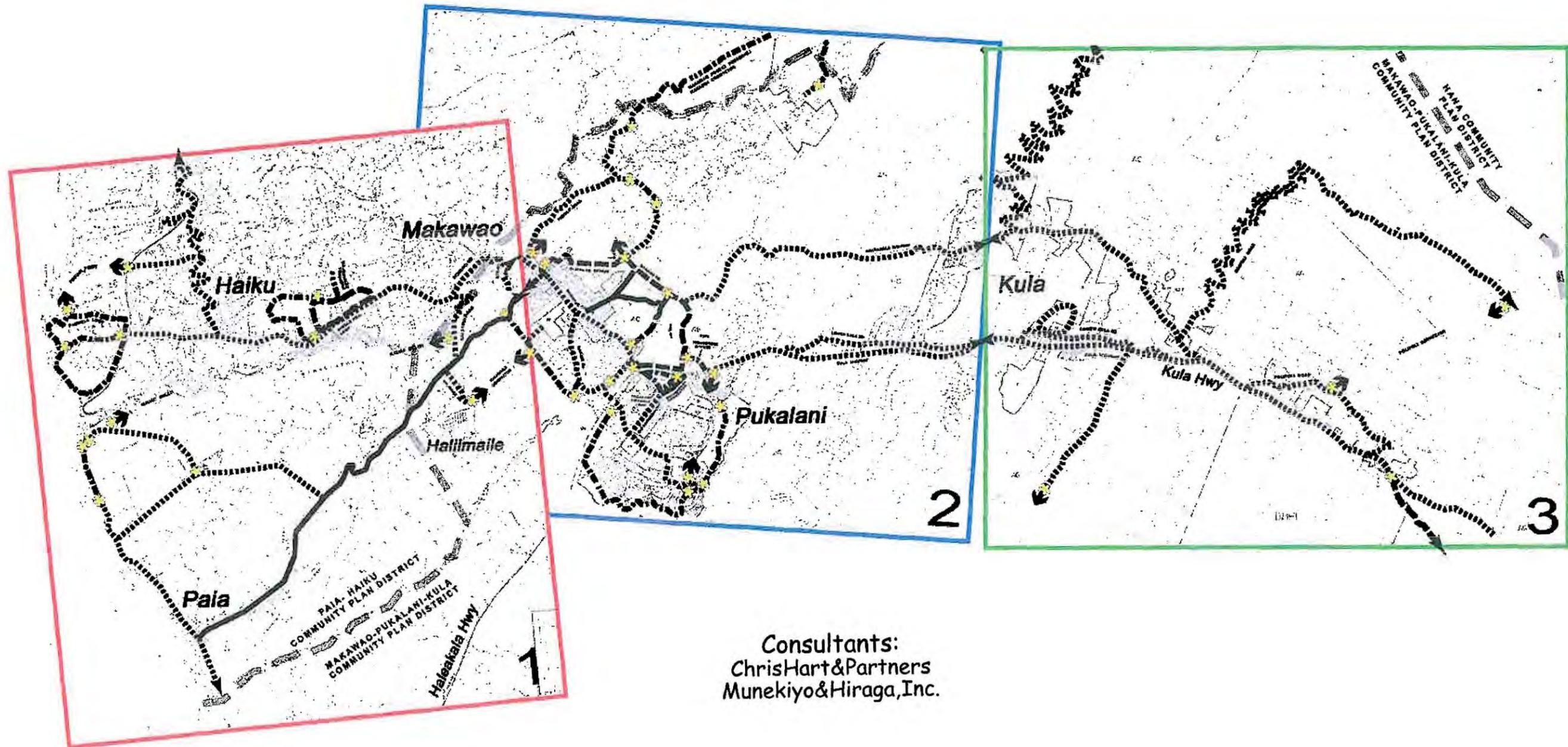


UPCOUNTRY GREENWAY MASTERPLAN

County of Maui
Department of Planning
July 2004



Consultants:
Chris Hart & Partners
Munekiyo & Hiraga, Inc.

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Preface

The Upcountry Greenway concept is viewed as an opportunity to develop and define scenarios for routing, and identifying greenway functional, design and management requirements. While greenways encompass planning parameters relating to recreation, transportation, resource conservation and historic/cultural preservation, the initial vision for the Upcountry Greenway focuses on recreational and transportation needs. As future funding opportunities are identified, the scope of the greenway plan can be broadened to incorporate planning goals and objectives which address other functional purposes.

For this initial planning effort, therefore, the Upcountry Greenway Master Plan document sets forth planning criteria, route priorities and implementation recommendations for an Upcountry transportation and recreational greenway system. The objective of the plan is to identify planning opportunities and constraints from which specific greenway facility proposals can be identified and developed. Therefore, this master plan report serves as the foundation from which greenway plan elements can be prioritized, funded and constructed. The planning concepts and recommendations incorporated in the plan were formulated through a process designed to balance user, landowner and governmental regulatory requirements.

It is noted that liability considerations discussed in this document were researched and compiled by the Pacific Islands Land Institute.

I. INTRODUCTION

The Makawao-Pukalani-Kula region is located on the western slopes of Haleakala and includes portions of the Haleakala National Park. It is the only County planning region without any shoreline resources.

Although the region's main urban centers are Makawao and Pukalani, much of the population of the region is concentrated on smaller rural parcels. The rural parcels are intermixed with large agricultural pursuits producing pineapple and cattle. It is a region that has become famous for the quality of its vegetables and flowers which are exported to local and global markets. "Upcountry" reflects the geographic location of its close-knit communities which place a high value on open space and rural characteristics.

The land use patterns of the Makawao-Pukalani-Kula region provide an opportunity to preserve the region's rural and agricultural setting. Through proper planning and implementation, the communities of Makawao, Pukalani and Kula can retain their unique qualities, while contributing to the economically and socially integrated fabric of the Upcountry region.

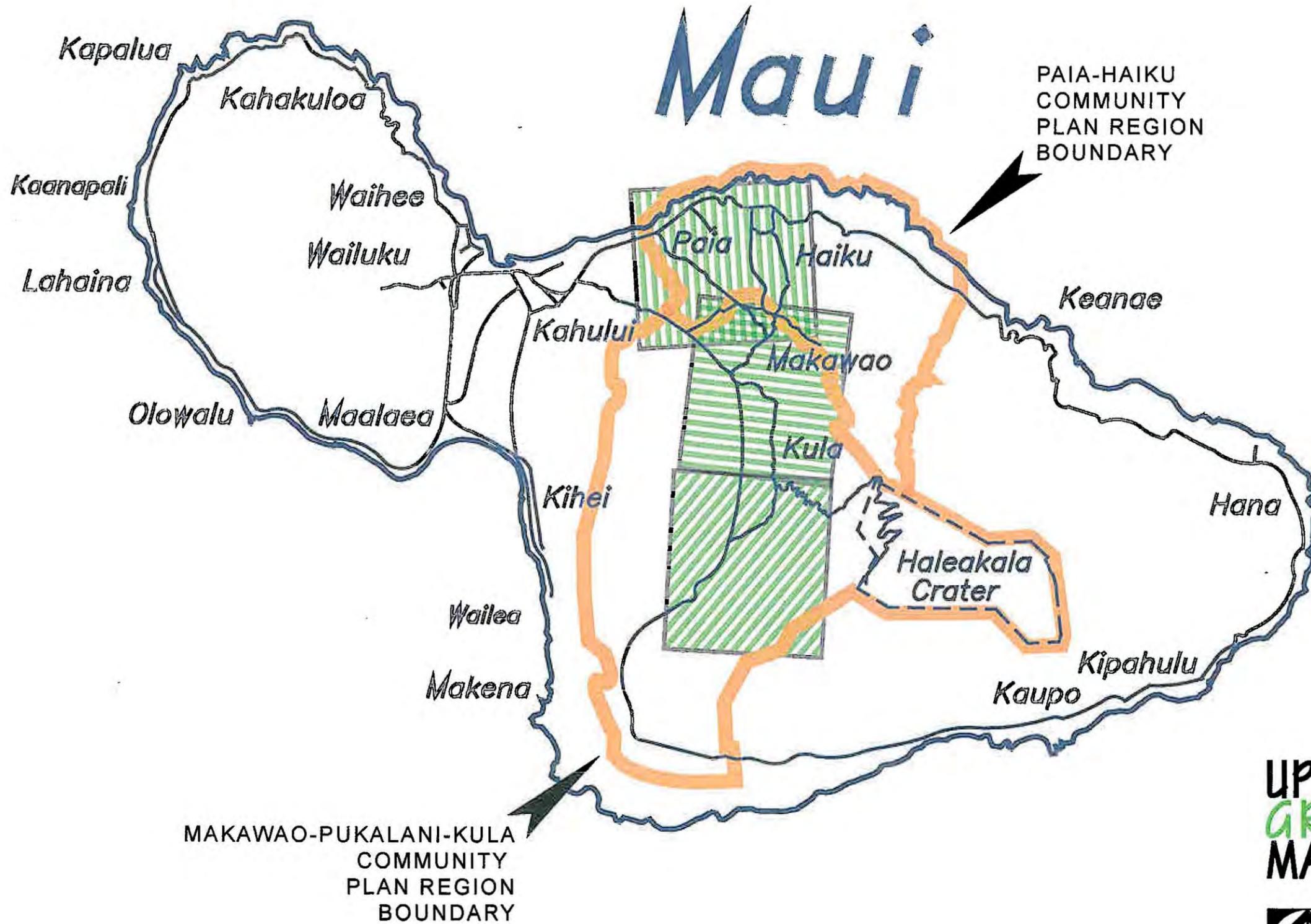
The Makawao-Pukalani-Kula Community Plan which was adopted by Ordinance No. 2510 became effective on July 23, 1996. Land use and policy recommendations of the Community Plan seek to promote the region's rural character and agrarian base. Policies have been developed to guide decision-making in the direction of fulfilling the opportunities, as well as correcting or mitigating identified problems of the region. Through goals, objectives and policies and implementing actions, the stated purposes of the plan may be fulfilled.

While the geographic scope of the Upcountry Greenway Master Plan is focused within the boundaries of the Makawao-Pukalani-Kula Community Plan region, routing opportunities around existing population centers of the Paia-Haiku Community Plan region were considered, as well. The project area limits for the Upcountry Greenway Master Plan is depicted in Figure 1. (For map presentation organization purposes, the project area has been divided into three (3) geographic sub-areas: Paia-Haiku; Makawao-Pukalani; and Kula-Ulupalakua.)

Interregional linkage opportunities identified by the plan are intended to serve as an example of how the greenway system can ultimately be developed on an islandwide basis. While funding limitations for this project prevent a thorough exploration of interregional greenway issues and opportunities, it is recognized that a broader physical planning context for greenway facilities

is an appropriate long-term goal for the County of Maui. It is with this in mind that the Upcountry Greenway Master Plan project is viewed as a prototype from which other regional greenway master plans can be developed to form a unified and integrated greenway system plan for the Island of Maui.

PROJECT AREA



STUDY AREAS



UPCOUNTRY
GREENWAY
MASTERPLAN

FIGURE
-1-

0 2 MI. 4 MI. 10 MI.



II. PURPOSE AND SCOPE

Greenways are sometimes referred to as "those long, skinny, green parks". Often, parks are thought to be blocks of land with well defined boundaries. With the demand for lands and facilities to meet leisure time needs and the need to preserve more open space, our recreation lands must take on new configurations.

What are greenways? Greenways are linear parks or recreation ways which preserve ribbons of natural habitat or cultural features through urban areas or open countryside. They can be typically left in their natural state or can be improved depending upon the target users. These linear greenways lend themselves to trail systems for hiking, biking or horse riding. They also serve as natural conservation areas and wildlife habitat and provide natural diversity to the landscape.

The Makawao-Pukalani-Kula Community Plan calls for the preparation and implementation of an Upcountry Master Plan for bikeways, equestrian trails and pedestrianways which connect major origin and destination points. Such facilities should include:

- a. Pedestrian/equestrian/bikeway routes which link the Makawao Town Center, Eddie Tam Memorial Gym, Kalama Intermediate School, and continuing along Makani Road to Haleakala Highway.
- b. Pedestrian/equestrian/bikeway routes which link Pukalani residential areas with the Pukalani Community Center, Pukalani Elementary School, and the Pukalani Terrace Center, along Pukalani Street from Haleakala Highway to the Pukalani Country Club, with a future extension to the Kulamalu project.
- c. Pedestrian/bikeway route along the Pukalani Bypass and Kula Highway from Makani Road to Ulupalakua.

The Paia-Haiku Community Plan also calls for greenway linkages as follows:

- a. Establish a regional network of bikeways and pedestrian paths. This should include providing adequate space to accommodate bicycle traffic throughout the Paia Town area, including along Baldwin Avenue from Paia to Makawao.

- b. Encourage convenient pedestrian and bicycle access between residences and neighborhood commercial areas, parks and public facilities, in order to minimize use of the automobile within residential communities.

The community plans establish the framework for formulating goals and objectives for the Upcountry Greenway Master Plan. The following goal and objectives, therefore, represent benchmarks from which Upcountry Greenway recommendations have been developed.

Goal

An integrated system of non-motorized transportation and recreation multi-use routes, trails and paths, which respect the rights of private property owners and utility service companies, and which are compatible with existing and future land uses in the region.

Objectives

- a. Identify greenway routes which provide linkages between and within communities.
- b. Establish greenway design criteria which are suitable for multi-use and multi-function purposes.
- c. Develop routing criteria which recognizes physical, operational and land use needs of private property owners and utility service providers.
- d. Establish a regulatory and management framework to ensure the long-term operational success of the Upcountry Greenway.
- e. Develop a user education program to promote user safety and welfare and to broaden understanding of private property interests and needs.
- f. Develop greenway implementation priorities and timeframes which maximize operational utility within the context of available funding.

III. THE PROCESS

The Upcountry Greenway Master Plan was developed with input from user groups, landowners and utility service providers, and State and County agencies. The participation of users and landowners was essential in plan formulation in order to identify and balance the relationship between user needs and private property requirements. In recognizing the need to prepare a plan from both user, landowner and governmental regulatory perspectives, a number of distinct work phases were undertaken.

Work Phase I- Initial Input

To begin the planning process, separate overview and input meetings were held with users and landowners. The overview meeting with the user groups was intended to solicit input regarding planning and development issues, opportunities, and physical planning requirements from a user's perspective. Similarly, the overview meeting with landowners was conducted to solicit input relating to ongoing and future land use and operational issues, liability considerations and planning opportunities. Participants in the initial meetings represented a broad cross-section of organizations and property owners.

In addition to the initial overview meetings, user surveys were distributed to user groups to obtain more detailed information regarding user preferences, patterns of use and physical planning requirements. The user surveys point to the need to address the multi-user aspect of greenway facilities. For example, the Maui Mountain Bike Club may organize half-day to all-day events, with an average ride of ten (10) miles. The Sierra Club, seeking the exploration and enjoyment of natural areas, may organize three (3) to four (4) outings per month, with outings ranging between one (1) and ten (10) miles. The diversity of potential users is further exemplified by the Hawaii Equestrian & Trails Association, which seeks to promote horseback riding activities and opportunities.

Work Phase II- Research and Data Collection

Following initial overview and input meetings, research and data gathering was conducted. This phase of work involved one-on-one meetings with governmental agencies and individual landowners to discuss specific areas of concern and possible opportunities relative to greenway facilities development. In this process, available maps and planning resources were reviewed to provide a data foundation from which physical planning criteria and alternatives could be formulated.

Work Phase III - Workshop on Land Conservation Mechanisms and Liability Issues

A workshop led by the Pacific Islands Land Institute was held on August 25, 2000 with interested landowners and users, as well as State and County agencies. The two-part workshop was designed to inform and elicit discussion on topics pertinent to greenway planning and implementation. Topic areas addressed in the workshop included the following:

- a. Greenway ownership and control.
- b. Land conservation mechanisms (including conservation easements).
- c. Landowner liability and risk management/assessment.

Work Phase IV - Identification of Community Resources

This phase of work involved a general assessment of the technical information compiled during the research and data collection phase of the project in the context of the master plan's goal and objectives. In combination with site visits to key areas of the planning region, community resources were identified. These resources are the key origin and destination points within the planning region from which master plan physical linkages would be based.

Work Phase V - Master Plan Development

Having identified community resources or key system linkage points, as well as potential greenway resources which may be available in the planning region, a master plan concept was developed. This phase of work involved the careful review of information presented at the initial input meetings with user groups and landowners, as well as consideration of opportunities and limitations identified during the research and data collection phase of the work.

Work Phase VI - Public Information Meeting

A public information meeting was held on October 22, 2003. The purpose of this meeting was to provide an explanation of the project planning process and to present preliminary greenway concepts to the public. The meeting also provided an opportunity to clarify plan objectives and allow discussion of implementation issues and requirements.

Work Phase VII - Implementation Considerations

The master plan illustrates the various facility development or routing alignments which may be ultimately implemented. It is intended to define the ideal multi-use system, and is designed to serve as a basis for establishing implementation priorities. The final step of the master planning effort therefore, focused on the formulation of criteria which would enable the identification of priority segments for implementation. Criteria for establishing priorities, for example, may relate to cost, management or regulatory issues or all of them.

IV. PLANNING CONSIDERATIONS

A number of greenway planning topics were identified by both users and landowners during Work Phase I. While input received from both users and landowners covered a fairly broad range of topics, comments may be placed in one (1) of five (5) plan guidance categories:

1. Functional and Design Criteria
2. Liability Issues and Concerns
3. Land Use Compatibility Considerations
4. Greenway System Regulation
5. Implementation Considerations.

In general, the guidance categories listed above define the general framework for plan development by setting forth planning principles, issues and concerns, and design parameters which should be incorporated in the plan. These are described in further detail.

A. FUNCTIONAL AND DESIGN CRITERIA

In recent years, the use of the term "greenways" has expanded greatly, especially in North America. While the term is sometimes understood as referring to a bike trail or path surrounded by a green linear corridor, greenways can also be described as networks of land containing linear elements that are planned, designed and managed for multiple purposes including ecological, recreational, cultural, aesthetic, or other purposes compatible with the concept of sustainable land use. A key element in this definition is the fact that greenways can be multi-functional, based on the assumed or negotiated spatial and functional compatibility of certain uses. As a result, the process of establishing goals in greenway planning is particularly important. Since all goals cannot always be achieved equally, trade-offs and compromises are sometimes necessary. Greenways can be used to connect parklands, enhance recreational opportunities, provide wildlife corridors and protect natural habitat and scenic areas. Typically responding to a variety of societal uses, greenways can include trails for passive recreation and alternative transportation. They have also been shown to have a variety of positive economic impacts, such as increasing the value of adjacent private properties.

Two (2) separate and distinct functions for a greenway system are assumed for master planning purposes. First, as described in the plan's goal, facility components of a greenway system would address transportation needs, promoting

the use of non-motorized modes of travel on trails physically separated from road travelways. Transportation components of the system, therefore, would establish inter- and intra-community linkages, satisfying origin-destination objectives of potential users. For example, as noted by the Makawao-Pukalani-Kula Community Plan, pedestrian/equestrian/bikeway routes may link Pukalani residential areas with the Pukalani Community Center, Pukalani Elementary School, and Pukalani Terrace Center. In addition to intra-community linkages, greenway facilities may also provide transportation connections between communities such as Makawao and Pukalani or Waiakoa and Keokea.

The second function of the greenway system is to provide recreational opportunities for equestrian, pedestrian and bikeway uses. Since recreational needs tend to focus more on the user experience, design criteria for recreation-based facilities may differ from that of transportation based facilities. Thus, a transportation-based facility may place higher priority on point-to-point travel efficiency in route and alignment selection, while a recreational-based facility may place higher priority on design parameters related to specific user requirements.

While both transportation-based and recreation-based facilities have distinct objectives, both are subject to general planning criteria which govern route and alignment selection. The following general planning principles have therefore been considered in the development of the master plan.

1. Off-road facilities shall be integrated with existing State and County roadway systems with consideration given to connection point safety. In integrating off-road facilities with existing State and County roadways, consideration shall be given to providing connection locations which facilitate greenway system continuity.
2. Both transportation and recreation facilities shall be limited to non-motorized uses. Thus, design of the greenway system shall, at a minimum, address the needs of pedestrians (walkers, joggers, hikers, skaters), horseback riders, and bicyclists.
3. Definition of trail routing and alignments shall respect existing uses, existing property boundaries and man-made and natural physical barriers (i.e. fences, walls, topographic features, etc.). Particular attention shall be given to the relationship between greenway facility use and agricultural

operations requirements. For example, to avoid splitting or bifurcating large tracts of land and to minimize conflicts with agricultural operations, routes are generally identified on the periphery of large agricultural parcels, often times paralleling rights-of-way or gulches.

B. LIABILITY ISSUES AND CONCERNS

In Hawaii, as in other places, the public desires to use and enjoy the natural resources or recreational sites that are located on private land, or where one has to cross over private land to get to the site. Although many landowners have no general objection to such use, they often hesitate to open their lands due to the fear of being sued if someone is injured on their land.

Historically, under general legal principles (common law), the duty of care a landowner owes to someone on their land varies based on three distinctions: whether the person was an invitee (guest), a licensee (a person who pays to be on the land), or a trespasser (a person on the land without permission). The greatest duty is owed to the invitee and the least duty is owed to the trespasser.

In 1969, the Hawaii Supreme Court in *Pickard v. City and County of Honolulu* abolished these major distinctions between types of users and held that:

"an occupier (landowner or lessee) of land has a duty to use reasonable care for the safety of all persons reasonably anticipated to be upon the premises, regardless of the legal status of the individual."

1. Recreational Use Statute - Chapter 520

a. Background

In the same year the Supreme Court decided the *Pickard* case, the State Legislature passed a Recreational Use Statute (Chapter 520, HRS) to limit the liability of landowners to persons entering their land for recreational purposes. The purpose of the law is to "encourage owners of the land to make land and water areas available to the public for recreational purposes."

A landowner may use the protection of Chapter 520 in two situations: when a landowner invites or permits persons to use his/her property for recreational purposes without charge, or if the landowner is

required to provide recreational access or parking by statute, ordinance, or as part of an endangered species habitat conservation plan. The protection applies to recreational users and anyone coming to the rescue or assistance of recreational users.

Under Chapter 520, the landowner has no duty to:

- Keep the premises safe for entry or use by others for recreational purposes; or
- Give any warning of dangerous condition, use, structure, or activity on the premises to persons entering for such purposes; or
- Persons entering for a purpose in response to a recreational user who requires assistance, either direct or indirect, including but not limited to rescue, medical care, or other form of assistance.

In addition, the landowner who allows recreational use of his/her land does not:

- Extend any assurance that the premises are safe for any purposes; or
- confer upon the person the legal status of an invitee or licensee to whom a duty of care is owed; or
- assume responsibility for, or incur liability for, any injury to any person or persons who enter the premises in response to an injured recreational user.

Chapter 520 provides three specific exceptions to the general protections against liability. A landowner may still be liable:

- For willful or malicious failure to guard or warn against a dangerous condition, use, or structure which the owner knowingly creates or perpetuates and for willful or malicious

failure to guard or warn against dangerous activity which the owner knowingly pursues or perpetuates;

- For injury suffered in any case where the owner of land charges the person(s) for recreational use; or
- For injuries suffered by a house guest while on the owner's land, even though the injuries were incurred by the house guest while engaged in recreational use of the property.

b. **Applicability of Recreational Use Statute**

There are several factors that a court will consider in applying the recreational use statute to a particular case. These factors include:

- Who is covered by the statute?
- What types of lands are covered?
- What types of uses are covered?

The following briefly outlines how Chapter 520 treats these issues.

Who is an "owner" covered by the statute?

Attempting to establish an access trail system involves crossing over many different properties often held under a variety of ownership forms. In determining whether the recreational use statute can be used by an owner as an affirmative defense to liability, the court will have to decide whether it applies. The Hawaii statute provides more detail than other similar statutes in defining an "owner" as:

- The possessor of a fee interest,
- Tenant,
- Lessee,
- Occupant, or
- Person in control of the premises.

What types of land are covered?

The definition of "land" under the statute is also broad and includes:

- Real property (i.e. land)
- Roads
- Water
- Water courses
- Private ways and buildings
- Structures
- Machinery or equipment when attached to realty, *other than lands owned by the government*

In addition to Chapter 520, Act 82, passed in 2003, amended Na Ala Hele (HRS Chapter 198D). The purpose of Act 82 is "to establish a process in which the State and counties are provided protection from liability on improved public lands when the requirements of this act are met." These requirements specifically relate to proper signage warning of dangerous natural conditions.

"Improved Public Lands" is defined as, "lands designated as part of the state park system, parks, and parkways...and lands which are part of the Hawaii statewide trail and access system under Chapter 198D, excluding buildings and structures constructed upon such lands." Also excluded are ocean, submerged lands, and beach parks.

What types of recreational uses are covered?

The statute defines a "recreational purpose" by providing a list of uses and noting that the definition is not *limited* to those uses. Therefore, the recreational use statute may still apply to a landowner who opens his or her land for a recreational use not *specifically* listed in the statute. The following uses are explicitly covered:

- Hunting
- Fishing
- Swimming
- Boating
- Camping
- Picnicking

- Hiking
- Pleasure driving
- Nature study
- Water skiing
- Winter sports
- Viewing or enjoying historical, archeological, scenic, or scientific sites.

c. **Strengths of the Recreational Use Statute**

The State Legislature has expressed a clear intent to encourage landowners to open up their lands and provide significant legal protection from liability if they do so without charge. In general, one can expect that the courts will uphold the intent of the Legislature and provide landowners the desired protection. In fact, in a Hawaii Supreme Court decision on this law, *Atahan v. Marumoto*, (1999), the court used Chapter 520 to find in favor of a landowner on whose property someone parked their car, went down to the beach (across someone else's land), and was injured in the water.

In addition, the level of detail provided in the statutory definitions provides expansive protection for landowners. The Federal Courts in Hawaii, as well as the Ninth Circuit, have interpreted Chapter 520 broadly to include government entities. The courts have consistently found in favor of the government as a landowner.

d. **Weakness of the Recreational Use Statute**

Probably the single greatest weakness in Chapter 520, from a landowner's point of view, is that it does not stop someone injured on their land from suing. Once named in a lawsuit, even if Chapter 520 allows the landowner to be dismissed from the lawsuit quickly and without liability, the landowner must hire counsel and defend against the lawsuit.

The other potential weakness in the application of Chapter 520 is that there have been very few cases that have interpreted the statute. Consequently, landowners and users are left with little guidance as to what constitutes "...willful and malicious failure to guard or warn against a dangerous condition or use...." Courts applying

recreational use statutes in other states have used various approaches to this issue. Hawaii's federal court has adopted California's three-prong test for defining willful conduct in *Covington v. United States*, 916 F. Supp. 1511 (1996). This case involved a boy who drowned in the ocean at Bellows Air Force Base. The court found that there was no willful or malicious failure on the government's part to guard or warn of the dangerous condition of the ocean. The test for willfulness involves three essential elements that must be present:

- Actual or constructive knowledge of the peril to be apprehended;
- Actual or constructive knowledge that injury is a probable, as opposed to possible, result of the danger; and
- Conscious failure to act to avoid the peril.

Covington was a federal case, and therefore Hawaii State courts are not bound to apply the same test.

Since *Atahan*, there has been one case in which the state courts have interpreted Chapter 520 differently than the federal court. In *Crichfield v. Grand Wailea Company*, (2000), the Hawaii Supreme Court refused to follow the Hawaii District Court's interpretation of Chapter 520 with regards to the "recreational purpose" requirement. In *Crichfield*, a woman was injured on hotel property while walking on the grass. There was conflicting testimony as to whether the woman was there to view the scenery or to have lunch at the hotel. The Hawaii Supreme Court held that the user's intent was material to the question of "recreational purpose." The Court found that where a commercial property has areas intended for recreation, Chapter 520 does not automatically protect the landowner from liability. The case proceeded to determine whether the woman was there to view the scenery or to buy lunch at the hotel, which would be a "commercial" purpose not covered by Chapter 520. This decision is contrary to the District Court's interpretation of Chapter 520 in *Howard v. United States*, (1997). In *Howard*, a woman was injured while taking a sailing

course at Hickam Air Force Base. The woman argued she was there for business purposes, to further her professional goals. The District Court declared that the courts should not look to the subjective intent of the recreational user to determine whether the statute applied, but should focus on the landowner's intent for the use of the land.

Although federal cases under Chapter 520 may provide some guidance as to its interpretation, their interpretation should not be relied upon. These grey areas in the statutory language have yet to be resolved in the Hawaii Courts and create uncertainty. However, the absence of case law in this area should also be encouraging for landowners because it indicates that few landowners are actually being sued. In addition, every case to date has involved injuries in the coastal areas and not in upland areas.

2. Landowner Liability to Trespassers

Another concern of landowners in considering opening their lands for a greenway or other recreational use is the potential for trespassing on to other parcels of their land off site of the greenway or recreational area. The possibility of either liability for injuries to the trespasser or malicious property damage by the trespassers remains an issue.

Trespassers are not persons permitted or invited to use the land for recreational purposes and therefore, the Recreational Use Statute does not address landowner liability towards them. However, landowners owe no duty to trespassers as the Hawaii Supreme Court stated in *Atahan*. The *Atahan* decision may also be helpful to landowners in that it extended Chapter 520 to a landowner adjacent to where the injury actually occurred.

The risk of increased vandalism and other problems outside of the area on which recreational users are allowed is largely a management and design concern, as discussed below.

3. Measures to Increase Landowner Comfort and Decrease the Risk of Liability for Allowing Recreational Use of their Land

There can be no absolute guarantee to a landowner that he/she will not be sued by a recreational user if he/she allows the use of their land for a

greenway. However, there are measures that can be taken to reduce exposure from these added "nuisance" costs and to address concerns such as maintenance, expense, and vandalism

a. Management and Insurance

(1) Trail and Greenway Management

The best ways to mitigate liability exposure is to design and maintain trails, greenways, and other recreational amenities to the specific standards based on the type of use. For example, bikeways and greenways should have a higher standard than a remote back country footpath. Na Ala Hele, the Statewide Trail System, County and State park agencies, and other organizations have developed design standards and maintenance protocols for trails and other recreational facilities. If these standards are maintained, not only is the likelihood of injury or other problems reduced, but there should be little question that the landowner has adequately discharged their duties under either Chapter 520 or the *common law*. Naturally, these measures cost money and require management time. The section below suggests ways these expenses can be borne or shared by users without the owner charging for the use of his or her property.

(2) Insurance

As with any other risk, insurance can play a significant role in providing comfort to landowners for potential liability or suit. Again, as with management, insurance costs money. The greater the exposure, the greater the cost.

b. Partnerships with User Groups and Na Ala Hele

(1) Na Ala Hele

A Landowner may enter into a partnership with the Department of Land and Natural Resources (DLNR) under §198D-7.5.

HRS §198D-7.5, creates the option of an agreement between the Department of Land and Natural Resources and private landowners, by which the State agrees to defend or indemnify

the landowner for losses resulting from public use. An example of such an agreement is one with the Lanai Resort Partners. Under the agreement, Castle & Cook Resorts, LLC, has established two trail head locations, signage, brochures, and maintenance programs. In return, the Na Ala Hele program agrees to defend and indemnify the company, to assist in planning and designing the trail, and to have a trails and access specialist inspect the trails on a quarterly basis.

In order for Na Ala Hele to consider these types of management agreements, to provide indemnification and to receive approval by the State Attorney General, the trail design and maintenance must be consistent with Na Ala Hele's program and purposes and standards of care. It is a prerequisite that the trail meet the program's design and maintenance standards. Thus, these agreements are intended to promote public safety, reducing risk to the public on trails. Protection against landowner liability follows as a result.

Strengths:

- The Recreational Use Statute does not guarantee that landowners will not be sued by land users. An agreement under §198D-7.5 would also not bar suits but it transfers the burden of the lawsuit from the landowner to the State.

Weaknesses:

- The language of §198D-7.5 is ambiguous as to what constitutes "losses resulting from public use."
- §198D-7.5(c) states that: "If the agreement provides for indemnification by the State, no judgment shall be executed against an owner until the legislature has reviewed and approved the judgment." The landowner's involvement in the suit may be extended, awaiting legislative approval and judgment.

(2) User Groups

The Vermont Land Trust has successfully created a multi-use trail easement for the purpose of public recreation. Under this initiative, private landowners grant a perpetual easement over a portion of their property to a local non-profit organization. The holder of the easement takes on the responsibility of managing public use, and trail maintenance.

Unlike agreements between landowners and DLNR, no specific law governs agreements between landowners and user groups. Nonetheless, such agreements are another option to increase the protection of landowners.

(Note: The responsibilities of the user group and the landowner should be clearly defined. The user group should have sufficient capacity to fulfill its responsibilities under the agreement and the landowner should not get direct financial benefits.)

Strengths:

- The agreement may shift the burdens of trail management to user groups.
- The agreement could include terms by which the user group agrees to defend or indemnify the landowner in the case of a lawsuit.
- It may also be easier for the easement holder to secure insurance than the individual landowner.

Weaknesses:

- The Vermont Land Trust model does not relieve the landowner of liability; however, conceptually a landowner could negotiate additional protections (i.e. insurance or indemnities with the nonprofit organization).

c. Dedication of Accessway to Government

A landowner can also avoid the specter of liability to persons using

their land by transferring ownership to another private owner or the government. Once the ownership is transferred, the original owner has, of course, eliminated the problem for themselves. If the transfer is to a private entity, such as a non-profit user group, the new owner will have the same considerations concerning liability as the original owner. If, however, the transfer is to government, then the accessway will be in the same status as parks or other such public facilities.

To implement this strategy, there must be a government agency willing to acquire the land for the accessway. This can be done by purchasing the land for full fair market price, for a reduced price, or by accepting a donation of the land. The landowner that donates land to a government agency (or a 501(c)(3) tax-exempt non-profit) or sells the land for a reduced price can receive significant tax benefits. Interestingly, depending upon the situation of the individual landowner, through these benefits the landowner can often end up with nearly equivalent financial benefits by donating the land instead of selling the land. On a reduced price sale, the difference between the fair market value of the property, and the actual sale price, is considered a "donation."

Strengths:

- Liability transfers to the new landowner.
- Landowner receives tax benefits for the donation.

Weaknesses:

- Landowner gives up ownership.
- Landowner may have difficulty finding a buyer.

d. Obtaining Economic Benefits without Transferring Ownership

A landowner considering whether to allow the use of his/her land for an accessway will typically weigh potential liability against the benefits. Although a landowner cannot directly charge for the use of the land without losing the benefit of the protections of Chapter 520, there are other potential economic benefits created by greenways, accessways, and trails. These benefits may outweigh the potential risks.

(1) Positive Economic Impacts

Greenways, accessways, and trails are popular recreational amenities and thus provide a direct benefit to the landowner as a member of the community. In addition to such general benefits, experience throughout the nation has shown that greenways, accessways, and trails tend to increase the value of the property in the surrounding area. Further, stores, restaurants, and inns in the vicinity also often benefit from increased business.

(2) Conservation Easement

Under this option, the landowner enters into an agreement with a qualified non-profit organization, whereby the owner donates an easement for public recreational use to a qualified non-profit conservation organization. In many instances, a landowner can take a tax deduction for the charitable donation of the easement while keeping both ownership and possession of the property. See Vermont Land Trust example.

Strengths:

- Landowner obtains tax benefits.
- Landowner keeps both ownership and possession of the property.
- The landowner is still protected by Chapter 520.

Weakness:

- The landowner still "owns" the land, and is thus not protected from being named in a lawsuit.

4. Summary

Landowners have concerns regarding liability. The concerns need to be considered by advocates of recreational use of private lands with greenways and multiple use trails. However, the State legislature has provided significant protection for landowners, and design, maintenance, and signage arrangements for recreational features with user groups, and insurance can mitigate remaining concerns. In addition, greenways and access trails can create recreational, aesthetic, and economic benefits for landowners and communities. By working together, with open communications regarding

risks, burdens, and benefits, win-win solutions can be explored and implemented.

C. LAND USE COMPATIBILITY ISSUES

The Upcountry Greenway concept in part, envisions off-road trails utilizing, where feasible, private lands. In instances where private property is involved, existing or proposed uses by the landowner will be respected. To a large extent, Upcountry lands suitable for potential greenway facilities are currently set aside for agricultural use (e.g. pineapple cultivation and cattle ranching). Existing uses, both agricultural and non-agricultural have specific operational needs which may not be wholly compatible with greenway facilities. For example, planting or harvesting operations may create dust emissions which may temporarily disrupt the use of greenway facilities in the immediate vicinity. Similarly, cattle operations may require extensive use of fencing which may require circuitous routing and use of areas less desirable from a physical design standpoint.

Landowner and parcel configuration patterns were also examined. Designating a route through multiple parcels of varying sizes could affect landowner operations and complicate the implementation process. Securing greenway site control for example, may take longer with multiple owners involved. Constraints such as this would place such routes at the lowest priority level, likely rendering them infeasible. Thus, routes which affect multiple landowners have not been identified in the master plan.

In addition to existing uses, landowners may envision other property uses (either agricultural and non-agricultural) at some point in the future. Although individual long-range master plans were not discussed for purposes of greenway master planning, respecting landowners' ability to utilize his or her property for uses other than those currently in effect is maintained as fundamental master planning principle. Therefore, greenway use and specific routing alignments presented in this report may be subject to modification and adjustment in response to evolving land use patterns and spatial configurations. The greater public interest will be the prime consideration in any such modifications or adjustments.

D. GREENWAY SYSTEM REGULATION

The regulation of uses for greenway facilities relates to programs and mechanisms which are needed to ensure the safe and appropriate use of facilities. Rules, regulations and enforcement programs address topics related to use, safety and

protocol.

Although the formulation of a detailed regulatory framework for greenway use is beyond the scope of this master plan report, it is the intent of the master plan to provide general guidelines from which specific implementation actions can be formulated. In this regard, the following general principles are advanced for consideration in the formulation of rules and regulations for greenway facility use.

- a. Non-motorized use only shall be permitted. However, motorized equipment may be considered as a means of promoting accessibility by handicapped users to those facilities designed and assigned for such use.
- b. Greenways shall be multi-user oriented and accordingly, rules shall consider safety of all users.
- c. Public use days and times shall consider operations occurring on abutting lands to ensure user safety.
- d. Commercial use of greenway facilities shall not be a priority nor shall it be encouraged.

The regulatory framework for greenway use shall also define responsibility for facility maintenance. While maintenance funding and implementation may not be directly incorporated in a specific set of rules and regulations, basic guidelines and possible mechanisms for ensuring maintenance accountability must be addressed. Such guidelines would define minimum standards, funding and field maintenance requirements for greenway facilities.

V. THE PLAN

The master plan presented herein represents an ideal system of greenway routing, functions and linkages. The formulation of the greenway concept was developed using user group and landowner input, as well as an analysis of existing resource information. This section summarizes the general methodology used in formulating the greenway system concept.

A. IDENTIFICATION OF COMMUNITY RESOURCES

The initial step in developing the greenway system concept involved the identification of community resources or key origin/destination points which would serve as primary connection nodes for the various system components. The community resources create the general framework for greenway system development by spatially indicating specific sites or locales for which greenway interconnections are desired. While other resources can be identified, the primary criteria for resource definition were defined as follows:

- A. Identify community resources which would provide reasonable and manageable linkages within the Upcountry region.
- B. Identify community resources which would address functional needs, such as connections to education facilities, library facilities, recreational facilities including parks, equestrian centers, urban centers and commercial areas.
- C. Identify community resources which would provide trail head facilities such as parking and restrooms.

Within the Paia-Haiku sub-area, the key resource or linkage nodes are represented by settlement centers (e.g., Haiku Town, Kuiaha), as well as public facilities including school sites and major recreational centers (e.g., 4th Marine Division Park, Paia School, Hookipa Park). See Figure 2. Within the Makawao-Pukalani sub-area, resource types similar to those identified in Paia-Haiku sub-area are designated. The greater number of community resources defined in this region reflects the greater concentration of settlement centers, and therefore, linkage opportunities. Examples of community resources identified in the area include Haliimaile, Pukalani and Makawao residential areas, Kamehameha Schools, King Kekaulike School, Wai Ulu Stables and Oskie Rice Arena. See Figure 3. The third

region addresses the Kula-Ulupalakua sub-area of Upcountry. Within this sub-region, Waiakoa, Keokea and Polipoli are the identified community resources. See Figure 4.

While desirable, the identified resources are not intended to be fully linked under the master plan. They do however, provide a basis for delineating initial linkage and alignment opportunities.

B. SITE CONFIRMATION OF PHYSICAL CONDITIONS

Having identified key community resources, field visits were conducted to evaluate physical planning and development constraints and opportunities which would need to be considered in the establishment of potential greenway alignments. The field visits included an examination of roadway rights-of-way, as well as off-road areas which hold potential for connecting community resource sites.

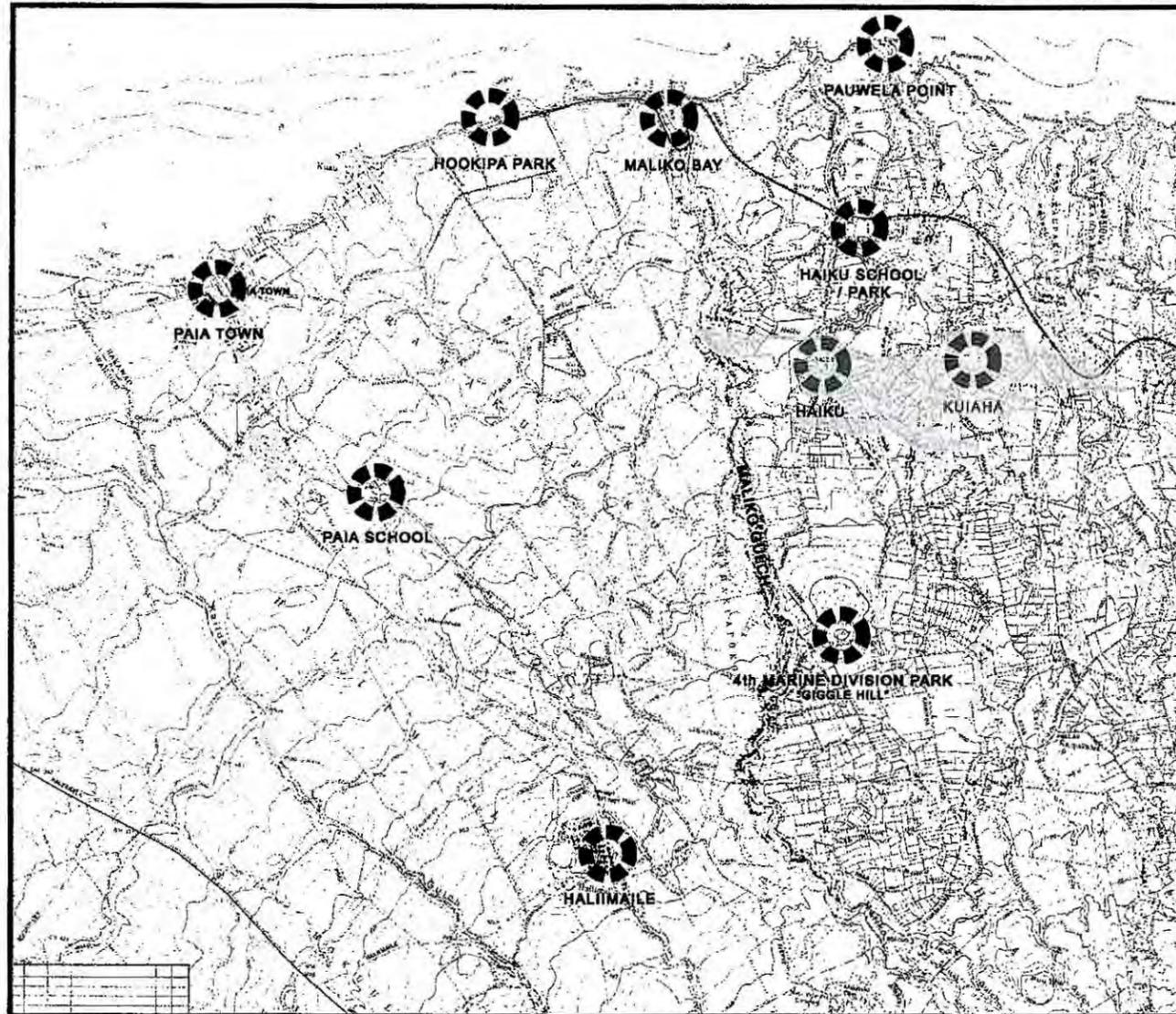
C. DELINEATION OF ROUTING SCHEMES

Following field-confirmation of physical conditions, a range of potential greenway routes were identified. Selection of these routes considered land ownership and parcel configuration patterns, as well as suggestions and input provided by both user groups and landowners. The routes identified are deemed ideal in terms of connectivity and physical considerations but until legally acquired, are not to be construed as being accessible to the public. The identified routes in the master plan as depicted on the master plan maps are, therefore, intended to advance the desired physical plan concept. Implementation priorities are to be identified from the master plan to produce a list of greenway implementation development elements which can be feasibly funded and constructed. Implementation priorities would be set using a "screening process" which would take into account such criteria as land use compatibility, liability issues, right-of-way availability, and relative development costs.

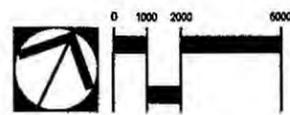
D. IDENTIFICATION OF FUNCTIONAL VALUES

Although a master plan sets forth an ideal set of greenway routes, a given route may not necessarily meet all user requirements. For example, routes along existing road travelways may be appropriate for biking, but may not be suitable for hiking or equestrian use. The functional categories used in defining route functional value include pedestrian-related uses (e.g. jogging and walking/hiking), equestrian uses, and biking. Each route segment delineated on the master plan is, therefore, further described in terms of its functional suitability and characteristics.

COMMUNITY RESOURCES



UPCOUNTRY
GREENWAY
MASTERPLAN



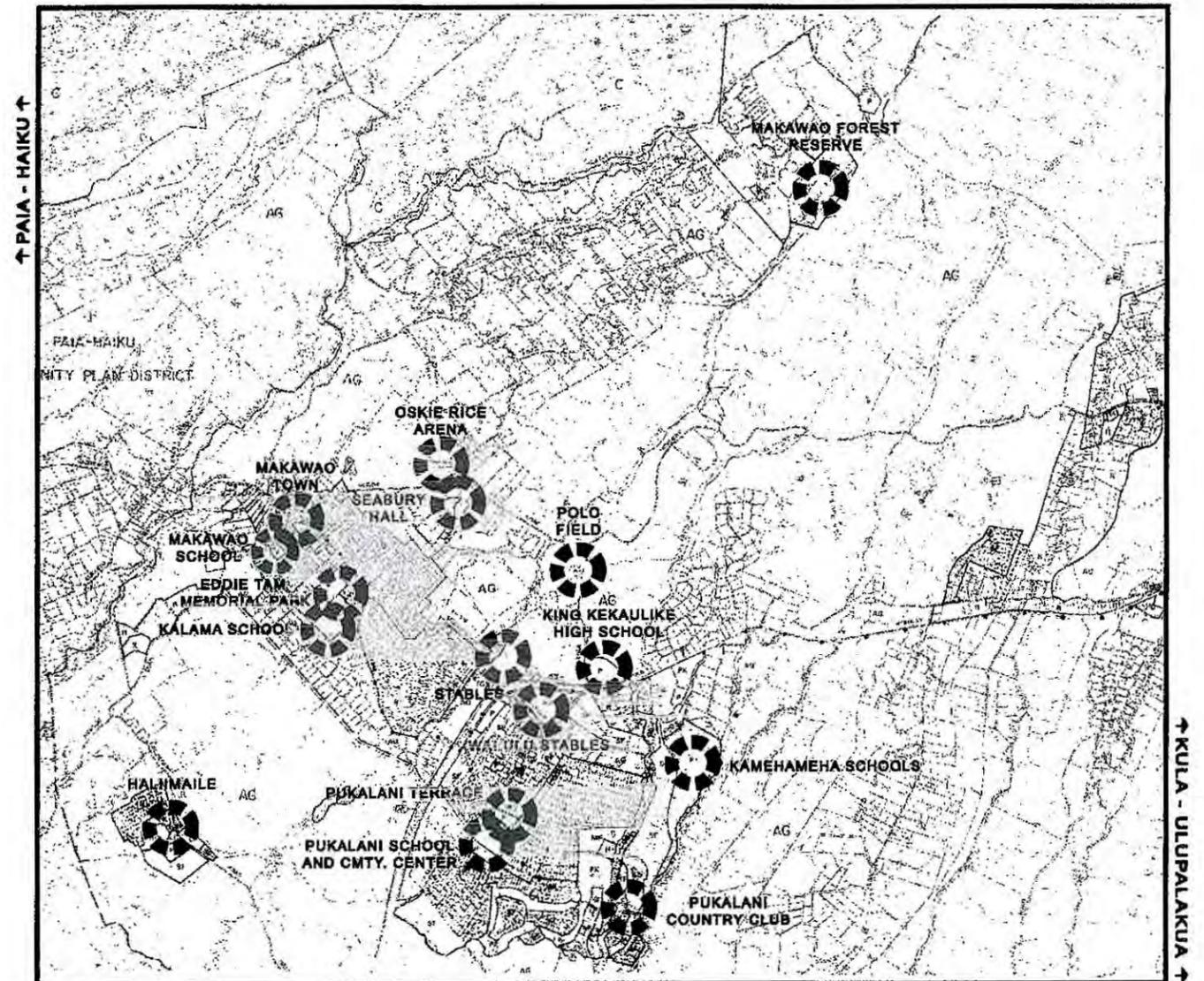
PAIA
HAIKŪ



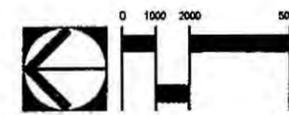
ORIGIN /
DESTINATION POINTS

FIGURE
-2-

COMMUNITY RESOURCES



UPCOUNTRY
GREENWAY
MASTERPLAN



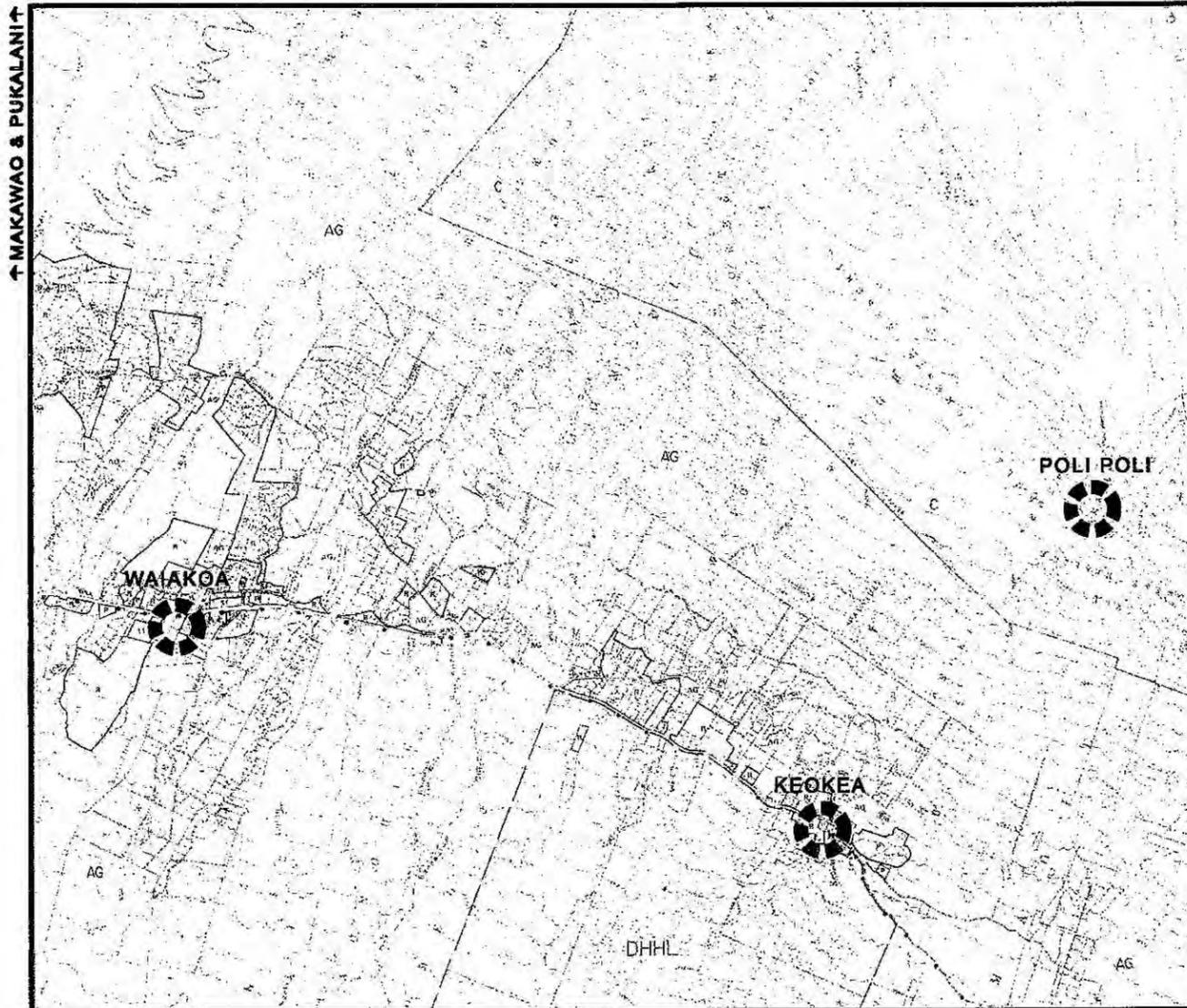
MAKAWAO -
PUKALANI



ORIGIN /
DESTINATION POINTS

FIGURE
-3-

COMMUNITY RESOURCES



UPCOUNTRY
GREENWAY
MASTERPLAN



KULA-
ULUPALAKUA



ORIGIN /
DESTINATION POINTS

FIGURE
-4-

E. MASTER PLAN CONCEPTS: ROUTES AND PRIORITIES

The recommended Greenway Master Plan for the project planning area is shown in context in Figure 5. The Context Map provides an illustration of how the various routes fit together as an integrated and unified regional master plan for the project planning area. Summaries of the recommended elements for each sub-region are described as follows.

1. Makawao-Pukalani Plan Summary

The recommended routes for the Makawao-Pukalani region provide a variety of recreational, as well as functional venues. Land use patterns and parcel configurations provide for opportunities to create a comprehensive system of interrelated linkages around and within the two primary urban cores. See Figure 6.

The general pattern of land in the Makawao-Pukalani region consists of concentrations of urban uses bordered by larger tracts of agricultural land. This pattern presents opportunities to create a series of greenways around the periphery of the urban areas, which coincide with the edge of agricultural tracts. The result is the potential to create a series of routes which in total would follow along the periphery of the urban areas.

Existing road rights-of-way were identified which provide opportunities to create functional connections between existing community resources.

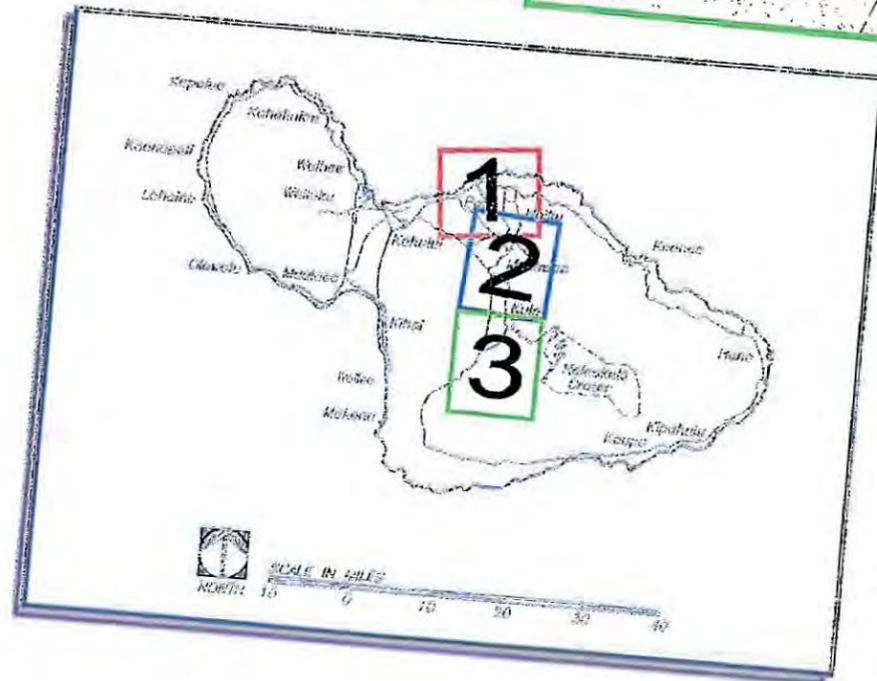
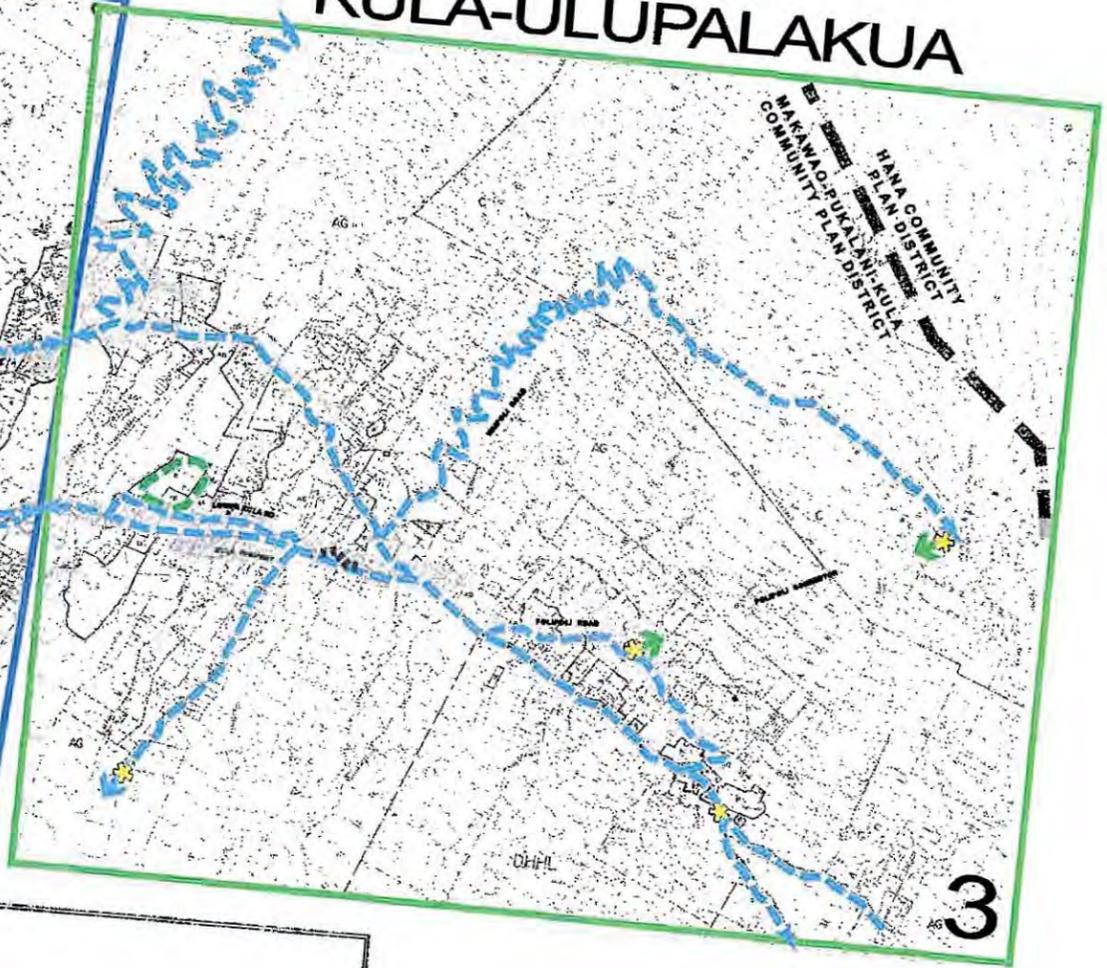
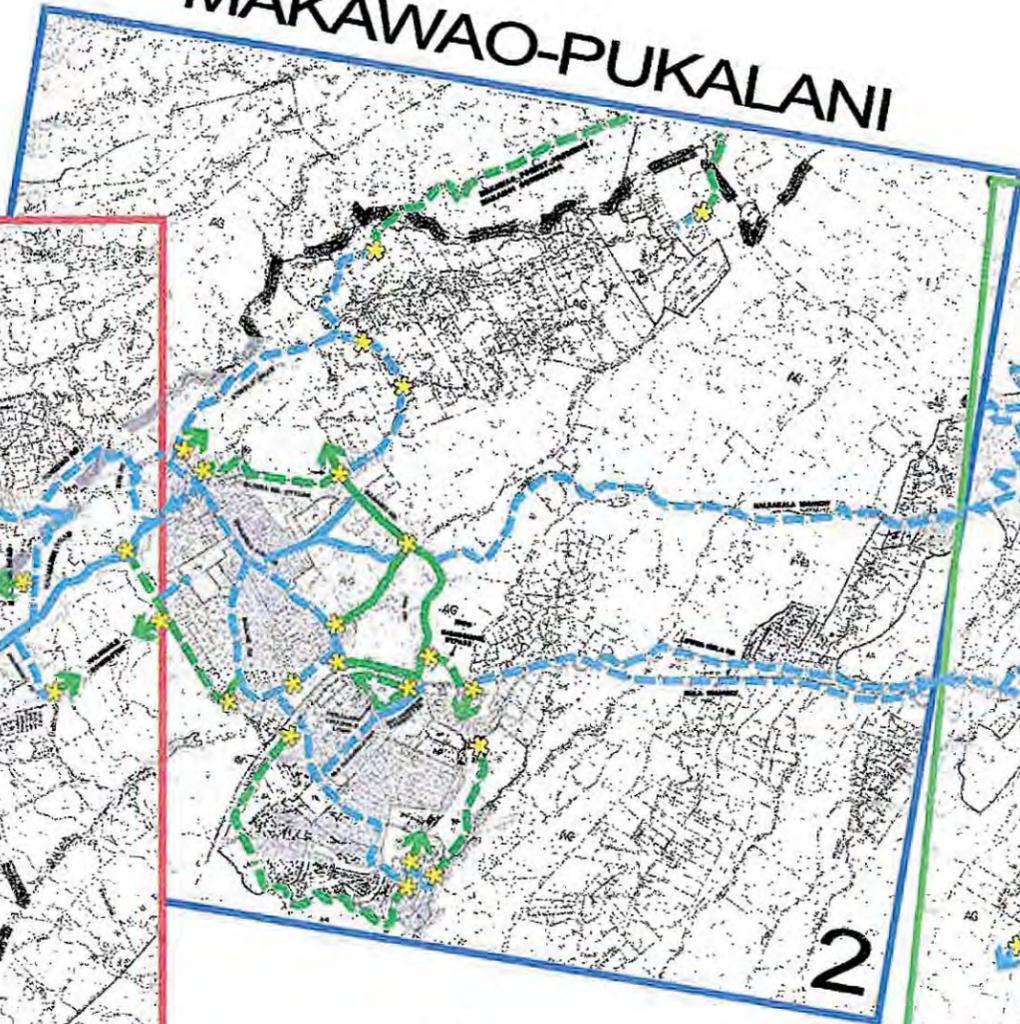
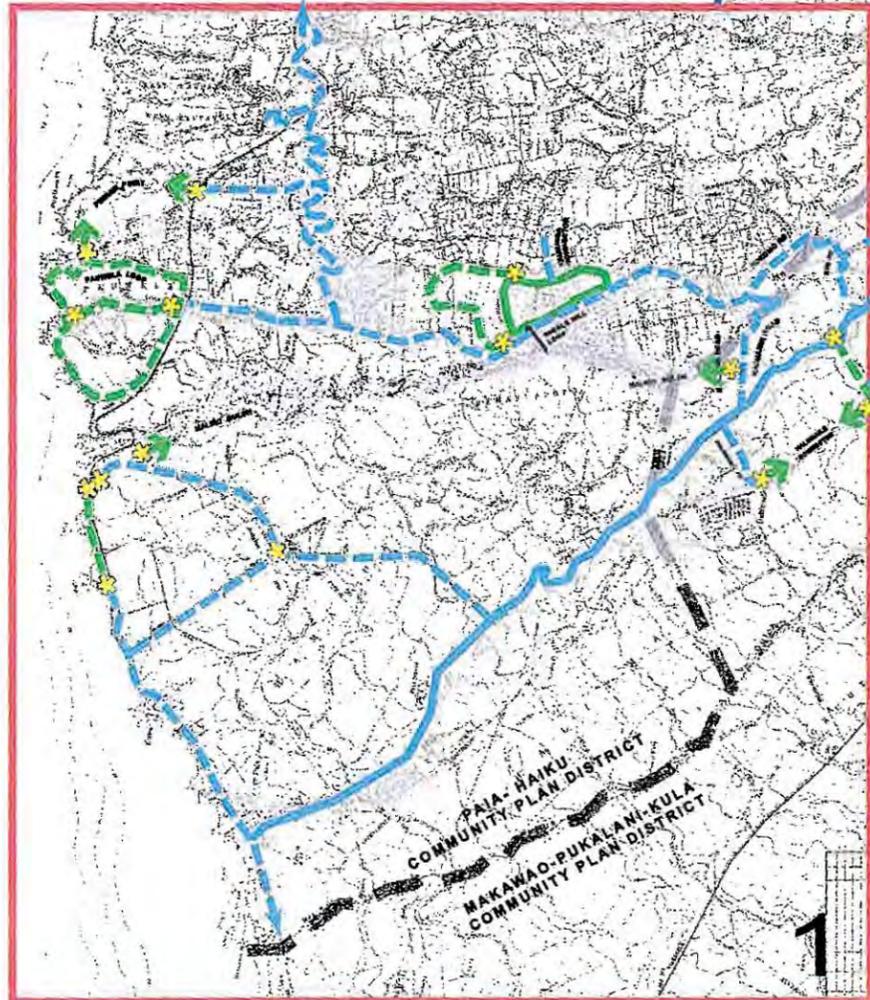
Priority trails identified in the Makawao-Pukalani region consist of a recreational loop in proximity of King Kekaulike High School and Haleakala Ranch Headquarters referred to as Puu Koa Loop, as well as a functional connection to provide a pedestrian linkage from King Kekaulike High School to Pukalani Town.

CONTEXT MAP

PAIA - HAIKU

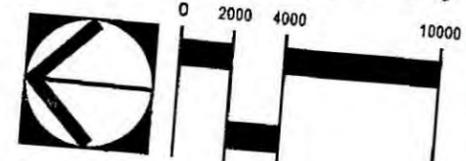
MAKAWAO-PUKALANI

KULA-ULUPALAKUA

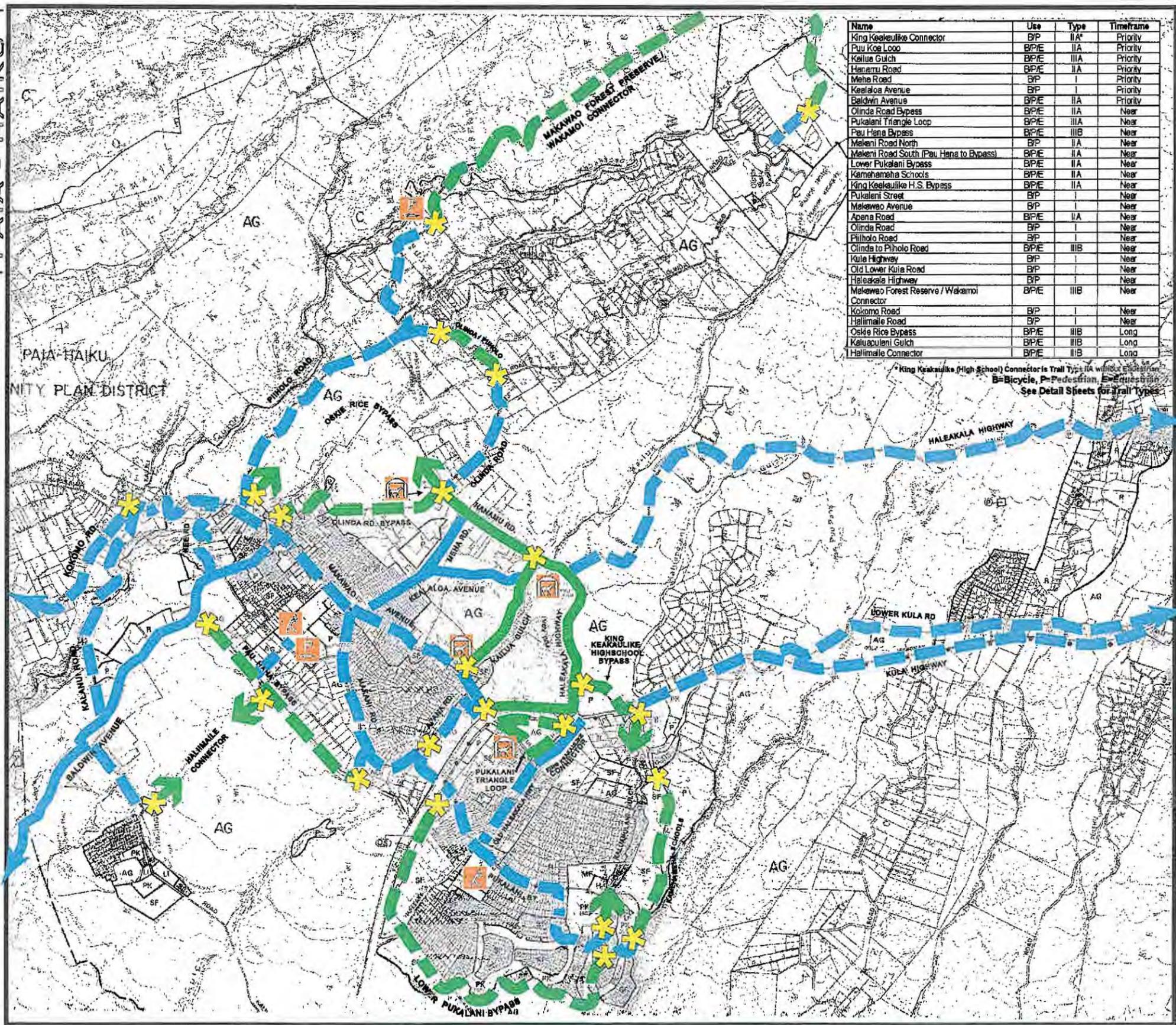


UPCOUNTRY
GREENWAY
MASTERPLAN

FIGURE
-5-



↑ PAIA - HAIKU ↑



Name	Use	Type	Timeframe
King Keekaulike Connector	BP	IIA*	Priority
Puu Koa Loop	BP/E	IIA	Priority
Kaliua Gulch	BP/E	IIIA	Priority
Hanama Road	BP/E	IIA	Priority
Mehe Road	BP	I	Priority
Keelooa Avenue	BP	I	Priority
Baldwin Avenue	BP/E	IIA	Priority
Olinda Road Bypass	BP/E	IIA	Near
Pukalani Triangle Loop	BP/E	IIIA	Near
Pau Hana Bypass	BP/E	IIIB	Near
Mekani Road North	BP	IIA	Near
Mekani Road South (Pau Hana to Bypass)	BP/E	IIA	Near
Lower Pukalani Bypass	BP/E	IIA	Near
Kamehameha Schools	BP/E	IIA	Near
King Keekaulike H.S. Bypass	BP/E	IIA	Near
Pukalani Street	BP	I	Near
Makawao Avenue	BP	I	Near
Apapa Road	BP/E	IIA	Near
Olinda Road	BP	I	Near
Piholo Road	BP	I	Near
Olinda to Piholo Road	BP/E	IIIB	Near
Kula Highway	BP	I	Near
Old Lower Kula Road	BP	I	Near
Haleakala Highway	BP	I	Near
Makawao Forest Reserve / Wakamoi Connector	BP/E	IIIB	Near
Kokomo Road	BP	I	Near
Haliimalie Road	BP	I	Near
Oskie Rice Bypass	BP/E	IIIB	Long
Kaliuapuni Gulch	BP/E	IIIB	Long
Haliimalie Connector	BP/E	IIIB	Long

*King Keekaulike (High School) Connector is Trail Type IIA without Equestrian
 B=Bicycle, P=Pedestrian, E=Equestrian
 See Detail Sheets for Trail Types

LEGEND

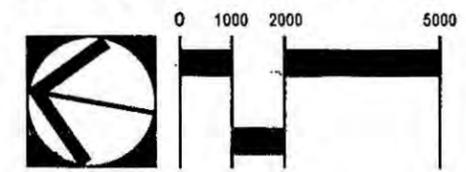
MAKAWAO - PUKALANI

- TRAIL TYPE**
- PRIORITY OFF-ROAD ROUTE**
 - PRIORITY ROUTE WITHIN OR ADJACENT TO RIGHT-OF-WAY**
 - NEAR-TERM OFF-ROAD ROUTE**
 - NEAR-TERM ROUTE WITHIN OR ADJACENT TO RIGHT-OF-WAY**
 - TRAIL NAME** **LONG-TERM ROUTE**

- AMENITIES**
- Parking / Staging Area
 - Equestrian Facilities
 - Play Fields
 - Trail Terminus

UPCOUNTRY GREENWAY MASTERPLAN

FIGURE -6-



Priority Routes

Puu Koa Loop

This loop trail parallels Haleakala Highway from the Makawao Avenue Intersection, past the "Five Trees" intersection up to the Manduke Baldwin Polo Arena. It then parallels Kealaloa Avenue to the Haleakala Ranch Headquarters where it then borders the northern edge of Kailua Gulch along an old agricultural service road down to Makawao Avenue, where it proceeds back to Haleakala Highway. See Figure 7. It was selected as a priority for the following reasons:

- Proximity to residential areas of Makawao and Pukalani, creating a convenient opportunity for recreational use by nearby residents.
- Proximity to equestrian facilities at Wai Ulu Farms, Maui Horse Center, Oskie Rice Arena and the Manduke Baldwin Polo Arena.
- Proximity to King Kekaulike High School. The loop could be used as a training course for cross country, as well as other sporting teams.
- The route is located along the periphery of agricultural parcels and parallels existing rights-of-way and Kailua Gulch so as to not bifurcate existing parcels.
- The length of the trail is approximately 2.4 miles which is considered a moderate distance for walking, biking or running.

High School Connector

This route was selected as a priority based on the need to provide a safe pedestrian linkage between King Kekaulike High School and Pukalani Town along Old Haleakala Highway.

Hanamau Road/Meha Road/Kealaloa Avenue Triangle

Consideration was given to this route as a priority for implementation based on existing usage. This route is often used as a walking or jogging route, however, concerns have been expressed regarding

safety due to the narrowness of existing roads.

2. Kula-Ulupalakua Plan Summary

Land use patterns and existing configurations provided constraints in the Kula-Ulupalakua Region, as opposed to the opportunities which are provided in the Makawao-Pukalani region. Specifically, the presence of a large number of relatively small parcels under separate ownership makes the designation of off-road routes through such areas infeasible. As such, the majority of recommended routes are within or parallel to existing rights-of-way. See Figure 8.

An opportunity for a recreational loop trail was identified in Waiakoa within an area designated for single-family use in the Makawao-Pukalani-Kula Community Plan, which is adjacent to the Kula Community Center. An off-road linkage from Keokea to Ulupalakua, parallel to the existing highway, was identified as a desirable recreational route, as was a potential linkage from Keokea to Polipoli State Park.

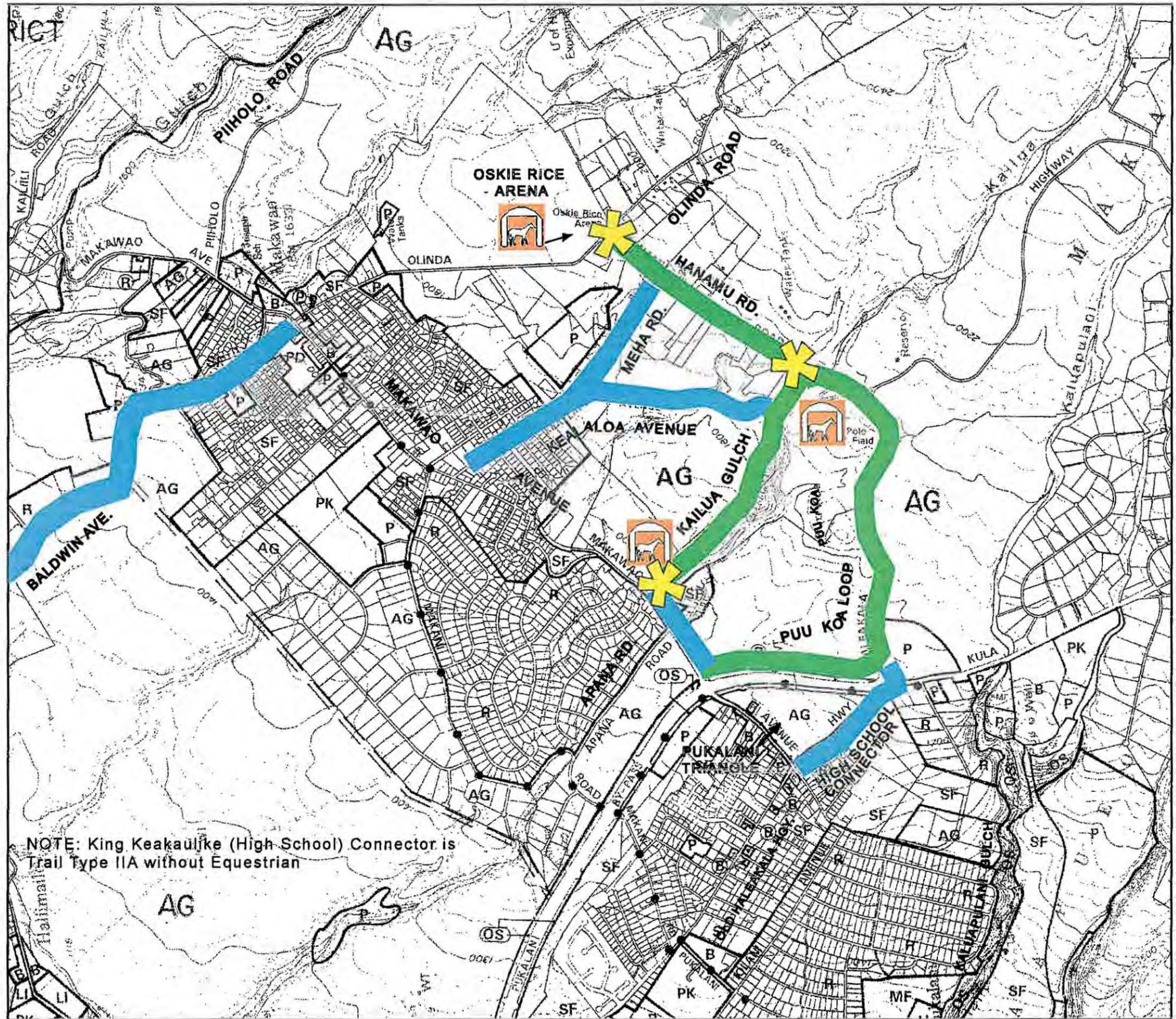
Priority Routes

There were no priority routes selected for this region.

3. Paia-Haiku Plan Summary

Routing opportunities in the Paia-Haiku region were identified along government rights-of-way, some of which are alignments of older roadways no longer in active use (Holomua and Hamakuapoko Roads and portions of Old Hana Highway). Other opportunities were identified along coastal or scenic routes near Hookipa Beach Park and Pauwela Point. See Figure 9.

As with the other two regions, existing rights-of-way connecting to community resources were identified based on functional and recreational opportunities.



NOTE: King Keakaulike (High School) Connector is Trail Type IIA without Equestrian

LEGEND

MAKAWAO - PUKALANI

PRIORITY TRAIL MAP

-  **PRIORITY OFF-ROAD ROUTE**

-  **PRIORITY ROUTE WITHIN OR ADJACENT TO RIGHT-OF-WAY**

-  **NEAR-TERM OFF-ROAD ROUTE**

-  **NEAR-TERM ROUTE WITHIN OR ADJACENT TO RIGHT-OF-WAY**

-  **TRAIL NAME** **LONG-TERM ROUTE**

AMENITIES

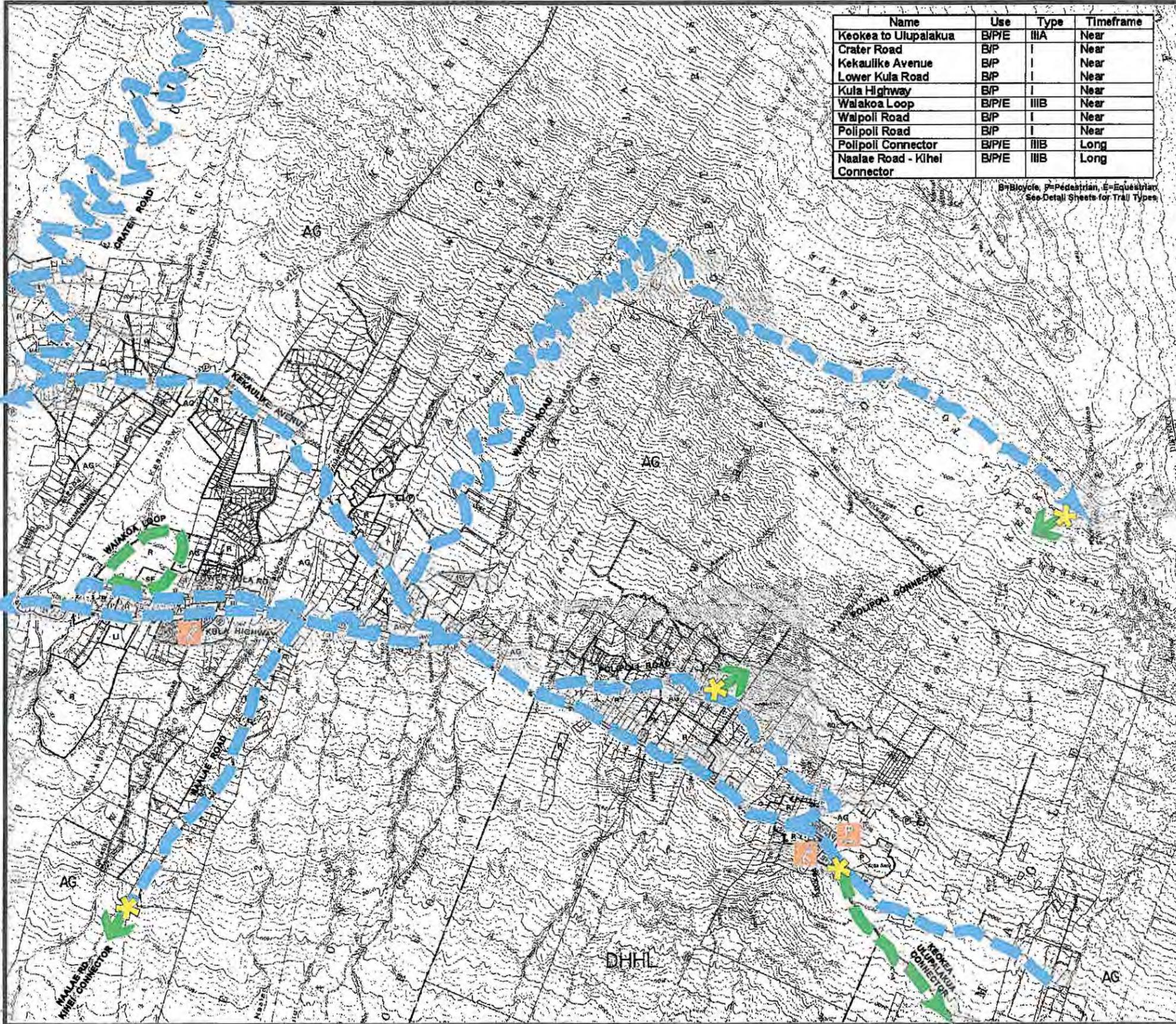
-  Parking / Staging Area
-  Equestrian Facilities
-  Play Fields
-  Trail Terminus

UPCOUNTRY GREENWAY MASTERPLAN

FIGURE -7-



↑ MAKAWAO & PUKALANI ↑



Name	Use	Type	Timeframe
Keokea to Ulupalakua	B/P/E	IIIA	Near
Crater Road	B/P	I	Near
Kekaulike Avenue	B/P	I	Near
Lower Kula Road	B/P	I	Near
Kula Highway	B/P	I	Near
Waikoa Loop	B/P/E	IIIB	Near
Waipoli Road	B/P	I	Near
Polipoli Road	B/P	I	Near
Polipoli Connector	B/P/E	IIIB	Long
Naalae Road - Kihel Connector	B/P/E	IIIB	Long

B=Bicycle, P=Pedestrian, E=Equestrian
See Detail Sheets for Trail Types

LEGEND

KULA - ULUPALAKUA

TRAIL TYPE

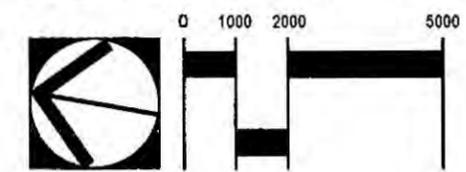
- PRIORITY OFF-ROAD ROUTE**
- PRIORITY ROUTE WITHIN OR ADJACENT TO RIGHT-OF-WAY**
- NEAR-TERM OFF-ROAD ROUTE**
- NEAR-TERM ROUTE WITHIN OR ADJACENT TO RIGHT-OF-WAY**
- TRAIL NAME** **LONG-TERM ROUTE**

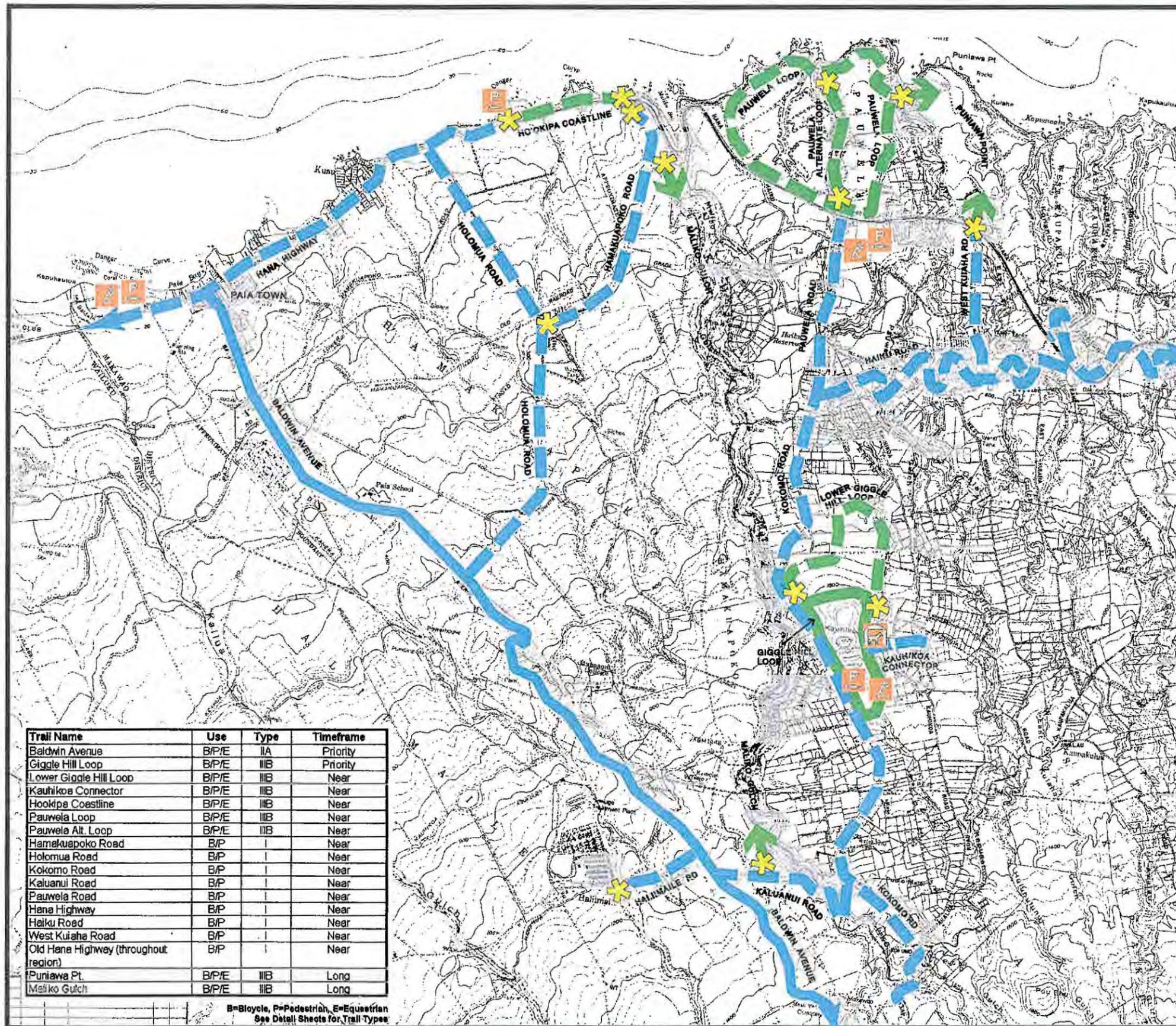
AMENITIES

- Parking / Staging Area
- Equestrian Facilities
- Play Fields
- Trail Terminus

UPCOUNTRY GREENWAY MASTERPLAN

FIGURE -8-





Trail Name	Use	Type	Timeframe
Baldwin Avenue	B/P/E	IIA	Priority
Giggle Hill Loop	B/P/E	III B	Priority
Lower Giggle Hill Loop	B/P/E	III E	Near
Kaula Connector	B/P/E	III B	Near
Hookipa Coastline	B/P/E	III B	Near
Pauwela Loop	B/P/E	III B	Near
Pauwela Alt. Loop	B/P/E	III B	Near
Hamekuaopoko Road	B/P	I	Near
Holomua Road	B/P	I	Near
Kokomo Road	B/P	I	Near
Kaluanui Road	B/P	I	Near
Pauwela Road	B/P	I	Near
Hana Highway	B/P	I	Near
Haiku Road	B/P	I	Near
West Kula Road	B/P	I	Near
Old Hana Highway (throughout region)	B/P	I	Near
Puniawa Pt.	B/P/E	III B	Long
Meliko Gulch	B/P/E	III B	Long

B=Bicycle, P=Pedestrian, E=Equestrian
See Detail Sheets for Trail Types

↓ MAKAWAO - PUKALANI ↓

LEGEND

PAIA - HAIKŪ

TRAIL TYPE

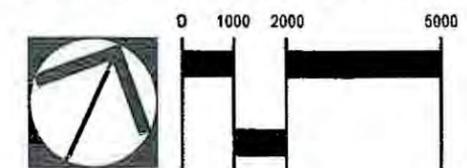
- PRIORITY OFF-ROAD ROUTE**
- PRIORITY ROUTE WITHIN OR ADJACENT TO RIGHT-OF-WAY**
- NEAR-TERM OFF-ROAD ROUTE**
- NEAR-TERM ROUTE WITHIN OR ADJACENT TO RIGHT-OF-WAY**
- TRAIL NAME** **LONG-TERM ROUTE**

AMENITIES

- Parking / Staging Area
- Equestrian Facilities
- Play Fields
- Trail Terminus

UPCOUNTRY GREENWAY MASTERPLAN

FIGURE -9-



Prepared For

Priority Routes

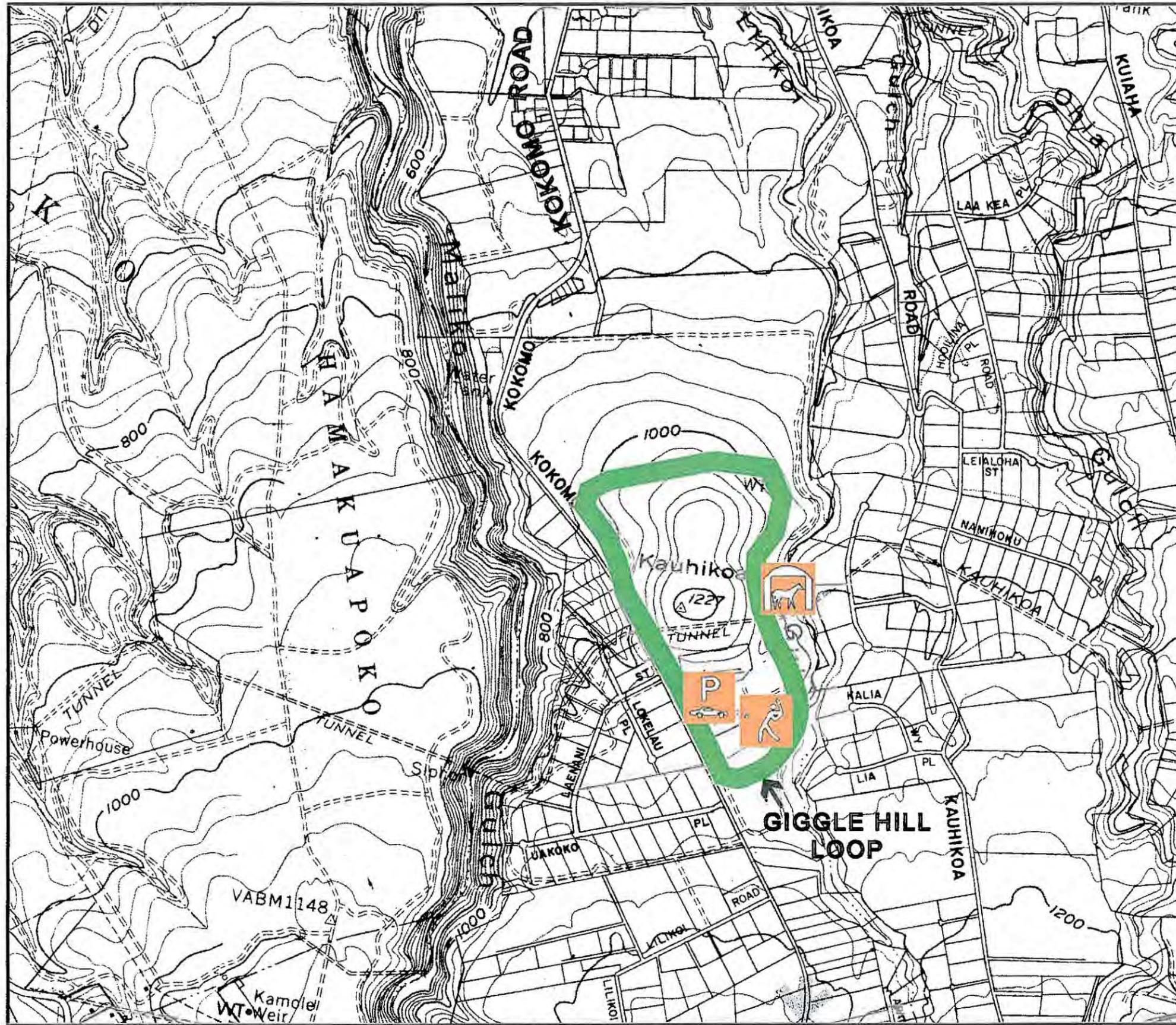
Giggle Hill Loop

This recreational route would be a multi-purpose off-road trail (Type IIIB) around Kauhikoa Hill (aka: "Giggle Hill") and traversing through portions of the 4th Marine Division Park with a connection to the Tom Morrow Equestrian Arena. See Figure 10. This route was selected based on the following attributes.

- Proximity to the 4th Marine Division Park and the Tom Morrow Equestrian Arena.
- Scenic qualities and natural setting.
- Lack of existing land use conflicts.
- A portion of the route would be located within County owned property, thus, reducing the impact on private landowners.
- The location would affect one private landowner, thus, simplifying the implementation process.

Baldwin Avenue

Designation of Baldwin Avenue as a priority route reflects the County's intention of creating a separated bikeway between Makawao and Paia towns.



↓ MAKAWAO - PUKALANI ↓

LEGEND

PAIA-HAIKŪ

PRIORITY TRAIL MAP

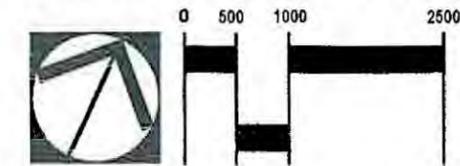
- PRIORITY OFF-ROAD ROUTE**
- PRIORITY ROUTE WITHIN OR ADJACENT TO RIGHT-OF-WAY**
- NEAR-TERM OFF-ROAD ROUTE**
- NEAR-TERM ROUTE WITHIN OR ADJACENT TO RIGHT-OF-WAY**
- TRAIL NAME** **LONG-TERM ROUTE**

AMENITIES

- Parking / Staging Area
- Equestrian Facilities
- Play Fields
- Trail Terminus

UPCOUNTRY GREENWAY MASTERPLAN

FIGURE -10-



VI. IMPLEMENTATION

A. MANAGEMENT STRUCTURE

While implementation of each greenway segment will involve multi-agency input, together with landowner assistance and cooperation, it is recommended that the County's Department of Public Works and Environmental Management (DPWEM) serve as the lead agency for project implementation. As lead agency, the role and responsibility of the DPWEM would include, but not be limited to the following:

1. Seek funding support from State and Federal agencies;
2. Prepare and submit for Council action, County budgetary requirements for project-specific planning, design and construction;
3. Provide project management expertise for consultant and contractor services relating to planning, design and construction;
4. Prepare and submit for Council action, County budgetary requirements relating to management and maintenance of constructed greenways;
5. Formulate and implement a greenway management program setting forth operational parameters (e.g., hours of operation) and user rules and regulations;
6. Coordinate with the Department of the Corporation Counsel to ensure that liability issues are addressed by the management program; and
7. In coordination with the Department of Parks and Recreation and landowners, formulate greenway maintenance programs to ensure a clean, safe and functional greenway system.

B. COMMUNITY PLAN CONSIDERATIONS

The Upcountry Greenway Master Plan represents a significant element in meeting recreation, transportation and open space recommendations for the Makawao-Pukalani-Kula Community Plan region, as well as the affected portions of the Paia-Haiku Community Plan. It is therefore important to recognize the Greenway plan elements as part of the community plans in future updates of these plans. In

particular, the inclusion of the Upcountry Greenway Master Plan's goal and objectives in the respective community plans will establish a legal basis for implementation of Greenway plan components. Further, to the extent that priorities identified by the Greenway plan can be implemented consistent with other provisions of the community plans, such priorities should be included as community plan implementing actions.

C. DESIGN CRITERIA

The design of each greenway segment shall be based on functional, operational and right-of-way criteria. While engineering design details relating to pavements and surfaces, landscaping, sight distances, barriers, and signage shall be defined by the DPWEM, generalized typical section concepts are advanced herein to establish the initial basis of design for greenway rights-of-way.

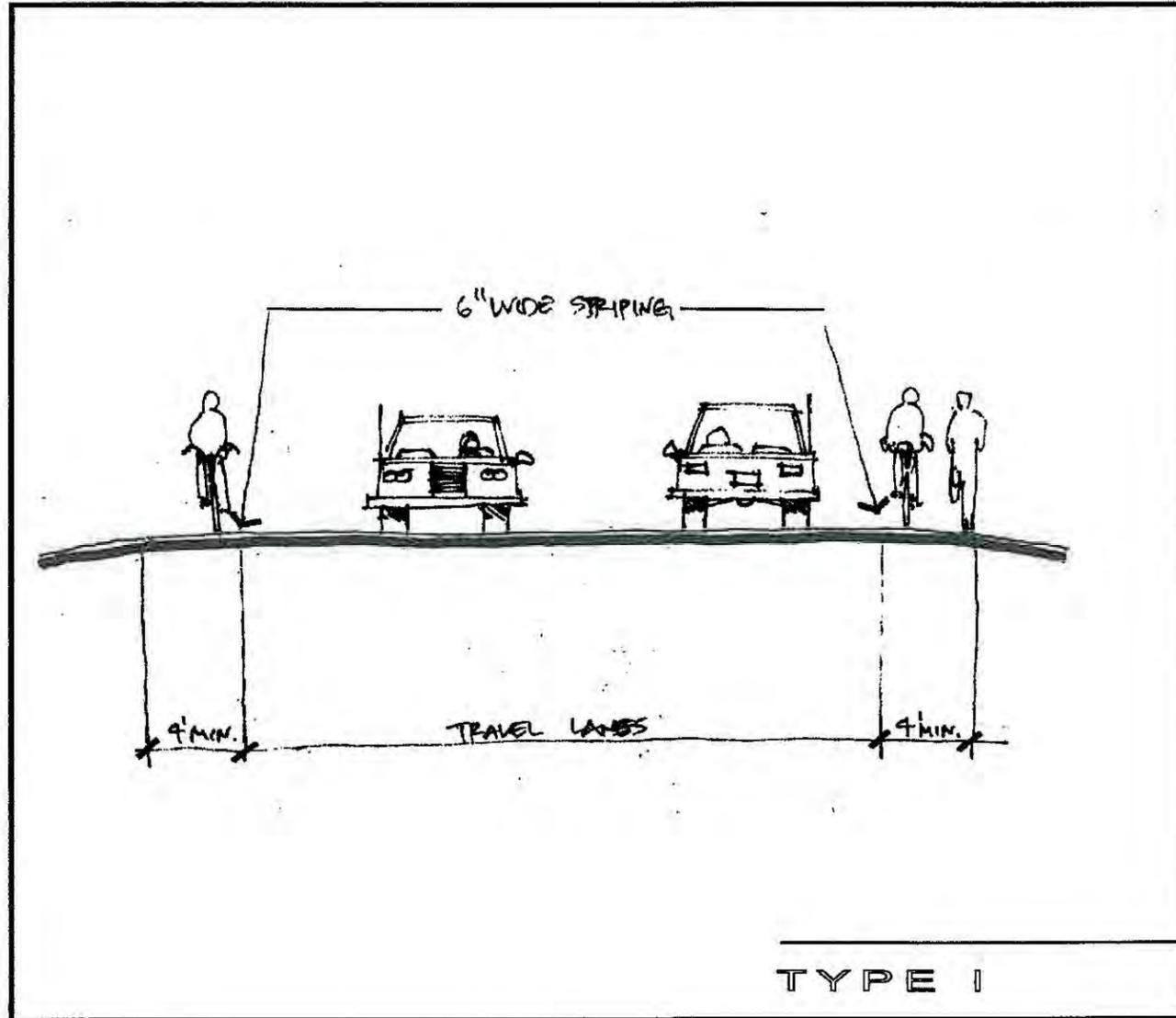
1. Type I, Expanded Pavement Section

The Type I typical section provides for the shared use of roadway rights-of-way for vehicles and pedestrians and bicyclists. See Figure 11. Where available, existing rights-of-way may be utilized or acquired to implement the desired typical section. This typical section would be appropriate for Kealaloa Avenue or Makani Road, within the Makawao-Pukalani section of the master plan.

2. Type II, Separated Shoulder and Urban Multi-Use Path Section

The Type II typical sections provides for greater design and functional flexibility by defining a trail or path parallel to, and physically separated from the vehicular travelway. The trail/path may be within an existing right-of-way or may be placed adjacent to the existing roadway on private lands. Two variations of the Type II section are presented in Figure 12 (Type IIA) and Figure 13 (Type IIB). The Type II section would have the flexibility to accommodate pedestrians, bicyclists and horseback riders.

TRAIL TYPES



TYPE I

UPCOUNTRY
GREENWAY
MASTERPLAN



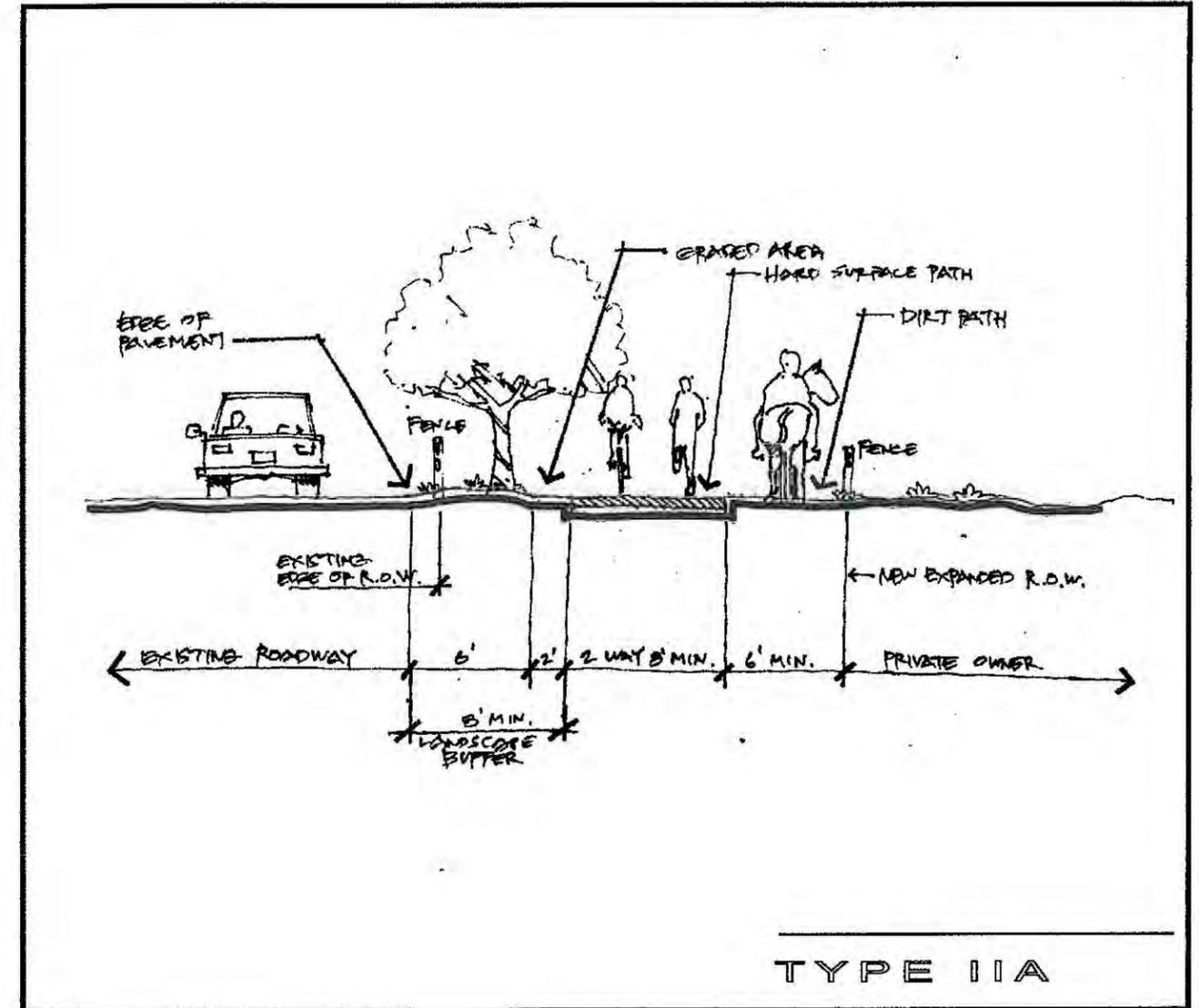
EXPANDED PAVEMENT

WITHIN OR ADJACENT TO RIGHT-OF-WAY

-SUITABLE FOR BICYCLE AND PEDESTRIAN USERS

FIGURE
-11-

TRAIL TYPES



TYPE IIA

UPCOUNTRY
GREENWAY
MASTERPLAN



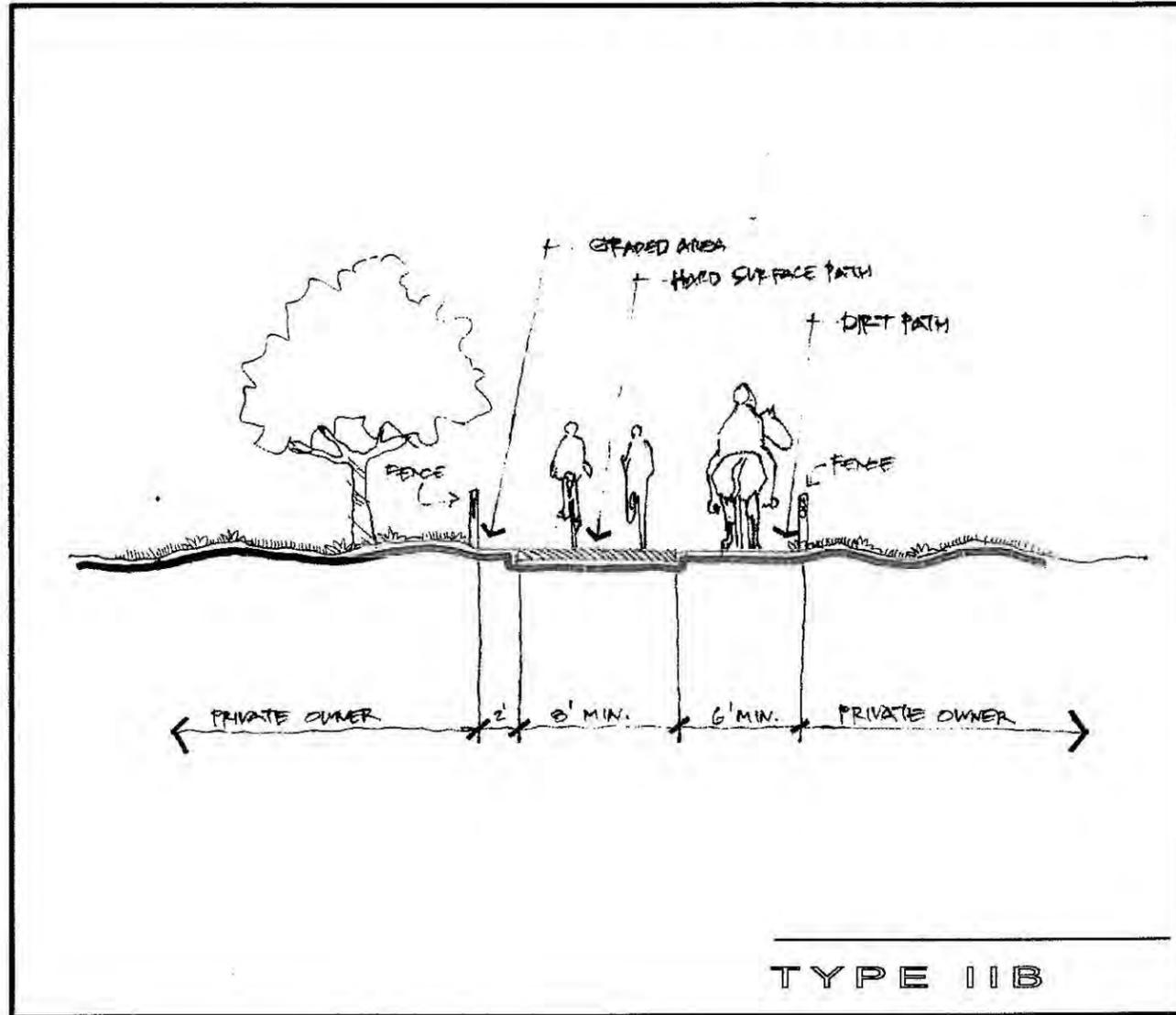
SEPARATED SHOULDER URBAN MULTI-USE PATH BETWEEN PRIVATE LANDOWNER AND A ROAD R.O.W.

OFF-ROAD ROUTE

-SUITABLE FOR BICYCLE, PEDESTRIAN AND EQUESTRIAN USERS

FIGURE
-12-

TRAIL TYPES



TYPE IIB

URBAN MULTI-USE PATH
BETWEEN PRIVATE LAND
OWNERS



-SUITABLE FOR BICYCLE,
PEDESTRIAN AND EQUESTRIAN
USERS

FIGURE
-13-

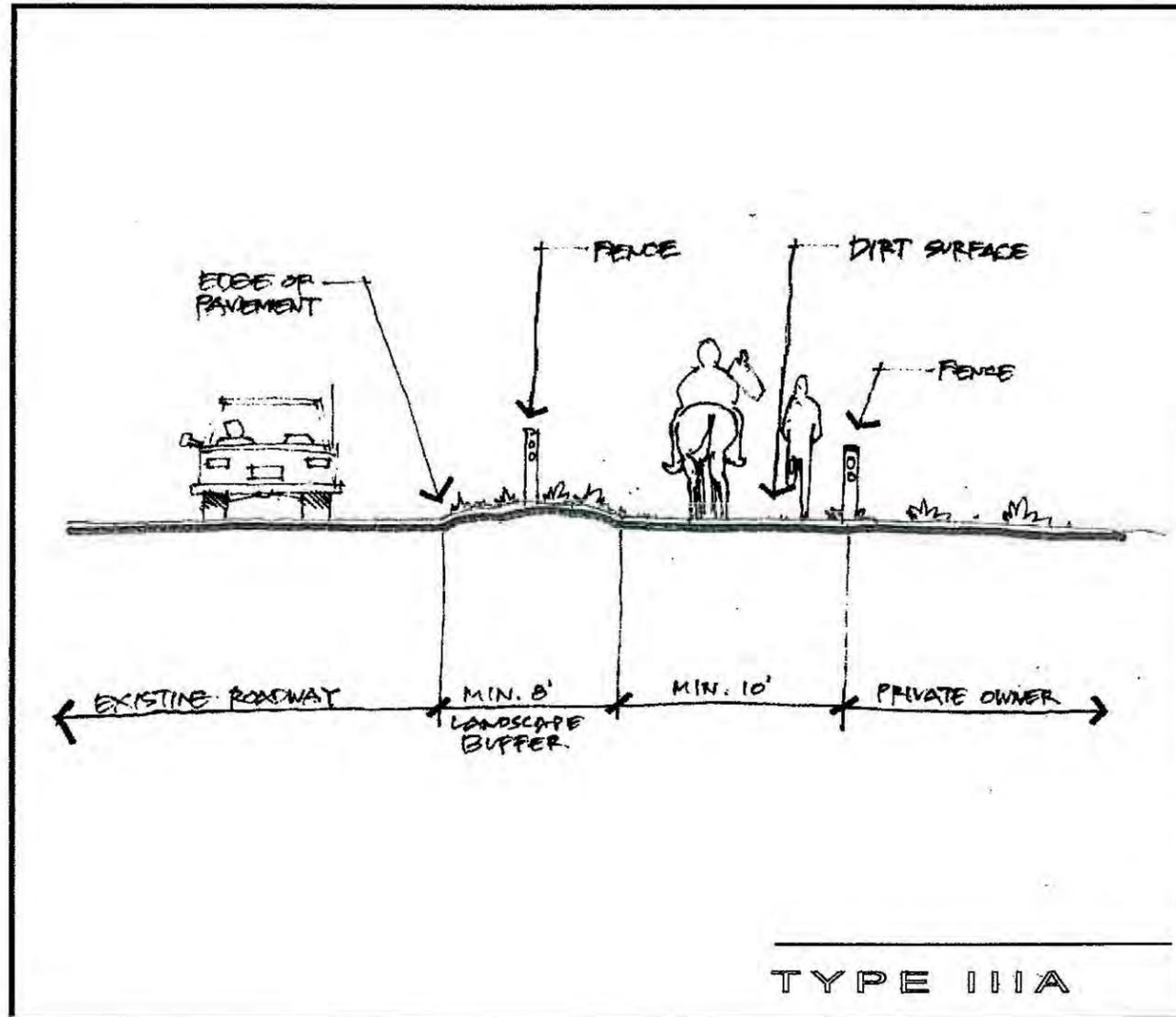


3. **Type III, Rural Path Sections**
Off-road sections would generally involve private lands physically separated from roadway rights-of-way. This typical section, for example, may be used on the Giggle Hill Loop trail. This typical section is intended to serve walkers, joggers, bicyclists and horseback riders. Two (2) variations of the Type III section are presented in Figure 14 (Type IIIA) and Figure 15 (Type IIIB).

D. **NEXT STEPS**
The Upcountry Greenway Master Plan advances routing concepts with general implementation considerations. It is intended to serve as a planning tool for capital program formulation and as a basis for design development which are the next steps for project-specific implementation. It should be noted that the routes designated by the Upcountry Greenway Master Plan are intended to be conceptual in nature. As such, project-specific plans to be developed for the respective proposed routes are subject to adjustments to address, for example, future roadway operating conditions, physical constraints (e.g., topography) or local land use patterns (e.g., proximity to agricultural operations).

Furthermore, as project-specific details evolve, planning requirements relating to regulatory processes (e.g., Chapter 343, Hawaii Revised Statutes), as well as use regulations and maintenance program needs will also be addressed. These project planning parameters will be coordinated through the DPWEM.

TRAIL TYPES



UPCOUNTRY
GREENWAY
MASTERPLAN

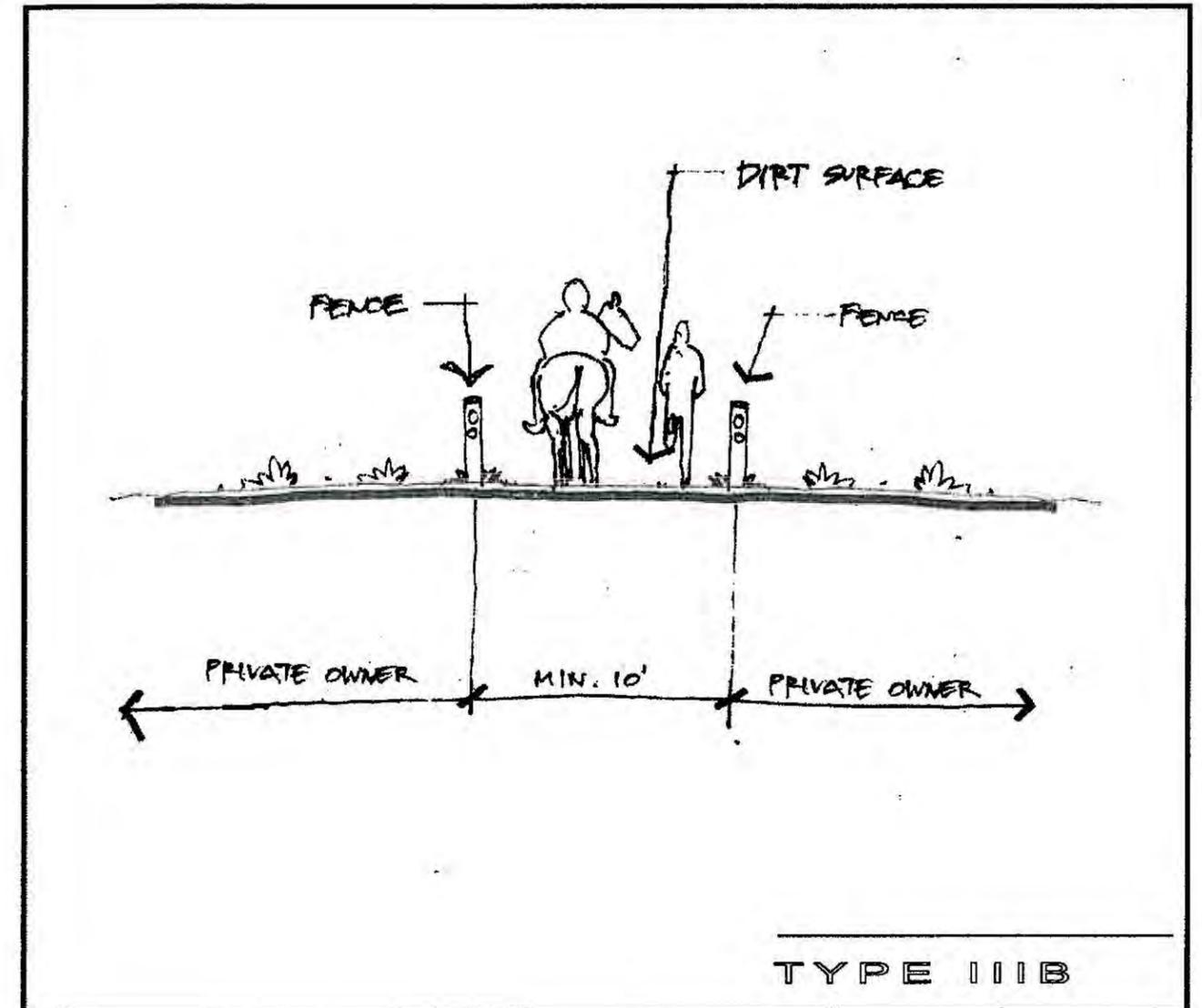


RURAL PATH
SEPARATED SHOULDER
BETWEEN PRIVATE LAND AND
ROAD R.O.W.



FIGURE
-14-

TRAIL TYPES



UPCOUNTRY
GREENWAY
MASTERPLAN



RURAL PATH
BETWEEN PRIVATE LAND
OWNERS



FIGURE
-15-