plays an important role to focus the issues that must be addressed in the plan. The following topics represent the pertinent comments and concerns that were identified during the scoping phase in the summer of 2016 and spring of 2017.

- **Level of site development and design character.** While there are needs for improved facilities, commenters expressed strong support for maintaining a traditional Hawaiian experience at Kīpahulu. Many commented on the appropriate level of site development in the district. Some felt that the area should remain natural and not be over-managed, while others felt that additional park presence would help guide appropriate visitor behaviors at the pools, on the trails, and in the campground. There was widespread agreement throughout public comments that any development within the Kīpahulu District should be sensitively designed to echo traditional Hawaiian construction techniques and materials and the development footprint should be kept to a minimum so as to not affect scenic views.
- **Visitor safety and accessibility.** Safety and accessibility improvements associated with the trails and Pools of ‘Ohe‘o were common themes during public scoping. Fatalities and numerous injuries have occurred at Kīpahulu in the past decade because of hazardous conditions or unauthorized visitor behaviors, but many commenters did not like the negativity of the signage currently used by the park to educate visitors of potential risks. The public also wanted more opportunities for those with mobility issues to be able to enjoy the park’s resources from physically accessible trails. Another safety risk is long emergency response times due to the District’s remote location and distance from emergency services, particularly at night.
- **Campground management and development.** Comments supported redesigning the campground and taking a more proactive management approach to camping.

Commenters felt that changes to the campground could improve visitor behavior, better protect nearby cultural resources, and allow better crowd control.

- **Visitor impacts and resource protection.** During public scoping numerous individuals commented on the number of visitors at Kīpahulu and perceived negative effects to the area's resources. Specific concerns included erosion and vegetation damage associated with the horse trail, off-trail hiking and littering; water quality in the pools being affected by sunscreen; and invasive species being spread through visitor actions including off-trail use and horseback riding. Visitors waiting to enter the park have formed long vehicle lines, extending to the Hāna Highway and impeding local traffic. Congestion on trails has also led to widening of trails.
- **Interpretation and educational opportunities.** Commenters felt the park should offer additional opportunities to connect visitors to the area's natural and cultural resources. Additional cultural experiences and learning opportunities would allow the park to explain the continuing traditions and customs associated with the land, might engender respect and awareness for land and resources, and encourage appropriate visitor behaviors. Some comments highlighted the potential to work with local Hawaiian groups and individuals to help convey the land's importance through paid positions and programming. Some also suggested expanding programming and plantings at Kapahu Living Farm, a facility that is currently managed by a nonprofit park partner group.

CONSULTATION AND COORDINATION TO DATE WITH OTHER AGENCIES, OFFICES, AND NATIVE HAWAIIAN GROUPS

Section 7 Consultation with the US Fish and Wildlife Service

The National Park Service initiated informal consultation with the US Fish and Wildlife Service in an April 2017 letter. The letter notified the US Fish and Wildlife Service that the National Park Service was developing a comprehensive plan for the Kīpahulu area and was initiating information consultation on the project. The National Park Service referenced the electronic list of federally listed plant and animal species, as generated by the US Fish and Wildlife Service Information for Planning and Conservation (IPaC) system (<https://ecos.fws.gov/ipac>).

The NPS will continue ongoing informal consultation and reinitiate appropriate consultation if needed, with the US Fish and Wildlife Service for their concurrence.

Consultation with Native Hawaiian Organizations

In letters dated July 2016, the National Park Service (Haleakalā National Park) notified representatives of six Native Hawaiian Organizations (NHOs) associated with the park of the intent to prepare a comprehensive management plan for the Lower Kīpahulu Valley district and to seek consultation with interested stakeholders. The park Kūpuna Groups and other NHOs were invited to participate in the August 2016 listening sessions, winter 2016 commenting period, and February 2017 stakeholder workshop sessions and have been informed of the status of the project throughout the planning process.

In March 2018, 12 Kūpuna Group members, 11 NHOs, and 8 associated organizations with an interest in historic preservation received letters from the National Park Service formally initiating the section 106 consultation process. These individuals and organizations will be provided copies of the plan/environmental assessment for their review and comment and will be invited to participate, as

appropriate, in follow-up project meetings. The National Park Service will continue to consult with the Kūpuna groups and identified stakeholders as actions identified in the plan advance to more detailed design development and implementation stages.

Section 106 Consultation with the Hawai'i State Historic Preservation Division

In March 2018, the National Park Service (Haleakalā National Park) notified the Hawai'i State Historic Preservation Division (SHPD) of the intent to consult under section 106 of the National Historic Preservation Act regarding the preparation of a comprehensive plan/environmental assessment for the Lower Kīpahulu Valley area within the park.

The Hawai'i SHPD will be provided a review copy of the plan/environmental assessment to assess the potential effects of the proposed alternatives on cultural resources (archeological; ethnographic; historic structures; and cultural landscapes). In accordance with Section 106 of the National Historic Preservation Act, the National Park Service will continue to consult with the Hawai'i SHPD, associated NHOs, and other stakeholders as actions identified in the plan advance to more detailed design development and implementation stages.

AGENCIES, ORGANIZATIONS, AND INDIVIDUALS RECEIVING A COPY OF THIS DOCUMENT

Federal Agencies

USGS Pacific Island Ecosystems Research Center
USFWS Pacific Islands Office

US Senators and Representatives

US Senator Brian Schatz (HI)
US Senator Mazie Hirono (HI)
US Representative Tulsi Gabbard (HI-2)

State Agencies

Hawai'i Department of Hawaiian Home Lands, Honolulu
Hawai'i Department of Hawaiian Home Lands, Maui
Hawai'i Department of Land and Natural Resources – Division of Forestry and Wildlife, Honolulu
Hawai'i Department of Land and Natural Resources – Division of Forestry and Wildlife, Maui
Hawai'i Department of Land and Natural Resources – Land Division, Honolulu
Hawai'i Department of Land and Natural Resources – Land Division, Maui
Hawai'i Department of Land and Natural Resources – State Historic Preservation Division, Maui

State Officials

Governor David Ige
State Senator J. Kalani English (7th District)
State Representative Lynn DeCoite (13th District)

Local and Regional Government Agencies and Officials

Administrator, Maui County Environmental Program
Gladys Baisa, Chair Maui County Council
Hāna Council Office
Kamehameha Schools Maui
King Kekahlike High School
Maui County Council
Maui County Environmental Program
Maui County Mayor's Office
Mayor Arakawa, Maui County
Office of Hawaiian Affairs, Maui Community Resource Center

Native Hawaiian Groups Associated with Haleakalā National Park

'Aha Moku O Kaupo
Aha Moku o Kahikinui
Aha Moku O Maui, Inc.
Ali'I Ai Moku o Kahekili
Brian Kaniela Nae'ole Na'au
George K. Cypher 'Ohana
Kīpahulu 'Ohana
Kuloloi'a Lineage
Kumu A'o
Na Koa Ikaika Ka Lahui Hawaii
Nekaifes 'Ohana

Waiehu Kou Phase 3 Association

Libraries

Hāna Library
Makawao Library

Media

Hawai'i Public Radio
Honolulu Star Advertiser
KHON2
KITV
Maui Bulletin
Maui Island Press
Maui Magazine
Maui News
Maui Time
Maui TV News
Maui Watch
National Parks Traveler
Pacific Radio Group
Paradise Television

Organizations and Businesses

Diamond B Ranch
East Maui Watershed Partnership
Friends of Haleakalā National Park
Haleakalā Ecotours
Hāna Ranch
Hawai'i Farmer Union United
Hawai'i Pacific Parks Association
Hawaiian Island Land Trust
Historic Hawai'i Foundation
Kaupo Community Association
Kaupo Ranch
Kula Community Association
Leeward Haleakalā Watershed Restoration Partnership
Maui Conservation Alliance
Maui Visitors and Convention Bureau
Pacific Islands Climate Change Cooperative
Paukukalo Hawaiian Homes Community Center
Polynesian Adventure Tours, Inc. Gray Line Hawai'i
Pukalani Community Association
Skyline Eco-Adventures, LLC
The Nature Conservancy
University of Hawai'i at Manoa – College of Tropical Agriculture and Human Resources
University of Hawai'i at Manoa – Department of Natural Resources and Environmental Management
University of Hawai'i Maui College – Maui Agricultural Research Center
Valley Isle Excursions, Inc.
Waiohuli Hawaiian Homesteaders Association
Wananalua Congregational Church

University of Hawai'i Maui College – Maui Agricultural Research Center
Valley Isle Excursions, Inc.
Waiohuli Hawaiian Homesteaders Association
Wananalua Congregational Church
West Maui Mountains Watershed Partnership

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As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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