

**ECOTOURISM OPPORTUNITIES ON THE SADDLE ROAD,
BIG ISLAND OF HAWAII**

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I. INTRODUCTION

The U.S. Federal Highway Administration, Central Federal Lands Highway Division and Hawaii State governments are in the process of planning for the redevelopment of the Saddle Road Highway, located between Hilo and Kona on the Big Island of Hawaii. It is also known as State Route 200. The project is expected to be completed by 2014. Improvements to the two-lane highway will provide safer travel with adequate capacity for anticipated traffic volumes in the future.

Four students from the University of Hawaii at Manoa: two from the School of Travel Industry Management and two from the School of Architecture have proposed a project and have worked together to fulfil their objectives. The architecture students predict that the reconstruction of the Saddle Road will cause unplanned and random development to occur. The project would propose a tourist route to enhance visitors' perception, provide services for their necessities, and minimize harmful intrusions and excess pressure on the environment. The purpose of this project is to promote and sustain ecotourism in the project corridor as well as facilitate tourist activities along the proposed route through design by the architecture students.

Defining Ecotourism:

Ecotourism is a term that is being used more and more often; however, the meaning is defined differently among a variety of people and groups. In the study Ecotourism Opportunities for Hawaii's Visitor Industry, ecotourism is defined in relation to Hawaii as:

“nature-based travel to Hawaii's natural attractions to experience and study Hawaii's unique flora, fauna, and culture in a manner which is ecologically responsible, sustains the well-being of the local community, and is infused with the spirit of aloha aina (love of the land,” (Center for Tourism Policy Studies, School of Travel Industry Management, University of Hawaii at Manoa, i).

The study further states that ecotourism is 1) environmentally friendly; 2) community based; 3) culturally sensitive; and 4) economically viable.

The definition of ecotourism stated applies well to the plans of tourism developments along the Saddle Road. The tourism sites proposed are focused on educating and sharing with the visitors, the “flora, fauna, and culture in a manner which is ecologically responsible....” The factors in the definition above are addressed throughout the report.

The tourism students present potential tourism markets that are selected based on analyzing different travelers’ markets. The tourism trends that were researched and analyzed and conclusions were formed in regards to the potential for ecotourism along the Saddle Road. The architecture students suggested and analyzed different sites along the Saddle Road for possible future developments, taking into consideration of environmental responsibilities and issues.

II. **METHODOLOGY**

The methodology used by the Travel Industry Management (TIM) and the Architecture Students began with secondary research on the Saddle Road area and the development of interview questions for potential professionals of the local area. The students visited the Saddle Road and surrounding sites, including the Mauna Kea State Park, where local experts were interviewed.

Related literature and materials to ecotourism and the Big Island of Hawaii were researched. The students modeled after the ecotourism concept of New Zealand, such as the camping or hut system created to accommodate ecotourism travelers. A specific company that was researched is Active New Zealand Adventure Touring that promotes various ecotourism-related activities. Other information and materials that were collected, such as the Big Island’s tourism trends and statistics, were analyzed to evaluate the potential success of ecotourism for the Saddle Road. The Environmental Impact Statement and the Geographical Information System were used and analyzed to help in the decision and selection process of the potential tourism sites to be developed.

The information and data collected, as well as the conclusions made by the students were then compiled together into a final report.

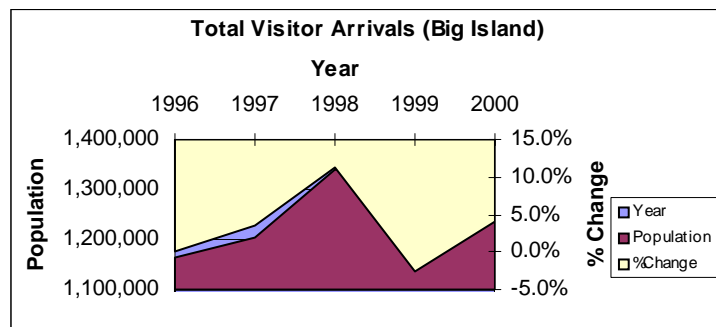
III. TRENDS ON THE BIG ISLAND

In an article written in the Cornell Quarterly, the writers state that “there is no likelihood that change will slow down in the 1990’s,” (Warren and Ostergren). Changes in the tourism industry determines the types of trends that exist. To remain competitive in the tourism market, it is important for tourism planners to consider the trends in order to develop and market their product successfully.

The total number of visitors to the Big Island has been increasing from 1,165,300 in 1996, to 1,360,029 in 2000, with represents an increase of 26.71% visitors to the island. The increase suggests that there is growth in the visitor industry, and more and more people are visiting the island.

Graph 1:

Total Visitor Arrivals to the Big Island from 1996-2000 with Annual % Change



Source: www.hawaii.gov/dbedt

More specifically, a trend that has been taking place on the Big Island that relates closely to the potential of attracting a certain traveler type to the Saddle Road is the increase of free independent travelers (FITs). As shown on the table below,

Table 1:
Tourism Trends on the Big Island of Hawaii: Travel Methods

	1996	96-97	97-98	98-99
Independent Travels	614,500	+8.80%	+3.14%	+3.90%
Group Tours	267,820	-16.60%	+47.98%	-18.40%
Package Tours	523,850	-2.80%	+9.04%	-0.50%

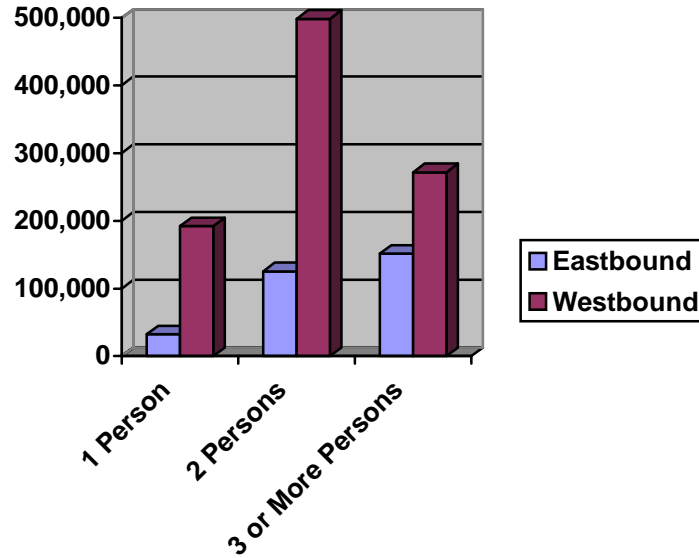
Source: Table 32: 1997 Hawaii (Big Island) Visitor Characteristics. Hawaii Visitors and Convention Bureau 1997 Island Supplement Report.

both group tours, where people travel together in two or more, and package tours, where there trips may include airfare, accommodations and car rental are decreasing. This trend shows a shift from the more traditional ways of travel to a more adventurous type of travel. The increase in free independent travelers is a favorable trend for the Saddle Road ecotourism project, in that the potential market segment that has been identified is the adventure or free independent traveler. This type of market will be discussed in the next section: Target Market, Concept and Segmentation.

Graph 2 shows that the Westbound visitors are more likely to travel in a smaller group of two people or one person, while in comparison, there is a lower number of Eastbound visitors that choose to travel in fewer numbers. These statistics are helpful for target marketing. Since ecotourism is a fairly new type of travel in the Hawaiian Islands, it may be easier to target the larger population of travelers that are already more independent in their past travel history.

Graph 2:

Eastbound versus Westbound Visitors in Number of Travelers per Trip, 1997

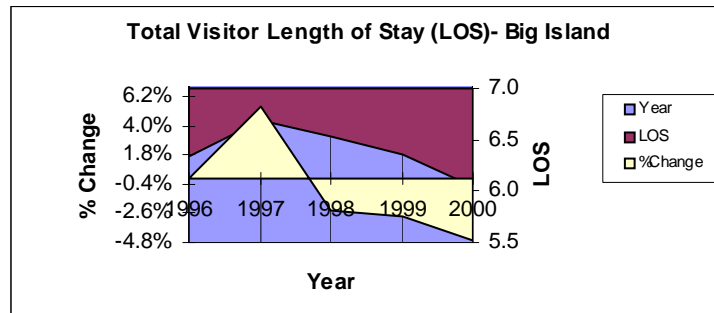


Source: Hawaii Visitors and Convention Bureau 1997 Island Supplement Report.

Ecotourism encourages the idea for visitors to play a role in being responsible for the preservation of the environment, as well as encourage education of the local culture. A strategy to achieve these ideas is to increase the length of visitor stay.

Graph 3:

Total Visitor Length of Stay on the Big Island



Source: www.hawaii.gov/dbedt

As shown in graph 3, the length of stay has been decreasing over the past several years. Something that the future ecotourism marketing and management teams of the Saddle Road project should consider is to encourage longer stays, so that the visitors can spend more time being educated, to increase their understanding and appreciation of the local culture, and develop a stronger sense of care for the environment.

There has been a strong interest from visitors in the Big Island’s Volcano National Parks in the past. In 1998, 2,653,330 or nearly 43% of the total 6,274,424 visitors to all Hawaiian Islands National Parks visited Hawaii Volcanoes National Parks on the Big Island of Hawaii. These statistics show that nearly half of the visitors that visit the islands’ National Parks chose the Big Island’s Volcano National Park site. The high interest from visitors give a promising opportunity for ecotourism to be implemented and promoted along the Saddle Road, since the Mauna Kea State Park, one of Hawaii’s popular Volcanoes National Park is located in the Saddle Road area. Table 2 shows the statistics that have been collected, representing the total number of visitors to the Hawaiian Island National Parks.

Table 2:
Hawaiian Islands National Parks Visitors Statistics: 1995 to 1998

Year	Number of Visits to Hawaiian Islands National Parks
1995	6,213,924
1996	6,192,178
1997	6,738,001
1998	6,274,424

Source: 1997 Hawaii (Big Island) Visitor Characteristics. Hawaii Visitors and Convention Bureau 1997 Island Supplement Report.

In relations to the Saddle Road specifically, it has been estimated that the traffic flow will increase over the next decade. In 1994, the estimated traffic flow was 900 cars for the year. If there is no action taken in redeveloping the Saddle Road, there is still an estimated increase of 3500. If the plans to repave the Saddle Road takes place, then the traffic volume is estimated to increase by 13,100 vehicles. The projected increase of traffic volume during the year is shown in the chart below.

Table 3:
Current and Future Traffic Volumes on the Saddle Road, Big Island

<u>Year</u>	<u>Alternative</u>	<u>ADT</u>
1994 Estimated Traffic	Baseline Conditions	900
2014 Projected Traffic	No Action Alternative	4,400
2014 Projected Traffic	All Action Alternatives	14,000

Source: Final Environmental Assessment, 1-7.

Whether redevelopment of the Saddle Road is to take place or not, traffic volumes are estimated to increase. If the Saddle Road is to be redeveloped, however, the increase of traffic volume is estimated to be fifteen and a half times heavier than the traffic of 1994. These estimations support the need for future planning if the assumption of increased usage of the road brings about random development. As seen in the past, destinations such as Hong Kong or Waikiki, show that random development can be harmful to the overall affect of the natural environment.

This report will further discuss the plans to develop tourism sites along the Saddle Road and discuss the issues related to planned tourism development. In the next section, the tourism market segment of travelers will be addressed, based on the findings of the trends discussed in this past section of the report.

IV. TARGET MARKET, CONCEPT, AND SEGMENTATION

As recognized within most industries, good marketing research leads to successful planning. To target a market efficiently the “Product or Service Concept” must first be acknowledged. The proposal of this project focuses on the Saddle Road area located on the Big Island of Hawaii. The related “Product Concept” is to establish ecotourism that will improve the economy of the Big Island while sustaining the environment and culture that exists along the Saddle Road Highway and Heritage Corridor.

The market demand in tourism is constantly changing to meet the wants and needs of the consumers in today’s society. In the 21st Century, adventure tourism is a new type of travel that has been introduced to the global travel industry. It is stated that the “1990’s are expected to be a period of simpler values and modest lifestyles with a renewed sense of social responsibility on the part of consumers,” (Center for Tourism Policy Studies, 6). The most fitting type of people selected to be the targeted market segment for ecotourism activities along the Saddle Road are the free independent traveler’s (FIT’s). These types of travelers tend to have interests that are portrayed by the description of the Center for Tourism Policy Studies in the quote above. Eco and adventure tourism cater to potential tourists and residents who are between their late 20’s -30’s and also from mid 40’s -50’s.

New Zealand is an example of a successful ecotourism destination, which has been chosen as a model for this particular project of the Saddle Road “Eco-Highway.” Ideas such as promotional strategies and activities by the adventure touring company, Active New Zealand, have been researched and related to the Saddle Road. For example, the concept of Active New Zealand is to focus with flexibility on determining what the client wants. The company fulfills the consumer’s desires by providing tours that spend less time on the road and more time experiencing what the area has to offer by getting off the beaten track and leaving the crowd and tour busses behind. On the Saddle Road, the free independent traveler will be offered the ecotourism travels through Hawaii’s natural

vegetation through activities such as hiking and camping; therefore, having a closer experience with nature and the environment.

The land within the Saddle Road area is subject to be used for hiking trails including: Pu'u Huluhulu, Power Line Road, the Wiluku River Trail, and Tree Planting Road; as well as other activities such as

- Birding: where many native birds are present
- Winter sports: exclusively on the summit region of Mauna Kea
- Camping: currently only available at the Mauna Kea State Park
- Mountain/Road Biking: attractive to national and international cyclists
- Running: the annual 100-km road race traversing the entire Saddle Road

Segmenting the market to free independent travelers will help the marketing team focus on a particular group of people. The marketing team can use target marketing to attract the potential visitors by catering toward adventure travel characteristics. Segmentation is important as buyers have unique needs and wants.

Segmentation bases have been categorized into those that are *observable* and *unobservable*. They are further broken down into *General* and *Product Specific* as sub-categories. “Observable Bases” generally include: Cultural (based on their usage, loyalties, or buying responses to a product or service), Geographic (based on different geographic units or areas), Demographic (based on demographic characteristic of consumers), and Socio-economic variables. “Unobservable Bases” generally include: Psychographics (on the basis of personality and/or lifestyles), and Values.

The targeted market can vary between those who are experienced with the outdoors and those who simply enjoy multi-activities and just want to “get-away” and enjoy the serenity. In relations to the Saddle Road, there are different types of ecotourists or nature tourists that can be identified and further segmented within the free independent travelers.

TYPE A: The Casual Nature Tourist

- prefer group oriented activities
- primary desirable activities: sight seeing, photo-taking and visiting historical sites
- prefer to stay in places that are conveniently located, that have easy access and are physically upgraded

TYPE B: The Mainstream Nature Tourist

- want to take unusual trips
- focus on adventure travel activities: biking and trekking

TYPE C: Dedicated Nature Tourist

- want to explore protected areas
- like recreational activities but are focused and attracted by education, understanding of local nature, history and culture
- more free independent travelers

TYPE D: Hard-Core Nature Tourist

- interested in travel for scientific research, conservation projects and educational reasons
- interested in participation of preservation and conservation of environment
- interested in participation of local experiences such as craft and customs
- have desire to leave place in natural state after visitation

Source: Types of Nature Tourist model taken from Ecotourism Opportunities for Hawaii's Visitor Industry study, 13-14.

Marketing strategies can be developed to attract each of these groups of ecotourists. Different packages can be created for each group to cater to their level of interests. For example, Type A of casual nature tourists may want to park their vehicles at look-out points and take photographs or go on a short and enjoyable hike. Type B of

mainstream nature tourists may choose activities in the Saddle area that are more strenuous and exciting such as hiking longer to higher elevations. Type C of dedicated nature tourists may choose to examine and study the vegetation in the kipukas or the formation of the lava. Type D of hard-core nature tourists may perform studies and analysis of the environment and participate in activities such as gathering Hawaiian plants for participation in a local cultural event.

In conclusion, when choosing a market strategy for the Saddle Road, the marketing team must consider several factors: environmental resources, which pertain to what is available in the Saddle Road Heritage Corridor; product variability, to meet the demands of different tourists within the market; product life cycle stage, how the demand will affect the supply-side (including sustaining the environment and culture); market variability, how to promote different activities uniquely; and competitors' marketing strategies, recognizing what other companies have to offer.

V. EVALUATING THE POTENTIAL OF ECOTOURISM ON THE SADDLE ROAD

Evaluation of Ecotourism Potential

In consideration of the tourism trend statistics taken from the Big Island of Hawaii in the past decade, there is a high potential for Hawaii to be an established ecotourism destination. As shown in Table 1, section III: Tourism Trends, there has been an increase in independent travelers in years 1996 to 1999, while group and packaged tours have been decreasing. This trend gives favorable opportunities for ecotourism on the Saddle Road, since the main target market that has been chosen is the free independent and adventurous traveler.

There has also been a strong general interest among these travelers to visit the Big Island's National Park shown by the statistics in Table 2 in section IV of this report. The

information shows that of the total visitors to the islands' National Parks, nearly half of them have visited Hawaii's Volcano National Park. This trend creates favorable potential for ecotourism in the Saddle Road corridor, where two popular sites are located: Mauna Kea and Mauna Loa. There is already a strong interest in the parks, and further tourism infrastructure catering to the needs of the visitors would most probably increase that interest.

Ecotourism, which gives the traveler a sense of responsibility along with the natural and cultural experiences is a new type of travel being introduced in the Hawaiian Islands. Ecotourism has been a success throughout other destinations of the world such as Kenya, Canada, New Zealand and Costa Rica, (Center for Tourism Policy Studies, 26). The tourism world is moving towards this new and popular form of travel. This trend suggests that it would be beneficial for Hawaii to adopt this type of travel in order for the state to remain competitive with other popular tourism destinations in the world. Hawaii also has the advantage of being an already well-established vacation destination. Marketing strategies can be used to promote ecotourism with the advantage of Hawaii's reputation as a successful tourism destination based on its tourism history.

Within every tourism destination, there are things that serve as the reason for travel and attractiveness to visitors. The Saddle Road area is unique in that it offers visitors the chance to walk, hike, drive, photograph, and camp on the volcanic grounds. The Saddle Road area contains some of the rare native flora and fauna, such as "Aweoweo Shrubland, and the `A`ali`i Shrubland found on Allubial Flats and lower slopes of Mauna Kea," (Saddle Road: Summary of Facts, section II). The rare Palila bird or the Hawaiian Hawk can also be seen. These vegetation and animals will give the visitors the opportunity to experience the native environment of Hawaii that no longer exists throughout many areas of the Hawaiian Islands due to an increase in development and mistreatment of the land. Visitors can have the privilege to not only experience the native culture and environment, but also play an important role in helping to preserve the area by traveling responsibly and spreading the positive experience by word of mouth to others. Visitors can also drive to the top of Mauna Kea at 13,631 feet above sea level

(Bier, Map of Hawaii) to visit the University of Hawaii and NASA telescope observatories. The Saddle Road has many characteristics and sites to offer visitors that contribute to the potential success of ecotourism.

In order for ecotourism to this gain success, the Ecotourism Opportunities for Hawaii's Visitor Industry study suggests that there is an important need for residents and tourists to share in a conservation ethic of the land. The facilitating factors include:

1) Increased Awareness of Nature

It is important for visitors and local people to understand that the natural state of the Saddle Road environment is the determining factor of its uniqueness. In relationship to the success of ecotourism, there must be conservation of Saddle Road's nature in order for there to be any reason of attracting visitors to the ecotourist sites.

2) Maximize Economic Benefits for the Local People

Local people will take more caution and responsibility in helping to preserve the natural state of the Saddle Road area through tourism activities. This idea is based on the assumption that local people are somewhat dependent on the natural habitat.

3) Cultural Sensitivity

The relationships between the visitors and the local people will be greatly affected by the interaction of the two groups as well as the degree of respect and understanding of the local culture. The visitors must also be educated about the culture of the land and its people, so that they can play a responsible and vital role during their visit to preserve the culture.

4) Minimized Negative Impacts on the Environment

Tourism infrastructure is predicted to develop as a result of reconstruction along the Saddle Road; therefore, ecotourism helps to minimize any negative impact on

the environment after reconstruction. If tourism is going to take place anyways, it is the most beneficial for ecotourism activities to take place along the Saddle Road.

5) Local Participation in the Decision Making Process

The primary users of the Saddle Road will consist of local residents traveling between Kona and Hilo. It is important to ask the local community to participate in the project for input as well include them in the planning of the area.

Community support is important in any developmental project. Things that the residents may see as valuable to their culture and heritage should be addressed to help the planning for ecotourism sites and activities, and the management of ecotourism along the Saddle Road.

6) Careful and Clear Definition of the Market

The market that has been selected is the adventure or free independent traveler. It is important to carefully select a market that would be fitting to the type of tourism that will be developed in the area, in order for ecotourism to be successful.

Possible Limitations to the High Potential Ecotourism Market

In evaluating the high potential of ecotourism succeeding along the Saddle Road, there are several limitations. Ecotourism focuses on sustaining the natural environment; however, there is still the possibility that visitors will ignore this factor and choose to carelessly pollute the environment. When the University of Hawaii students visited the site, toilet paper, feminine hygiene products and food wrappings were found on the trails. This creates a problem for the environmental management team of the Saddle Road. The environment is being polluted and visitors will be disgusted by the appearance and maintenance of the area. Unfortunately, littering may also eventually be seen as an acceptable action by visitors if more and more garbage is seen and discovered on the trails.

There may be economic constraints for ecotourism along the Saddle Road area. An advantage of ecotourism for visitors is that activities may cost less than other types of tourism. In order to maintain the natural environment, tourism infrastructure such as a hut system and a visitor center will have trained and educated tour guides. The required responsibilities and duties of the staff can be labor intensive. A financial constraint may be the small revenues generated from visitors but the high costs of labor and maintenance fees.

VI. PROPOSED DEVELOPMENT: LOCATION AND SERVICES

It is clear to see from past experience that shortly after any major improvement to a highway system, the inevitable random development occurs. Highway improvements which facilitate a substantial increase in the number of users, which will be the case with the Saddle Road improvements, create the need to support additional demand. Without proper planning of specific goals and long-term vision, demand will be supplied by shortsighted development. Fragile native eco-systems will be threaten without taking full advantage of the history, culture, and unique beauty of the region. Understanding that there will eventually be inevitable development along Saddle Road, is vital for the development to be handled in a responsible, planned manner.

Much care has gone into the research and analysis of Saddle Road region in order to reach the decisions made in this proposal. It was very important for the Architecture and TIM students to analyze the various sources of data in a systematic way with a common vision and understanding of critical factors. The primary goal for this development proposal is to facilitate the use of the region by a variety of users while minimizing the negative impacts involved. The research for this has included an extensive review of the Environmental Impact Statement (EIS) done by the Department of Transportation on the Saddle Road region, interviews with local experts affiliated with the Department of Land and Natural Resources (DLNR) and the U.S. Geological Survey

(USGS), analysis of Geographical Information System (GIS) maps, and a four day site visit. Careful consideration was taken in regards to environmental, cultural, and functional issues.

The analysis began by looking at the regions land-use, land-ownership, zoning laws, and existing functions. The process was then continued by analyzing the physical environment and geographical features, paying close attention to the fragile native ecosystems present in the project corridor. It is clear in the analysis phase that there are multiple users that need to be considered and planned for, and have been broken down into four basic categories:

- Short-term Visitors: Drive through, sightseeing.
- Short-term Visitors: Day hiking.
- Long-term Visitors: Multiple days, hiking and camping.
- Local: Hunters, gatherers, commuters.

By recognizing the various types of users with different wants and needs, and taking in the factors mentioned, the task of determining what, where, and how to development became clear. Following are the proposed potential ecotourism sites.

Pu'u Huluhulu: Visitor Center

Pu'u Huluhulu is a kipuka located at the crossing of Mauna Kea and Mauna Loa access roads, containing a small trail system managed by the DLNR. The central location, adjacent to Saddle Road, and the fact that it has already been developed to a small degree makes it the logical site for a visitor/interpretive center. This would be the primary management center for the region, being managed by DLNR with a full time ranger stationed there. The center would provide a base stopping point for travelers providing information on the region and activities available. Being the areas management headquarters for DLNR, the center would also serve as the hiker, camper, and hunter check-in station. Amenities for travelers and visitors could include a café, gift shop, informational film showings, and restrooms. This would be the most substantially

developed location in terms of a building structure, but would be relatively small and would not facilitate future expansion.

Along with the visitor center, there would be improvements to the existing trails within the Pu'u. Pu'u Huluhulu is an island of vegetation within a sea of lava flows. This area contains a panorama of 360-degree views of the surrounding area and Twin Mountains. The center would provide a logical rest/information point with direct connection to one of the regions most interesting and accessible kipuka, allowing users of all levels of experience and enjoy the unique natural features of the region.

Saddle House: Historical Ranch House

The Saddle House is an existing historical cabin nestled in remarkably private, lush setting not more than 100 yards from the highway. The cabin has been used by local cowboys who previously ranched the area. This site has enormous potential as a historical center. It could highlight the history of the Hawaiian Cowboy and the ranching culture of the region. Saddle House could also act as a secondary management center for the DLNR. The Pu'u O'o trail head is located across the highway and an access road is roughly one mile past Kipuka 21. The Saddle House history, location and beauty, creates a great potential for this to be an attraction along Saddle Road with opportunity for various business ventures.

Kipuka 21: Kipuka Viewing Structure

Kipuka 21 is a very important and unique land reservation in the Saddle area. It is located at milepost 21 along the north side of the Saddle highway and is characterized as a depression in the earth rather than a mound as are most kipuka. The geographical feature of the topography caused the lava to flow around the depression, which left a pocket of lush vegetation preserving an important piece of the native eco-system. This preservation, however, is very limited. Threatened by non-native but now wild grazing animals as well as by human impact, it is vital to sustain its eco-system. It is immediately adjacent to the highway that creates a high potential for negative impacts. If developed

properly, however, this site could become a powerful educational tool for all visitors, tourist and residents alike.

The proposed development of Kipuka 21 would be an external elevated viewing platform, or series of platforms, which would provide necessary control while allowing the users to experience the kipuka. By viewing at or above canopy level, all visitors would be allowed a unique perspective. Parking would be limited to a small roadside area.

Managed Trail Network: Hut System

The Saddle Road regions greatest resources are the vast forest reserves and unique combination of magnificent beauty and moderate climate. There is great potential here for ecotourism activities such as hiking, camping, bird watching, mountain biking, horseback riding, and a general connection with nature. There are existing trails which can be improved with necessary funding and management. Supplementation of additional trails will create a network of trails allowing for various levels of experience and multiple route options. The planning of this trail system should initiate in progressive stages.

A “Hut-System” would facilitate long-term users who wish to experience the region for multiple days. The huts would provide shelter for registered hikers who are traveling throughout the region or competing a multiple day hiking loop. There is an opportunity for various types of shelters as well as business for eco-touring and camping. The hut system would help prevent random camping and enhance the users’ perception towards the experience. Basic huts would be managed by DLNR, but there could be a private enterprise here as well.

Mauna Kea State Park: Improvements

With improvements to the existing Mauna Kea State Park, much needed facilities for lodging and camping would be supplied. The park contains a few existing cabins but is lacking a functional infrastructure. Self-sustaining practices and additional camping

areas could be implemented to create a functional facility with low-cost lodging to support the region.

Pullouts/Rest-stop: Milepost 17 and Kilohana

Milepost 17 and Kilohana are logical sites for stopping motorists. MP 17 is located on the Hilo side of the Saddle Road highway and has an existing pullout area. This pullout can be paved and improved with curbs to help prevent degradation to the adjacent vegetation. A stop near the Kilohana Girl Scout Camp would also be appropriate. The Milepost 17 area possesses the most dramatic distant views of the Kona Coast found along Saddle Road. Both points are roughly one-third of the way between either end of the Saddle Road.

VII. BUSINESS OPPORTUNITIES

One of the more important aspects of this proposal are the inherent opportunities for local business. In order for a tourism development to exist and prosper, monetary gain is necessary, however this cannot be the overriding factor in planning and decision-making. Contrary to the belief that restricting development inhibits free enterprise, proper planning with limitations and regulations set can actually foster a healthier market place. By preserving the integrity of the regions cultural and natural resources, a long-term vision can be established, with long-term goals. This long-term planning is necessary for the proposal to succeed, with a foundation established by the values of the local community, and businesses returning money back to the local economy.

Understanding the overall characteristics and features of the region is also necessary for future ventures to survive. There is basically no infrastructure, and the setting and activity base here is extremely different from what is found throughout the islands. These factors can be viewed as either limitations or opportunities, but how one sees this is the key. There is great potential for innovative design, in terms of sustainable principles and practice, and potential for new types of business. Due to the many factors involved, the region will not support large-scale development in any context, commercial

space or lodging facilities. There is however, great potential for connection with nature, ecotourism activity, and education at multiple levels. People are becoming more aware of their impact and connection to the natural environment and many are looking for different ways experience this. The following are a few examples of possible opportunities, which would arise from this proposed development plan.

Shuttle Network

Shuttle systems to facilitate the use of the regions various trails could become successful private enterprises. The idea is to allow the visitor to experience the Saddle Road region at multiple points, possibly hiking a trail, without being limited by where their vehicle is located. This would allow visitors to travel a trail and connect back to Saddle Road without having to backtrack the same route. This would also help in orienting and informing the visitors. Regulations would need to be established, as with any proposed venture, such as limiting the size of the shuttle vehicles and number of visitors per day.

Horseback Riding and Trail Guides

Due to the regions history and ranching culture a logical opportunity would be with horseback riding. If regulated and managed properly, this could be a viable, relatively low impact ecotourism activity with a high level of user satisfaction. Hiking is also a major attraction to the region and guides could be utilized to enhance the visitors experience while helping to maintain the native environment through awareness education.

Local Experts and Historical Speakers

This could be a strength of the Visitor Center and Historical Center, by creating events which educate and give the visitors a memorable experience. Other methods could also be employed to facilitate education as an attraction to the region such as films and interactive media, helping to support the two centers.

Privately Owned “Huts”

The Hut system previously discussed could create the opportunity for private enterprise. While the current concept has DLNR managing and operating the system, private business could also be introduced. Extensive planning and research would be necessary, but there could be private companies that build, maintain and operate huts for tourism activities.

Rental Companies

Due to the active nature of the activities supported by the region, rental companies would have a wide variety of opportunities as activity facilitators. Camping equipment and mountain biking equipment would be a few types of possible rentals.

VIII. ENVIRONMENTAL ANALYSIS AND PROPOSED METHODS OF MANAGEMENT

For ecotourism along the Saddle Road and (any unspoiled environs), it is particularly important to look at ways to sustain the environment. These pristine lands are home to numerous endangered species and serve as last reminders of the past glory of the land. With proper management and utilization, these unspoiled areas can aid revitalisation of surrounding lands. The following section looks at various issues with the support and maintenance of Saddle Road to help preserve the integrity of its setting.

An environmental impact statement has already been produced relating to the repaving, realigning, and widening of Saddle Road. This resource serves as an excellent background of condensed information concerning the Saddle Road project.

Develop Responsibly

Having a well-developed plan for the entire Saddle Road is a matter of primary concern. Without a specific goal in mind, all the good intentions of people developing the area will result in an illogical and inefficient hodgepodge of elements and one which

would likely be unsustainable. One criterion that ought be addressed is to choose areas for minimal impact. Previously disturbed locations should be viewed as areas necessary for improvement from existing conditions; areas without endangered wildlife are sensible choices. They don't involve potential problems of disturbance and ill feelings from the community. Locations with room for sustainable development in the future are also desirable.

In line with the choosing areas containing minimal impact is seeking the greatest return for the least cost. Cost, however, must include environmental and social losses in addition to the usual monetary outlays. Although targeting a specific group of people is easy, being able to attract a wider variety of people can be more beneficial.

Rick Warshaw of DLNR has proposed an idea featuring lava flows of varying ages to show how the land develops from rock to forest, an experience unique to this island. More effective utilization of existing resources is also required. Hawaii County's bus system is a far cry from the well-utilized "TheBus" on Oahu, and could be looked at for more efficient use. Small tour operators are not exploiting the potential of the Saddle Road area as of yet—only one company has an expedition along this stretch of road. The astronomical community also does not seem to be making use of the opportunity available to them. There are Hawaiian Homelands along the windward stretch of Saddle Road. This land is among the wettest along the entire highway, but it lies devoid of anything. Housing for the many Hawaiians on the waiting list could be developed here, providing a source for labor opportunities. Moreover, settlement could help the revitalization of Hawaiian culture and society.

Development should also follow sustainable practices. Choosing materials of local origin not only support the local economy, but also helps to eliminate the environmental damage caused by transportation. While this might not seem of great importance for one project, benefits are realized when performed on a large scale. Similarly, use of labour near the site helps keep the economic benefit within the vicinity of the project. Using materials with low embodied energies is a sound method.

Essentially, the method looks at the energy being used to produce raw materials, create products, installs them, at the end of their usefulness dismantle them, recycles or disposes them, and the transports them between all of the elements. Finally, choosing quality material is key for any of the above to make a real difference. Fred Creager, AIA, poses the following: “If the first cost is the last cost, then it’s the least cost.”

One example of responsible development is the Chain of Craters Road in Volcanoes Park. This was constructed—at increased monetary cost—with minimal impact. Vehicles for transporting workers and construction machinery were not allowed off the roadbed at all. All the construction machinery that was used on this project was steamed to kill any alien seeds or insects. The planned inconveniences resulted in no contamination to the locale throughout the construction period of the road. It is up to the planner, client, and community to determine whether the added dollars are worth the benefits received. If more projects are conducted with such care toward the environment, the methods will gradually improve and costs of the technique will decrease.

Manage Responsibly

Once a sustainable area has been developed it becomes necessary to manage it in a responsible manner. One way to help maintain a sensitive area is to regulate all viewing and interaction to a distance. By omitting the cause of the problem one will not need to resist its effects. This can be successful if you provide enough attraction to the viewer so that they do not feel compelled to wander off and harm the surroundings. To help with this, providing information about what people are seeing will aid those who are not sophisticated enough to comprehend what they are viewing, which embraces most people.

Promotion of a supervised, educated use of the resources is another sound technique to sustain the environment. Damage is caused by ignorance, not malice. Mandating licensing and certification of tour operators along the Saddle Road would greatly improve a visitor’s experience. If tour operators have a true understanding of the essence of what they are selling and promoting, their desire to participate in the

preservation of that resource to secure their own future benefit. While this may seem greedy or self-centered, the willingness to protect is present and ought be lauded. The improved attitude of the operator will benefit the tourists. Having tour guides who understand the environment around them will spurn the visitors to take care and not harm their surroundings. Finally, the locals must also be educated about their environment. Most of the littering and vandalism is the work of residents and they must be shown what harm is coming to the environment from their hands. The easiest methods would be to incorporate education regarding this issue into the Hawaiiana curriculum for schoolchildren. Producing a television mini-series about the Hawaiian ecosystems can also provide a way one could attain the message of sustainable use and improved signage. Ultimately, the change must occur in people's sensibilities. This is, however, a process that takes time.

Creating sources of income is critical to sustainable management. Having a project that cannot support itself is by definition, unsustainable. Without money, resources fall into disrepair, vandalism takes over, and attractions become unattractive. A self-funded project would be able to bypass the trouble involved in acquiring funds from an uncertain political arena. Relative to most places, Hawaii does not charge much, or even at all, for its tourist attractions, especially public ones. There has grown a sentiment of entitlement that must be broken. Fees should be able to cover most of the operating and maintenance cost of attractions.

Plants

One of the most unique attractions along the Saddle Road area is the vegetation. Sustaining this resource should be given primary importance, as it, in turn, supports the animals and culture of the region. Removal of plants is a large concern; educating people about this abuse should reduce the risk greatly, as would empower tour operators to discipline people who break the rules. Having rangers and docents available will also help.

The plant population must be maintained and reinforced. Introduced species can drive indigenous ones to extinction and present a false landscape to visitors. Hiking groups should keep their shoes and pants clean from alien seeds, spores, and mud as part of the solution. Screening materials destined for use along Saddle Road would also be of benefit. Before the realization of the harm being done to the environment by deforestation, large areas of the Big Island on Saddle Road were cleared of koa and sandalwood. Creating a reforestation plan for these species and others decimated will help undo the damage and provide necessary habitats for endangered animals.

Practitioners of *laau lapaau* should be encouraged to make use of the botanical treasures around Saddle Road. This traditional healing technique provides benefits to people as well as the plants. The careful pruning by harvesting is beneficial to the plant and the healers are generally people who seek a balanced life with the environment. Therefore, permission for collection of plants by native Hawaiians should be continued and encouraged, but only for practical use.

Birds/Insects

Many of birds and insects native to the Saddle Road area are endangered. Steps must be taken to ensure that they are not further exposed to harm. Ensuring, through education and intervention, that locals do not harass these animals and tourist is one method. Introduction of non-native species should likewise be prevented. Non-native animals that prey on endangered animals or destroy their habitats should be controlled or, if that is not possible, eradicated. Hunting is a popular sport and is a somewhat effective means of controlling animal population. In extreme circumstances, culling may become the only correction for the problem and should be conducted, as the indigenous, endangered species truly are more important than game.

Geology

Maintaining the environment also means addressing the geology, especially on the Big Island, where the generative process is still active. Preventing off-road and off-

trail use of vehicles is important for protection. Repeated use of these beaten trails unnaturally speeds the weathering of the lava. The resultant terrain is like nothing native to Hawaii and serves as a catching point for non-native plant species. Effects can be clearly seen on the road up Mauna Loa, where patches run over by construction equipment are distinct and separate from those that were not. It should also be noted that the Saddle Road area is a zone in hazardous for lava flows; therefore, any plans for future development should steer clear of areas in high risk regions.

Archaeology/Cultural Sites

Support of the Native Hawaiian community is critical for having a successful project. Encouraging use of historical sites along the Saddle Road zone is one sign of good faith. It would prove fruitful to help continue and reinstate traditions related to the area for Native Hawaiians. Such continuance of Hawaiian culture benefits the people exercising history as well as the state at large. Having a vibrant and healthy Hawaiian community is another draw for tourists who want to get away from the typical humdrum of their everyday lives. Protection of heiau and burial sites should be a consideration for respect.

IX. RECOMMENDATIONS

Marketing will be one of the important tools that can be used for the Saddle Road ecotourism project. A recommendation that the students from the School of TIM proposes is to take advantage of the existing marketing venues that are being used currently for the state of Hawaii. Begin marketing the Saddle Road area as one of Hawaii's many options of tourism activities, instead of only advertising the Saddle Road. For example, an advertising campaign can show all the different activities and unique physical traits of Hawaii, and have a section that offers a new product and new type of travel. The advertising message should also use phrases and attractive lingo that caters to the adventure and free independent travellers. The results of this type of marketing should be monitored, and if there is increase interest from the consumer markets, the Saddle Road's activities can be marketed on its own.

In order for a tourism development of any type to prosper and become an important feature of a community and region it is vital to have a strong community voice as part of the planning process. This is an important aspect at many levels by connecting the local people to what is happening, creating development and activities that reflects the local culture, and sustaining long-term prosperity with a long-term common vision. By giving the local community a voice in what is happening, and not just listening to comments and forgetting about them, but actually giving the community an active role in creating the long-term vision the local community will feel a sense of ownership, in turn reducing the level of opposition.

Management for the entire region, and island is also a key component for success. A major limitation at this point is the lack of funding for the DLNR, which is responsible for maintaining the State Parks, all trails, and the forest reserves. It is a simple fact that without more money spent on the protection and maintenance of Hawaii's natural resources, degradation will increase at various levels and Hawaii will eventually lose it's uniqueness, character, and cultural heritage. Management is key for the protection of important features when allowing visitors to experience them.

It would be beneficial for several management teams to be created. For example, a management team can be in charge of maintaining the Saddle Road lands. Another team can be in charge of monitoring the number of visitors that are allowed in the area, to maintain the appropriate carrying capacity for the environment. A medical team would be beneficial and ideal for the visitors who may experience altitude sickness or injuries.

The region can also create a much stronger and meaningful experience for the visitors with a strong emphasis on education and the regions history and Hawaiian culture. People coming to Hawaii want to experience the exotic nature of the Hawaiian Islands, and if this can be accomplished in an authentic manner without the commercial feel, a very successful attraction will be found.

A recommendation in relations to the cultural sites, is to encourage the Native Hawaiian community's involvement. Granting kupunas the access to plants for la`au lapa`au will not only offer a source of materials for this cultural activity, people will directly derive benefit from its practice. This could include specific marketing of health tourism, and should include the 5 Mountains Medical Community in Waimea. By doing so, this would help to diversify the tourism upon which our state so heavily relies on for revenue.

Generating revenue is a beneficial goal that can be used to help gain support from the government. Hawaii has a trend of free roads and free tourist attractions, but many places on the Mainland charge and rely mightily for the use of roads and parks. Perhaps establishing Saddle Road as atoll road, creating a pricing structure for tourist, local, and commercial use would help fund protection, maintenance, and improvements for the area.

Charging for the use of state or county parks would also help to generate income proportional to the use of a resource. To help mitigate problems of tourists and locals abusing and harassing the wildlife, require the tour operators for this region to pass a paid certification process covering issues related to the Saddle Road. They would be responsible to educate the people in their groups regarding the regulations and, more importantly, why they are in place. Empowerment then can be given to the trainees to give citations to people offending the rules. It may take time to work out the problems, but if protecting our natural resources is important such measures must be taken.

X. SUMMARY

The University of Hawaii students have presented their findings on information that is useful in helping to determine the potential of ecotourism along the Saddle Road and its corridor. The analysis of the tourism trends led to the conclusion that there is a high potential for ecotourism to be implemented. Something that must be considered in the planning process is the target market of adventure and free independent travellers.

Activities that have been suggested are catered to this type of traveller, and must be marketed and implemented to cater and satisfy their interests, desires and wants.

Ecotourism sites have been selected based upon the interesting characteristics of the areas, the ability to build and develop the areas, and the consideration of the least amount of harm done to the areas. The points of interest will serve as individual sites along the entire Saddle Road to educate the tourists about the natural environment, the essential characteristics about the heritage corridor, the cultural importance to the local community, and serve as a mean to develop a strong sense of responsibility in the visitors to care for the environment.

In order for ecotourism to be successful, it is important to assess the environmental issues that have been discussed in section VIII of the report. The vegetation and animals play a large role in attracting potential visitors to the Saddle Road ecotourism sites. Disturbance in their habitat is not only devastating to the vegetation and animals, but will eventually decrease the worth and value of any visitor's experience to the Saddle Road.

In summary, the students of the University of Hawaii involved in this project, hopes that the proposed plans for ecotourism along the Saddle Road is something that is feasible to implement. More importantly, they hope that an implemented project will benefit the Hawaiian Islands in increasing awareness and care for Hawaii's natural environment, culture and heritage, and increase the experiences of visitors to the islands in a positive way.

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