Comments due 11 pgs
→ 4.6

DRAFT ENVIRONMENTAL IMPACT STATEMENT

Sea Mountain at Punalu'u

Ka'ū District, Punalu'u, Hawai'i
Tax Map Key: (3) 9-5-19:11, 15, 24, 26, 30, 31, 33, 35; (3) 9-5-27:20;
(3) 9-6-01:01, 02, 03, 06, 11, 12, 13; (3) 9-6-02:08, 37, 38, 41, 53

Applicant:
Sea Mountain Five, LLC (by its managing partner Cabear Corporation)

Accepting Authority: County of Hawai'i, Planning Department
Approving Agency: County of Hawai'i, Planning Commission

October 2006

GROUP 70

Group 70 International, Inc.
Architecture • Planning • Interior Design • Environmental Services
Honolulu, Hawai'i

Lava Flows: The project area is within Zone 3, indicating a moderate to severe hazard. The project site is located in lava flow hazard zone "3" with "1" posing the greatest hazard and "9" posing the least.

Earthquakes: The entire island of Hawai'i is susceptible to earthquakes originating in fault zones under and adjacent to the island. Under the uniform building code seismic provisions, the Zone 4 area could experience severe seismic activity between .30 and .40 of the earth's gravitational acceleration (g-forces) causing major damage to poorly designed or built structures.

Wildfires: The project area is located in an area susceptible to brush fires. Brush fires could easily spread onto the project site without adequate fire buffers on the project perimeter.

Flora and Fauna: Development in close proximity to the coastal area may have adverse impacts to the area. The coastal zone contains more native species than all other areas of the site. Mitigative measures will be taken to ensure the proper preservation of the coastal area. Small clusters of trees throughout the project area will be preserved when possible as they provide habitat for the endangered Hawaiian hoary bat. Night-lights and human-made structures may cause injury to sea birds such as the endemic Dark-rumped Petrel and federally-listed Newell's Shearwater. Downward casting lighting will be implemented to reduce these potential impacts.

Short-term effects to vegetation and wildlife can be anticipated wherever site clearing and grading or excavation is necessary. Of particular concern is the potential for disturbance that may affect habitats for endangered species of vegetation or wildlife. The unrestricted movement and growth of rodents and ungulates on project lands can disturb vegetation and wildlife in need of protection.

Flora: Human impact has substantially altered the vegetation on much of the property, either directly (e.g. clearing for existing development and golf course) or indirectly (e.g. introduction of alien plants, and fire). A concentration of native plants is located within the coastal zone. Two endangered Loulu palms were found in this zone. The coastal zone will be preserved and restored.

Fauna: The endangered Hawaiian hoary bat was observed on the project site. The bats may roost and breed in the area throughout the course of the year. They could be disturbed or directly harmed by grubbing and tree felling. Sizable tree stands will be preserved whenever possible. The federally endangered Hawaiian hawk ('Io) and the Hawaiian short-eared owl (Pueo), a federally listed species of concern, were not seen on the project site, however they could occasionally visit the site. Native waterbirds such as the Black-necked stilt (Ae'o), Hawaiian coot ('Alae Ke'oke'o), the Nene goose, and the indigenous Black crowned night-heron ('Auku'u) could make use of the site as well. Construction activities could disturb nesting of bird species during the breeding season. Preconstruction surveys will be performed to determine whether any active nests are present. If active nests are present, these areas will be avoided until the chicks have fledged.

The project site is often home to nesting Hawksbill and Green Sea Turtles. Additional visitors in the area may cause damage to their habitat or interfere with their nesting patterns.

Roadways and Traffic: The project will have long-term impacts on surrounding areas including new traffic circulation patterns, and increased traffic at intersections with Hawaii Belt Highway, Alahaki Road and at Nīnole Loop Road.

Hazardous Materials: Residential and commercial operations have minimal potential for hazardous material impacts. Demolition activities may release friable asbestos into the air or uncover contaminated soil. Asbestos testing should be performed on all structures to be demolished that were constructed prior to 1980. If asbestos is positively identified, demolition should be conducted per DOH requirements for containment of friable asbestos materials. Notify the nearest DOH permitted landfill (Pu'u Anahulu, Kona) of the presence of an incoming asbestos containing waste material and follow any specific guidelines that the landfill operator provides. In the event that potentially contaminated soil is encountered during demolition or grading activities, activities should cease until suspect soil is tested in accordance with DOH regulations. Soil remediation should then occur in accordance with DOH recommendations.

Flora and Fauna: The coastal area containing the greatest concentration of native plants and habitat identified as Zone A in Patrick Hart's study will be preserved and restored. Tree stands provided Hawaiian hoary bat habitat identified in the Hart study will be preserved as much as possible. Protection measures will be followed to keep turtles and their habitat safe. Landscaping within Sea Mountain will use native species to the extent practicable. An Integrated Natural Cultural Resource Management Plan (INCRMP) will be developed to address preservation, mitigation, management and stewardship measures relating to the flora and fauna on the Sea Mountain site. Land clearing will be avoided during breeding and nesting season to minimize disturbance to nesting native waterbirds. Night lighting will be properly shielded to minimize potential injury to Dark-rumped Petrels and Newell's Shearwaters.

Cultural Resources: The project's archaeologist will submit to the State Historic Preservation Division for its review and approval a conceptual historic preservation plan to protect important archeological sites and historic and cultural resources. Incorporation of the plan would also result in the previously mentioned benefits from the use of resources via interpretive venues. An Integrated Natural Cultural Resource Management Plan (INCRMP) will be developed to address preservation, mitigation, management and stewardship issues. Inadvertent burial discoveries made during the various preparation and construction phases of the proposed project, will follow proper protocols as required by the Hawai'i State Historic Preservation Division (SHPD) Burial Sites Program. Implementation of the INCRMP will involve an ongoing process of communication with community representatives on use of and access to resources of significance in traditional Hawaiian practices.

Archaeological Resources: The Sea Mountain master plan is designed to preserve significant archaeological sites throughout the project site. Sites recommended for possible preservation will be surveyed, and the site plan modified as necessary to ensure proper treatment of significant archaeological features. In cooperation with the State Historic Preservation Office, a treatment and mitigation plan will be developed for any features determined to be archaeologically or historically significant. An Integrated Natural Cultural Resource Management Plan will be designed to identify specific preservation and mitigation measures regarding the archaeological resources.

Air Quality: Short-term impacts from fugitive dust will likely occur during the project construction phase. To a lesser extent, exhaust emissions from stationary and mobile construction equipment, from the disruption of traffic, and from workers' vehicles may also affect air quality during the period of construction. State air pollution control regulations require that there be no visible fugitive dust emissions at the property line. Hence, an effective dust control plan must be implemented to ensure compliance with State regulations. Fugitive

4.2.2 Ancient Land Resources and Use

While the traditional literature is relatively sparse on the subject of Punalu'u, Wailau and Nīnole lands, the cultural resources found on the landscape are abundant. The permanent and temporary shelters, the midden clues at those sites, and in the caves, the extended use of the lava tube systems, the habitation and agricultural complexes, and especially the burials and the heiau tell stories of ancient uses of the land. People lived and died here for generations. People worked and worshipped here. People cultivated the diverse natural resources (endemic/indigenous plants; bountiful marine resources; bountiful aquaculture resources), as well as cultivated their own cultigens, staples, medicines and ritual plants. The lands of Punalu'u, Wailau and Nīnole were not barren, as presented in the native testimonies to the Land Commission regarding the Mahele Awards. It is very conceivable that these people of the mid-1800s were following in the practices of predecessors of the land.

4.2.3 Historic Land Resources and Use (Post 1801)

During the 1700s there were many battles across the landscape of Hawai'i Island. Many fishing villages and farmlands were ravaged by warriors passing through or exacting harsh revenge on opposing chiefs and their families. This was the case for the lands of Punalu'u, Wailau and Nīnole, even up to the late 1700s. However, the native testimonies mentioned above indicate that they must have made a great comeback during the mid-1800s. At least 20 people were awarded *kuleana* lands in Nīnole; twelve in Wailau; and at least sixteen in Punalu'u; several people did not get awarded their lands even though they testified that they were living and farming on it. There was a wide range of what was being cultivated and/or gathered on these lands: crops or patches of taro, wauke, sweet potato, banana, sugar cane, pumpkin, olonā, mamake, bamboo, hala, coconut, hau and 'ōhi'a. Several individuals recalled the resources of the area (e.g., coconut), and one spoke of going to their taro patch in Wailau when they were young.

4.2.4 Summary of Water Resources and Use

In modern times, the streams of Punalu'u, Wailau and Nīnole are not running, however, several LCA claimants mentioned streams on or bordering their lands: Punalu'u, Nīnole, Moa'ula and Mohokea. Many also mentioned ponds and/or springs on their lands; several noted lo'i, which by definition, needed running or some other fresh supply of water. Wauke and olona also need to grow in moist areas. Several cultural consultants mentioned the ponds and springs and their domestic use such as drinking water, water to wash clothes, raising fish, and swimming.

4.2.5 Summary of Marine Resources and Use

This category seems to have the most resources and use. Many of the people interviewed shared the types of fish they caught, their methods, and the types of limu or sea weed, opihi, and wana they gathered *(Table 4-1)*. There would most likely be more fish listed if other fishermen shared the types of fish they caught diving, pole fishing or net fishing. The interviewees also noted the endangered turtles (green sea turtle and hawksbill turtle) and the migratory and native sea birds and ducks of the area. There is grave concern by many for the turtles that nest in the area and their young, who have been known to get crushed by vehicular activities in the beach area. The beach road is currently closed to public vehicular access.

5.2.14.3 *Medical and Emergency Services*

Probable Impacts

Medical emergencies and health care are important in modern life. The Ka'ū Hospital and Rural Health Clinic in Pāhala would serve the project site. This small facility is working with aged infrastructure and equipment. In a survey of Ka'ū residents the UH Department of Urban and Regional Planning showed that a hospital topped the list of the top five public facilities needed in the Ka'ū region. The majority of the homeowners at Sea Mountain are not expected to use the Ka'ū Hospital for primary medical care. The developer is not currently bound to any mitigation measures concerning provision of medical services. Nevertheless, the additional population will ultimately contribute to the need for additional medical services. Sea Mountain Five, LLC would like to help mitigate this impact, however, a mitigation mechanism has not been determined. This remains an unresolved issue and further discussion is required.

Sea Mountain Five, LLC is currently developing a benefits package that includes the hospital and other health care providers as potential beneficiaries of a community trust. The details and amounts are currently being discussed and detailed.

Mitigative Measures

No mitigation measures are required, however, the issue remains unresolved.

5.2.14.4 *Recreational Resources*

The residents of Sea Mountain will add to the total number of residents in the Ka'ū area who will need access to recreational resources.

One way of offsetting the impacts on existing recreational facilities is to provide other on-site recreational opportunities. The proposed project is designed to increase and improve the recreational opportunities available to the residents of the Ka'ū district as well as to the residents and visitors of the Sea Mountain resort.

The coastal area at Punalu'u is presently a major recreational asset to residents and visitors to the area, and development of the larger Sea Mountain project will bring an influx of additional visitors to the existing beach area. Additional persons on the beach have the potential to impact the natural resources as well as potentially affect recreationists who regularly utilize the coastal area.

The issue of carrying capacity was evaluated for the Punalu'u black sand beach *(Appendix L)*. The main points in the analysis are shared here. Carrying capacity is defined as the maximum number of people that a tourist destination can accommodate without adverse impacts to the physical and socio-cultural environment and without a decrease in visitor enjoyment of the destination. A traditional approach to carrying capacity has been to limit access to the destination in order to reduce the number of tourists, and therefore reduce the impacts to resources. Using this method, the maximum number of tourists that a site can accommodate would be derived from a factor, so many people per square foot of beach. This method has been criticized for using too many assumptions, and not taking into consideration the environmental, social, economic, and physical factors that can influence the impacts to and experience of a tourist destination. When the carrying capacity of the black sand beach was examined in light of environmental, social, economic, and physical factors, many concerns were identified, such as concern for turtles, beach erosion, destructive tour bus traffic, access for local people. The intention of the Sea Mountain development is to balance what residents and

visitors want while protecting the natural resources that make this location unique. A complete list of mitigation measures identified in the study are listed below.

Mitigative Measures

The Sea Mountain project plans to expand access to recreational resources for residents and visitors.

A championship golf course is planned for private and public use. Sea Mountain Five, LLC is contemplating a membership program for Sea Mountain residents. Public play on a fee basis will be scheduled into normal golf course operations on a space available basis. The fees for public play will be set at a price level competitive with the other resort golf courses on the Island of Hawai'i. There will be a kama'aina rate for local golfers. Sea Mountain Five, LLC anticipates that the golf course will participate in organized youth golf programs for students attending schools on the Island of Hawai'i. The golf course also provides a major open space recreational amenity.

The existing seven-acre will be upgraded and possibly expanded to accommodate additional visitors. Park facilities such as parking, picnic tables, pavilions, barbeques, campsites, and a boat ramp will be accessible for public use; that area can be dedicated to the County of Hawai'i if the County is agreeable to accepting the dedication.

With the increased usage of resources comes the increased need for maintenance. A beach maintenance plan will be prepared that will address coconut tree pruning, litter cleanup, waste disposal, restroom cleaning and maintenance, landscaping maintenance, possible beach nourishment, and graffiti removal.

Sea Mountain Five, LLC is also pursuing the restoration of Nīnole Cove area as an additional recreational space. This will require permission from the State of Hawai'i and a permitting process. The developer seeks to provide picnic grounds and walking trails accessing this area.

Educational tourism can be considered a recreational resource. Prospective residents at Sea Mountain could enjoy participating in cultural and environmental awareness educational programs as a form of recreation. These educational programs would provide cultural and environmental awareness of the unique aspects of the project area and the Ka'ū area in general. Features such as the black sand beach, Hawksbill and green turtle nesting, heiau, archaeological sites, and historic sites can provide this low impact educational and recreational opportunity. This would also provide open space recreational resources. Educational programs could be offered through programs organized by the hotel(s) and cultural center.

The following potential mitigation measures are included from the carrying capacity analysis in *Appendix K.*

Environmental mitigation measures

1. Visitor education programs on erosion.
2. Wooden walkways for viewing beach.
3. Beach nourishment (depending on cost and further scientific studies).
4. Erosion-slowing plants.
5. Educational programs on turtles.
6. Educational signage about turtles.
7. Designated turtle viewing areas.

8. Educational program on delicate coastal resources.

Social mitigation measures

1. Signage indicating the location of natural and historic resources and trails.
2. Buffers to separate visitors from sensitive resources.
3. Raised walkways to help direct desired traffic patterns.
4. Designated bus parking areas away from the beach.
5. Prohibition of bus and vehicle access to any beach areas.
6. Education of bus drivers concerning the area.
7. Educational brochures.
8. Enforcement of warning signs regarding the rough ocean current and turtles.
9. Provide a variety of recreational options for residents in addition to the black sand beach area (pools, walking, hiking and biking trails, picnic areas).

Physical mitigation measures

1. Construction of raised walkways.
2. Restoration of Nīnole Cove and coastal ponds.
3. New improved park area.
4. Existing and new parking areas clearly marked and maintained.
5. Include low-impact lighting and fixtures.

The approach of the Sea Mountain development is to focus on desired beach conditions, not numbers. Rather than just reducing the number of visitors, through implementation of educational programs and signage we intend to create "smart" visitors and reduce the impact per visitor. Hotel and resort staff, especially security and docent positions, would be trained to educate and enforce regulations and policies.

Through the mitigation measures listed above we intend to meet the needs of residents and visitors and involve everyone in the protection and perpetuation of resources at the Punalu'u black sand beach.

5.2.15 Coastal Waters

Probable Impacts

An assessment of the marine and pond environments at Sea Mountain was conducted by Marine Research Consultants (MRC) (April 2006) *(Appendix J)*. MRC evaluated the nearshore and pond water chemistry and biota off the proposed Sea Mountain Village project in late 2005 and early 2006. Sixty-six water samples were collected at five offshore sites located in the vicinity of the project, as well as from shoreline. Water samples were collected on transects perpendicular to shore, extending from the shoreline to a distance of up to 50 m offshore. Samples were also collected from five potable wells upslope of the project site in order to determine chemical composition of unaltered groundwater. Analysis of twelve water chemistry constituents included all specific constituents in DOH water quality standards.

6.0 RELATIONSHIPS OF THE PROPOSED PROJECT TO EXISTING PLANS AND POLICIES

6.1 OVERVIEW

An important consideration in evaluating the potential impacts of a proposed action on the environment is how it may conform or conflict with approved or proposed land use plans, policies, and controls for the affected area. In addition to State of Hawai'i policies and controls, this EIS addresses applicable Federal regulations regarding endangered species and equal accessibility, and the consistency of the proposed Sea Mountain project with respect to the County of Hawai'i General Plan, and County of Hawai'i Zoning.

6.2 U.S GOVERNMENT PLANS AND CONTROLS

6.2.1 Endangered Species Act

The Endangered Species Act of 1973 provides a legal means by which identified ecosystems that are determined to be essential to the sustainability of an endangered or threatened species can be conserved. Under this Act, the U.S. Fish and Wildlife Service in the Department of the Interior is responsible for all terrestrial and freshwater species, as well as migratory birds, while the National Marine Fisheries Service is responsible for marine species.

Discussion: Punalu'u's unique black sand beach hosts many Hawaiian Green Sea Turtles (Honu), which are listed as threatened under the Endangered Species Act. These marine reptiles are commonly seen foraging for seaweed (limu) in the nearshore waters and often crawl ashore to bask on the sandy beach. In addition, the endangered Hawksbill Turtle (Honu'ea) occasionally enters Punalu'u Bay at night to crawl shore and lay eggs in a nest dug into the sand. Punalu'u is the setting for perhaps the most significant legend relating to sea turtles in ancient Hawaiian culture, and an educational sign and monument explaining the legend exists at the beach. Turtle watching by residents and visitors is a popular activity at the beach, and the area has long been a research site for scientists and resource managers investigating the turtles. The Sea Mountain project will continue to support the on-going conservation efforts at Punalu'u.

The Hawaiian Hoary Bat *(Lasiurus cinereus semotus)* is a state and federally listed endangered species. It is the only land mammal that is native to Hawai'i. Results of a bat survey indicate presence of bats throughout most, if not all, of the subject area. In particular, the large, mixed, stand of introduced trees growing on the grounds of the abandoned restaurant and visitor center appears to be an important roosting area. Unfortunately, the natural history of these bats is poorly understood. What is known suggests that the removal of large trees, especially during the summer months, could result in the incidental "taking" of bats; accordingly, suggested mitigation is to minimize the cutting of large trees wherever possible, and then cut only from September through May.

Recently there seems to have been a moderate increase in the number of monk seal sightings along the beaches of Ka'ū. Measures similar to turtle protection will be extended to this species as well.

As described in *Section 4*, fourteen species of birds were detected during the surveys, all alien introductions except one indigenous heron species and one indigenous shorebird species. No rare, threatened or endangered species were encountered during the surveys. While the

8.5 ELECTRICAL SERVICES

Future electrical demand for the Sea Mountain site is currently unknown. Without this information, HELCO is unable to determine if facility upgrades will be necessary. As the project plans progress, Sea Mountain Five, LLC will keep HELCO informed when more detailed development plans are available, so they can plan to provide the appropriate level of infrastructure.

8.6 BEACH CROWDING

The proposed project would increase impact on existing recreational resources such as the Punalu'u black sand beach and existing County beach park. The residents of Sea Mountain will add to the total number of residents in the Ka'ū area who will need access to recreational resources.

One way of offsetting the impacts on existing recreational facilities is to provide other on-site recreational opportunities. The proposed project is designed to increase and improve the recreational opportunities available to the residents of the Ka'ū district as well as to the residents and visitors of the Sea Mountain resort.

The issue of carrying capacity was evaluated for the Punalu'u black sand beach *(Appendix L)*. The main points in the analysis are shared here. Carrying capacity is defined as the maximum number of people that a tourist destination can accommodate without adverse impacts to the physical and socio-cultural environment and without a decrease in visitor enjoyment of the destination. When the carrying capacity of the black sand beach was examined in light of environmental, social, economic, and physical factors, many concerns were identified, such as concern for turtles, beach erosion, destructive tour bus traffic, access for local people. The intention of the Sea Mountain development is to balance what residents and visitors want while protecting the natural resources that make this location unique. Mitigation measures identified in the study are listed below.

Environmental mitigation measures

1. Visitor education programs on erosion.
2. Wooden walkways for viewing beach.
3. Beach nourishment (depending on cost and further scientific studies).
4. Erosion-slowing plants.
5. Educational programs on turtles.
6. Educational signage about turtles.
7. Designated turtle viewing areas.
8. Educational program on delicate coastal resources.

Social mitigation measures

1. Signage indicating the location of natural and historic resources and trails.
2. Buffers to separate visitors from sensitive resources.
3. Raised walkways to help direct desired traffic patterns.
4. Designated bus parking areas away from the beach.
5. Prohibition of bus and vehicle access to any beach areas.

1. CONCEPT OF CARRYING CAPACITY

1.1 Definitions

Sustainable development: An approach to development that values existing natural resources and seeks to plan growth as well as leave these resources unchanged for future generations.

Sustainable development of tourism: An approach to tourism that uses natural and cultural resources to increase the number of visitors and the profit from tourist activities but preserve the resources for future generations (UNEP/MAP/PAP, 1999).

Carrying capacity: The World Tourism Organization defines carrying capacity as, "the maximum number of people that may visit the tourist destination without causing destruction of the physical, economic and socio-cultural environment and an unacceptable decrease in the quality of visitor's satisfaction" (UNEP/MAP/PAP, 1999).

1.2 Traditional "Scientific" Approach

The traditional approach to carrying capacity takes into account only the physical constraints of a space, in other words, how many persons fit within a defined space at any given time.

Traditional carrying capacity philosophy teaches that by limiting the number of persons that can use a site at any given time it can help to prevent overcrowding which can lead to deterioration of site resources, and hinder user's ability to move freely and fully enjoy the natural setting (Florida Div. of Parks and Rec.).

One traditional method for limiting carrying capacity is to limit the capacity/size of infrastructure that supports the recreational facility. This includes the number of parking spaces, size of the restrooms, and other supporting features.

To calculate the carrying capacity of a beach, area requirements for optimum carrying capacity are chosen, and a number is arrived at. Beach facilities are then appropriately sized around this number so as to limit the number of users.

Example:
Usable beach area is the first step to the calculation. The beach area at Punalu'u is somewhat difficult to pinpoint since the sand areas are often infiltrated with lava outcroppings, some porous and some jagged. We will assume that Punalu'u beach is approximately 80,000 square feet (see attached map for outline of beach area used for this calculation). Our second assumption will be that beaches can accommodate one beach user/swimmer per 500 square foot of beach space (see ** note). Turnover rate, or the rate at which people come and go at the beach, varies from destination to destination. At locations where people sunbathe, people come prepared to stretch out on a beach towel and visits tend to be several hours. Sunbathing locations would have a typical turnover rate of 2 persons per day. At locations such as Punalu'u where tour bus traffic is popular and people tend to spend 15-30 minutes walking to different locations to sightsee prior to departing on the bus, a more accurate turnover rate of 4

persons per space per day would be appropriate (see *** note). Based on the above assumptions, a maximum carrying capacity for the Punalu'u beach of 640 persons per day was calculated.

Square Feet of Beach*:	80,000
Area Requirements**:	÷ 500 (500 sf of beach per person)
	160 persons
Turnover factor:	x 4 (4 persons per day turnover rate)
Total Carrying Capacity	640 persons per day

* Area is approximate. See attached map Exhibit 1 for what is defined as recreational beach area.

** Based on Optimum Carrying Capacity for Water-Based Outdoor Recreation Activities Standard of 200-500 sf of beach per swimmer (Florida Division of Parks and Recreation)

*** Based on tourist habits, most stay for short durations to explore coast on foot, rather than sunbathe for hours

The above analysis would also indicate what level of crowdedness would occur at the beach at maximum carrying capacity. If 160 persons use 80,000 square feet of beach at any given time, each person would be allotted 500 square feet of space (80,000 sf/160 persons), meaning each visitor is spaced approximately 22 feet from the next visitor (square root 500 sf).

1.3 Problems with Traditional Approach

Traditional carrying capacity analysis is straightforward. However, this method uses many assumptions and simplifies the issue. There are many factors that are integral to understanding carrying capacity that a numeric equation may not account for. The following list explores some of the other dimensions for assessment.

Environmental

How many visitors can the beach accommodate while sustaining the site's unique natural resources?

Social

Resident perceptions: How many visitors are socially acceptable to the host community? When is the beach considered crowded?

Tourist perceptions: Is this destination perceived as crowded or open? Is it a desirable tourist destination?

Other recreational options: Are there other recreational options for residents and tourists to participate in to off-set impacts to the beach area?

Economic

Assesses economic cost to the supplier. Is operation of the beach area efficient? What are maintenance costs?

Physical

What are the physical size limitations of the space? What is the number of people per day or per square foot the beach can accommodate? What size is the supporting infrastructure? Where are access points? How many parking spaces are provided? Da Silva's article in the Journal of Coastal Research actually suggests that perceived carrying capacity has more to do with how easily accessible the space is and how much parking is provided than the actual number of persons in the beach area (da Silva, JCR, 2002).

1.4 Our Approach/Methodology

When development is proposed, different stakeholders in the community often have conflicting or competing interests. Given the fact that the reality of politics demands tradeoffs, our approach will seek to balance development planned for by existing land use designations and preservation efforts in order to secure a sustainable use pattern for the black sand beach.

Although the traditional analysis calculated for Punalu'u above provides a helpful equation for comparison, we would like to move beyond this by asking the questions, how much change to existing beach use patterns is acceptable for both residents and visitors? How do environmental, social, economic and physical factors influence this outcome?

2. ANALYSIS OF PUNALU'U BEACH CARRYING CAPACITY

The following section will evaluate carrying capacity for the Punalu'u black sand beach in light of environmental, social, economic and physical factors. Part of the research for this analysis was conducted through an informal Beach Carrying Capacity surveys completed by local residents.

2.1 Environmental

To evaluate environmental factors, we ask the question, how many visitors can the beach accommodate while sustaining the site's unique natural resources? Unique natural resources at this location include the attraction of the black sand, the Hawksbill turtles, and the coastal resources (fish, limu, seaweed) gathered by local people.

Black Sand Beach

The primary concern with the black sand beach is erosion. Locals have said that the beach seems to be retreating toward the pond area. Erosion is a naturally occurring process on the beach, but it can be augmented by human factors. Uneducated visitors could take sand samples home as souvenirs, track sand out in their shoes, or, large volumes of visitors would inevitably cause disturbance to sandy areas due to over use. Visitor impacts can be curbed through educational programs on erosion and provision of wooden walkways for viewing the beach without walking on it.

Curbing the effects of natural beach erosion is more difficult. Beach nourishment is one way of addressing both the natural effects of erosion, and the effects of visitor traffic. Beach nourishment is a widely practiced way of slowing or stopping the erosion process. Beach nourishment consists of importing manufactured sand to match the color and consistency of the natural sand, and adding back to areas of the beach that are diminishing. At a microscopic level the sand at Punalu'u is roundly polished and finding the appropriate sand source may be difficult. Appropriate sources may exist in off shore sand cells.

Erosion-slowing vegetation could also be planted on the beach area, however, this would require further evaluation to determine appropriate planting locations, materials and measures.

Hawksbill Turtles

Increased beach use would likely result in increased visitor curiosity and proximity to the turtles and their habitat. To prevent visitors from approaching turtles, touching them or playing with them, educational programs on turtles, educational signage about turtles, and designated turtle viewing areas can be provided for visitors. In the future project security personnel and local residents can function as rangers to protect these animals.

Coastal Resources

Punalu'u is a place where locals fish, pick opihi and gather limu along the coastal areas. Unaware visitors may inadvertently trample resources or interfere with fishing and gathering practices. To prevent impact to coastal resources, visitors should be educated about these resources and how to avoid impacting them.

Environmental mitigation measures: Visitor education programs on erosion, wooden walkways for viewing beach, beach nourishment, erosion-slowing plants, educational programs on turtles, educational signage about turtles, and designated turtle viewing areas, educational program on delicate coastal resources

2.2 Social

Resident perceptions:
To evaluate resident perceptions, we ask the questions, how many visitors are socially acceptable to the host community? When does the host community consider the beach crowded? To obtain this information, a limited survey was conducted regarding their perceptions of the beach area. Unfortunately, only five beach carrying capacity surveys were completed for use in this study. However, the results are nevertheless telling concerning the resident perceptions of the beach. A more comprehensive survey may be needed in the future.

The questionnaires produced a range of results as illustrated below.

Question: How would you characterize the crowdedness or emptiness of the beach area given the choices of empty, less empty, moderate, somewhat full, and full?

Answer: four persons answered moderate, and one person answered moderate to somewhat full.

Who did they pay to do this study? I'd ask for my $ back! How could they get the species wrong?

Question: How many persons on average would you guess actively use the beach for sunbathing or swimming at any given time in the afternoon?
Answer: Answers ranged from 20 – 150 with an average of 54.

Question: How many people would the beach be able to physically accommodate at any given time?
Answer: Answers ranged from 50 – 300 with an average of 140.

Question: When would you consider the beach crowded? With the addition of how many more people?
Answer: Answers ranged from 50 – 750 with an average of 250.

Question: How many additional visitors to the beach are acceptable?
Answer: Range from 50 – 200 with an average of 125 (three surveys did not specify a number)

Question: How many additional visitors to the beach are acceptable in light of local economic growth spurred by tourism?
Answer: Range from 50 – 300 with an average of 183 (two surveys did not specify a number)

Question: How far away should another beach user be in order to not feel crowded on the beach?
Answer: Answers ranged from 10 – 30 with an average of 17.5 (one survey did not specify a distance)

It is clear from the range of answers above that carrying capacity is a subjective issue in which people's opinions can differ greatly. There are also some commonalities in the answers. Most agreed that the beach area is moderately crowded and that other beach users should be between 10 and 30 feet away.

Those that responded felt that an average of 183 additional visitors to the beach would be acceptable in light of local economic growth spurred by tourism.
Although residents have expressed that the beach can accommodate a certain amount of additional visitors, residents also expressed their concern about the following issues: access for local people, marine life, erosion, continued access for local fisherman, enforcement of warning signs, and tour bus traffic.

The questionnaire also requested ideas on how these concerns could be addressed at the beach area. A variety of recommendations were noted, including: clear signage indicating the location of natural and historic resources and trails, enforcement of warning signs to protect swimmers from rough currents, buffers to separate visitors from sensitive resources, and raised walkways to help direct desired traffic patterns. These measures are included as mitigation in section C below.

Tourist perceptions: Evaluation of tourist perceptions is challenging, as this is also subjective depending on the expectations of the individual tourist. There are essentially two genres of tourists that will visit the project site, those that visit the site on vacation and stay in the resort

or in their vacation rental or home, and those that arrive via tour bus and stop by for a short duration of time to see the black sand beach and the turtles. We will speculate if the beach area is perceived as crowded or open and if it is perceived as a desirable tourist destination?

Vacationers in Residence: A majority of the vacationers in residence may not have prior experience at the beach and may perceive existing levels of crowding as typical. Many "mainland" type vacationers also may not perceive the black sand beach as a desirable area to sunbathe and swim. They are likely to be accustomed to and expecting gentle white sand beaches with clear water. The rough rocky shoreline may discourage many vacationers from swimming and they may seek alternative recreational areas for swimming and sunbathing.

Tour Bus Tourists: Resident surveys indicate that approximately 8-10 tour busses visit the black sand beach each day. Tourists from the buses engage in activities on the beach such as taking pictures, touching the water, looking at turtles, using the restroom at beach park, and minimal sunbathing and swimming. Concerns regarding tour bus traffic include disturbance of turtles and tracking of black sand away from the beach through shoes and blankets. Suggestions for improving tour bus tourist patterns included designated bus parking areas away from the beach, raised walkways to direct foot traffic, education of bus drivers concerning the area, educational brochures, enforcement of warning signs regarding the rough ocean current and turtles.

Other Recreational Options: A mitigating factor for the introduction of additional residents in one locality seeking recreational resources is to provide these new residents with additional recreation options than the existing black sand beach. New residents in the Sea Mountain development would have opportunities to use the resort and/or residential pool and deck areas for sunbathing and swimming. There will also be hiking/walking/biking trails, a renovated beach park, and possibly a new restored recreational area around Ninole Cove. These other recreational options for residents and tourists to participate in are expected to off-set impacts to the beach area. The boat landing area might also be injured to provide a picnic area available to the public. Additionally, many "mainland" visitors are expected to choose recreational options other than the black sand beach.

Social mitigation measures: Signage indicating the location of natural and historic resources and trails, buffers to separate visitors from sensitive resources, raised walkways to help direct desired traffic patterns, designated bus parking areas away from the beach, education of bus drivers concerning the area, educational brochures, enforcement of warning signs regarding the rough ocean current and turtles, provide a variety of recreational options for residents in addition to the black sand beach area (pools, walking, hiking and biking trails, picnic areas)

2.3 Economic

An economic assessment evaluates the economic cost to the supplier, the tourist efficiency compared to unit costs and maintenance costs. Economic costs will include beach park maintenance, landscaping upkeep, solid waste removal, facility upkeep (buildings, trails, signage etc.), and possibly beach nourishment. It is too early in the planning process for the project to know the cost details for many of these economic issues. This will need to be an item of future evaluation.

Economic mitigation measures: None.

2.4 Physical

Da Silva's article in the Journal of Coastal Research actually suggests that perceived carrying capacity has more to do with how easily accessible the space is and how much parking is provided than the actual number of persons in the beach area (da Silva, JCR, 2002).

To determine the physical impacts we must examine physical constraints. What are the physical size limitations of the space? What size is the supporting infrastructure? Where are access points? How many parking spaces are provided?

Again, many of the details regarding future facilities are not available due to the early stage of the planning process. However, it is not the intention of the developer to limit access to the area by limiting access and parking to the beach area. Current plans (subject to change) indicate that the beach area will be accessible from two locations, a parking lot at the beach park and a parking lot behind the old restaurant area. It is possible that the existing parking area where tour busses park will be eliminated and busses will be asked to park further away and tourists walk to the beach on designated pathways in order to protect the beach from further erosion impacts. Proposed facilities will inevitably provide more access and parking for locals and tourists than is currently available. A new parking and recreational area is also proposed around a restored Ninole Cove and will increase beach resources available to the public.

Physical mitigation measures: Boardwalks, improved beach areas, and restoration of Ninole Cove.

3. MITIGATION OPTIONS

The following mitigation measures are recommended to reduce total impact per visitor on the Punalu'u black sand beach.

Environmental mitigation measures:

1. Visitor education programs on erosion,
2. Wooden walkways for viewing beach,
3. Beach nourishment,
4. Erosion-slowing plants,
5. Educational programs on turtles,
6. Educational signage about turtles,
7. Designated turtle viewing areas,
8. Educational program on delicate coastal resources

Social mitigation measures:

1. Signage indicating the location of natural and historic resources and trails,
2. Buffers to separate visitors from sensitive resources,
3. Raised walkways to help direct desired traffic patterns,
4. Designated bus parking areas away from the beach,
5. Education of bus drivers concerning the area,
6. Educational brochures,

7. Enforcement of warning signs regarding the rough ocean current and turtles,
8. Provide a variety of recreational options for residents in addition to the black sand beach area (pools, walking, hiking and biking trails, picnic areas)

Economic mitigation measures: None.

Physical mitigation measures:

1. Construction of raised walkways.
2. Restoration of Ninole Cove.
3. New improved park area

4. CONCLUSIONS

The desire of the Sea Mountain development is to balance what the residents and tourists want. Unanimously, people want access and parking and the ability to enjoy this amazing natural resource along with protection of sensitive resources that make this place special.

The approach of this development is to focus on desired beach conditions, not numbers. Rather than just reducing the number of visitors, through implementation of educational programs and signage we intend to create "smart" visitors and reduce the impact per visitor.

Through the mitigation measures listed above we intend to meet the needs of residents and visitors and involve everyone in the protection and perpetuation of resources at the Punalu'u black sand beach.

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Planned resort divides Big Isle community

9/28/06 HSB

By Rod Thompson
rthompson@starbulletin.com

HILO >> Residents of the Big Island's remote Kau District are lining up for and against a planned 434-acre resort at Punaluu, 56 miles south of Hilo.

On Tuesday, O Ka'u Kakou (We Are Ka'u), leaning in favor of the resort, announced a series of financial benefits for the community that the group would seek to negotiate with prospective owner Sea Mountain Five LLC.

Tonight, a different group called Ka'u Preservation is holding a 6 p.m. meeting at the Naalehu Community Center "to stop the proposed development," the group said.

Although Sea Mountain Five representatives have talked with the community for a year, public posturing increased suddenly after the announcement Sept. 14 that ocean explorer Jean-Michel Cousteau would help assure the environmental quality of the resort.

The resort would have up to 300 hotel rooms and up to 1,500 residential units. Zoning for higher densities has been in place for several decades.

Both groups seeking support have been loose with facts.

Ka'u Preservation announced that tonight's meeting is being "hosted" by County Councilman Bob Jacobson, but Jacobson said he will provide food but is not necessarily an opponent of the project.

Guy Enriquez of O Ka'u Kakou said his group will seek financial benefits, but Pat Blew, managing partner of Sea Mountain Five, said his company actually proposed the benefits to Enriquez's group.

Among those benefits would be a percentage of every future land and building sale in the project to be paid into an account where the money could be used to aid the community.

Enriquez said the district's schools and its hospital are in particular need.

Begun by C. Brewer & Co. in 1972, the Punaluu development has been through twists and turns over the decades. Public sentiment was substantially against it in the 1980s but turned favorable in the early 1990s, at the same time that the Japanese owner ran out of money to develop the resort.

Blew said a large reservoir of good will toward a resort remains in the community, but supporters are quiet, and Sea Mountain Five knew that it would have to offer benefits to reawaken that support.

The company has an agreement to buy the land, but a shoreline management area permit must be obtained before the company concludes the purchase, Blew said.

If all goes relatively smoothly, the company will still need about three years before it can begin construction, he said.

RESORT PLAN

Kau groups are lining up for and against an eco-resort project proposed for the Sea Mountain site in Punaluu on the Big Island.

STAR-BULLETIN

Hawaii Tribune

Friday, November 3, 2006 Proudly serving Hilo a

NATION

Man charged in deadly S. California wildfires

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About 100 blast

Turtles among top concerns of opponents at meeting

By ALAN SCHNEPF
Tribune-Herald staff writer

About 100 opponents of a proposed development in Punaluu continued to rail against the project Wednesday night, saying it would end their rural way of life and threaten wildlife.

Ka'u Councilman Bob Jacobson and state Rep. Bob Herkes (D-Ka'u, South Kona) joined the list of detractors at the gathering in the Naalehu Community Center.

"The South Kona coast and Ka'u are priceless and must be saved," Herkes said.

The 434-acre development, called Sea Mountain at Punaluu, would consist of 1,500 homes, most condominiums. In addition, the plans call for a 300-room hotel, a smaller "eco-hotel," a renovated golf course, retail and commercial areas, a cultural center and environmental programs put on by the Ocean Futures Society, which is headed by Jean-Michel Cousteau.

Sea Mountain's many foes have vowed a bitter fight against the development, saying it would ruin some of

Aloha Big Island

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nd the Big Island since 1923 50 cents

A&E

Theater to host U.S. Poet Laureate Kooser

Page C1

SPORTS

Brennan fuels Hawaii's potent offensive attack

Page B1

Punaluu proposal

about Sea Mountain development

he Big Island's most pristine and solated coastline.

Part of that coastline is a black and beach that is a major nesting ground for Hawaii sea turtles and the ndangered hawksbill turtle.

Jason Turner, an assistant profes- or in the University of Hawaii at Hilo's Marine Science Department, aid during the meeting that developers have not properly addressed the project's potential impact on the turtles. He criticized an environmental impact study prepared for the project by Group 70 International Inc., a consultant for Sea Mountain Five, the development group that owns the project.

See SEA MOUNTAIN Page A9

SEA MOUNTAIN From front page

"How could they have an EIS on Punaluu without doing a survey on turtles?" Turner asked an applauding crowd. "They have been completely thrown under the rug in this process."

Turner also said effluent and fertilizers from the project would add nutrients to the nearby ocean water which could further harm the turtles.

"As a scientist, I'm not seeing any solution except that we're going to let it soak into the ground and we're not going to see it anymore," he said.

George Atta, a principal with Group 70, defended the assessment Thursday during a telephone interview to respond to the criticism. He said a new survey to determine turtle activity at the black sand beach would be repetitive.

"I think the existing literature is fairly thorough," he said, contending that numerous studies on turtles have been done on the area.

Atta also said developers plan to limit the amount of nutrients released into the water table by fertilizers applied on the golf course. Fertilizer and pesticides reaching ground water would be an indication that too much is being used and maintenance workers would cut back on how much they apply, he said.

Turtles were not the only worry at the gathering in Naalehu.

"What's wrong with saving my habitat for me?" asked Palikapu Dedman, a Native Hawaiian with deep roots in the area.

Dedman said residents in the area have fought off development at Punaluu for decades and that they will continue to do so.

"We want people to enjoy Punaluu for a thousand years to come. No one can destroy it," he said to raucous applause.

Atta said some people want to change Ka'u, however, while others will fight against anything new.

"They see change of any significant kind as a threat to the status quo. Others may say the land is beautiful, but that there aren't economic opportunities or amenities," Atta said. "I guess it comes down to a sense of what the good life is."

Atta said the Sea Mountain plan is to create an environment not unlike a plantation without the sugar crop. Instead, the economic engine would be the resort, hotel and commercial businesses in the development.

Several people at Wednesday's meeting said such jobs are not high-quality employment. Atta pointed out that many people make long drives

from Ka'u for similar work.

"Not everybody looks down on hotel-resort jobs like that," he said.

Plans for the development date back to the 1960s when a subsidiary of sugar giant C. Brewer Co. gained rezoning of the land and planned for 675 hotel rooms, 2,230 condos and 80 single-family homes.

A Japanese company bought it in 1989 for $33.8 million and sold it in 1994 for less than $3 million to its current owners, which include Robert Iwamoto, owner of tour operator Robert's Hawaii, and Clyde Kaneshiro of Honolulu Disposal Service.

Alan Schnepf can be reached at aschnepf@hawaiitribune-herald.com.

Punalu'u has been a LIVING CLASSROOM for centuries and if protected, can continue to be a "Eco-Campus" for students and educators from around the world. With public input and community involvement we can create a VISION that comes from people of KA'U who have protected its resources for nearly two thousand years. We welcome your involvement, ideas and participation to help save this invaluable natural resource.

THE PUNALU'U CULTURAL PRESERVE

A Living Classroom

The Punalu'u Cultural Preserve will extend from the coastal ceremonial centers at Punalu'u and Ninole to the top of Pu'u Makanau rising over 1,800 feet above sea level, in the Moku 'Aina (District) of Ka'u, on the Island of Hawai'i. This area is comprised of portions of several adjacent ahupua'a that – even in their present impacted condition – are largely undeveloped.

Researchers from around the globe as well as local cultural practitioners continue to utilize this area rich in both biological and cultural diversity. This area contains thousands of cultural features both pre- and post-contact, including five major hieau (temples) – three makai (coastal) and two mauka (upland) and their concomitant burials. The proposed preserve is also home to some of the most endangered species in the world including the Honu 'ea (Hawaiian Hawksbill turtle) and the Hawaiian Monk seal.

While it is important to preserve both cultural features and natural resources, this preserve will also help protect the increasing endangered lifestyle of the people of Ka'u. The preservation of this "living classroom" will ensure that the 2,000+ year old Hawaiian teaching tradition, Ho'o hana lima (hands on learning), continues to thrive.

A BETTER FUTURE FOR KA'U

The Punalu'u Cultural Preserve will create better jobs through educational careers and a stronger economy for Ka'u and the island of Hawai'i by building partnerships with leading educational institutions around the world. The Living Classroom Outdoor Campus will offer "hands on learning" in:

* Animal Science
* Aquaculture
* Forestry
* Plant Pathology
* Plant Physiology
* Soil Science
* Recreational Management
* Astronomy
* Biology
* Chemistry
* Geology
* Marine Science
* Natural Sciences
* Physics
* Anthropology
* Geography and Environmental Studies
* Hawaiian Culture and History
* Hawaiian Studies
* Hawaiian Arts
* Hawaiian Language
* Pacific Islands Studies

THE CAMPUS, designed as "outdoor" Hawaiian style pavilions would include a Visitors Program that would be centered around a state-of-the-art Cultural Center, Theater and Cultural Marketplace that would offer foods, arts and unique home-grown products from the people of Ka'u. This would create additional job opportunities and a revenue stream for local farmers, entrepreneurs and artisans. Visitors from around the world will be able to become part of the "living classroom" experience.

Punalu'u Cultural Preserve Initial Plan for Community Input

Based on a Vision of Koloa Hanson