

5. INFRASTRUCTURE AND PUBLIC FACILITIES

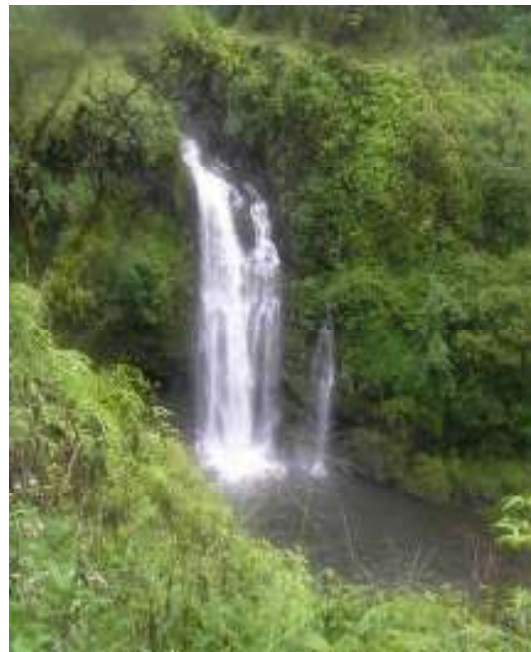
THE PLAN: GOALS, POLICIES AND IMPLEMENTATION RECOMMENDATIONS



WATER

Water is the life-giving element that sustains all biological systems. As the most isolated island archipelago on earth, the Hawaiian islands need a clean and reliable source of fresh water. Water has played a major role in Maui's past and present, and will continue to be a driving force in Maui's future. Most of the water on Maui is controlled by private land owners and water systems, which minimizes the County's role in planning for water use. Looking forward, water will continue to be of paramount importance to Maui's urban, agricultural, industrial, and biological systems.

The State Water Code mandates that a balancing of uses, including domestic, commercial, Hawaiian water rights, instream flow, and agriculture, must be achieved to obtain maximum beneficial use of State waters and best serve the public good. The current high demand for water from all types of users, coupled with the potential establishment of interim instream flow standards (IIFS) and growing concern over native Hawaiian water rights will present complex challenges for both large-scale and diversified agriculture regarding water supply in the future.



SUMMARY OF WATER RESOURCE ISSUES

Maui County Department of Water Supply (DWS) is responsible for the development, operation, and maintenance of the municipal water system and supply. DWS manages systems in four water districts on the island of Maui: Central Maui; West Maui; Upcountry; and Hana. Each water system possesses unique challenges, constraints, and opportunities.

- The County's water delivery system is aging and is inadequate to meet the projected water demand.
- The County controls a very small percentage of the water on the island.
- The majority of the island's development is located outside of the watershed areas. This is ideal because it improves the protection of the water source; however, it makes delivery of the water a challenge.
- Wastewater reuse has the potential to alleviate the strain on potable water sources for some uses; however, it is very costly to develop large-scale reclamation facilities.
- The Department of Water Supply is the largest energy user on the island due to the significant amount of energy required to pump the water from its source up to the end user.

GOAL & POLICIES

5.1 Goal: All regions of Maui will be supplied with sustainable sources of water for a variety of uses.

- 5.1.1** Pursue source development, improvements, and upgrades to Maui's existing water systems consistent with the County's capital improvement program, the Water Use and Development Plan, and the Maui Island Plan's policies and directed growth plan.
- 5.1.2** Support the allocation of water as prescribed in the Water Use Development Plan and applicable law.
- 5.1.3** Develop systems that allow for the distribution of potable and *non-potable water* throughout the island to support the implementation of the Maui Island Plan's land use policies and directed growth plan.
- 5.1.4** Support the provision of water delivery systems in new or expanded growth areas that can be sustainably and cost-effectively served with water.
- 5.1.5** Promote water conservation through education, effective incentives, and mandatory actions.



ACTION PLAN

Each of us can significantly work to improve the water availability on Maui. The County Department of Water Supply has provided the public with information about water conservation, xeriscaping, upgrading fixtures and faucets to low-flow technologies, and generally being more thoughtful when we are using the water of the island.

This plan recommends that the Department of Water Supply employ some additional tools and activities to protect the island's water supply.

- 5.1-Action-1** Study the feasibility of developing water collection and storage systems that capture run-off in strategic locations and provide an additional source of water for agricultural and irrigation uses.
- 5.1-Action-2** Developing a water pricing structure that will reward water conservation and penalize those that use exorbitant amounts of water.
- 5.1-Action-3** Implementing the Wellhead Protection Program developed by the DWS would improve the protection of the water sources. This may include the acquisition of Maui's key watersheds that could help to ensure that water distribution is prioritized in a manner that best reflects the community's values.
- 5.1-Action-4** Prepare a plan to identify and prioritize infrastructure requirements needed to accommodate *non-potable* water for irrigation.



WASTEWATER

Wastewater is the used water and waste from homes and workplaces, also known as “sewage.” Management of the wastewater collection system and the disposal or use of millions of gallons of treated wastewater is vital to the island. It guards the water supply from becoming contaminated, protects coastal water quality and ensures the health of the community and the environment. Reusing treated wastewater can also aid in water conservation by allowing recycled water to be used for non-potable water purposes.

SUMMARY OF WASTEWATER ISSUES

Wastewater is collected and treated differently throughout the island utilizing a variety of technologies.

Many households are connected to private systems, cesspools or septic tanks. The homes and businesses connected to the County’s wastewater facilities are primarily within the urban areas of the island. The Wastewater Division has a few challenges to consider within this planning horizon:



- The location of the Kahului Wastewater Reclamation Facility (CMWWRF) makes it susceptible to shoreline erosion and tsunami hazards.
- The existing wastewater treatment facilities and systems are aging and will require increased maintenance and replacement through this planning horizon.
- There will be areas throughout the island where connecting to a County wastewater treatment system is cost prohibitive and individual or package treatment systems will need to be considered.

GOAL & POLICIES

5.2 Goal: *The wastewater systems on Maui will accommodate the projected urban growth, safely and cleanly collect and dispose of waste, and provide an alternative source of non-potable water.*

5.2.1 Limit the expansion of multi-user wastewater systems to the Urban Growth Areas established in the General Plan.



5.2.2 Encourage the use of privately owned and operated package wastewater treatment plants when such plants are more cost effective, provide environmental benefits and comply with all County, State and Federal standards.

5.2.3 Provide ongoing funding to adequately maintain Maui's aging wastewater treatment systems.

5.2.4 Promote the use of recycled wastewater in Central, West, and, South Maui.

ACTION PLAN

County, State and Federal requirements dictate the operation of treatment facilities and the quality and cleanliness of the treated wastewater. To date, the County system exceeds the requirements of all jurisdictions based upon the expectations of the public. Maintaining this level of quality will require thoughtful planning by the Department of Environmental Management, Wastewater Division.

5.2-Action-1 Prepare a system-wide functional plan to assess key wastewater treatment and disposal issues, projected capacity, and necessary capital improvements.

5.2-Action-2 Update the reuse studies to identify potential new users of treated effluent throughout the island and determine the feasibility of providing reclaimed water for these users.

SOLID WASTE

According to the US Environmental Protection Agency (EPA), since 1960 the United States has witnessed a steady rise in both total tons of waste generated and pounds generated per person. On Maui, waste management strategies include landfill disposal, source reduction, recycling, and composting. Source reduction and waste diversion have positively contributed to solid waste management on Maui. However, landfills are expected to remain the most widely used waste management method for the foreseeable future. Solid waste management will remain an important land use issue for Maui.

SUMMARY OF SOLID WASTE ISSUES

The Maui County Department of Environmental Management's Solid Waste Division is responsible for the planning, operation, and maintenance of the County's open and closed landfills. Current challenges for this division include:

- The cost of operating the landfill and recycling facilities is not covered by user fees and continues to demand assistance from the General Fund.
- The island lacks a *materials recovery facility* to divert recyclable materials.
- The landfills continue to fill at an increasing rate and have exceeded projections in recent years.
- The privately-operated construction and demolition landfill is expected to reach capacity within the coming decade.



GOAL & POLICIES

5.3 Goal: *Maui will have minimized the volume of solid waste entering regional landfills.*

- 5.3.1** Plan for adequate capacity to accommodate construction and demolition waste.
- 5.3.2** Seek the development of a comprehensive curbside recycling program in urban areas.
- 5.3.3** Support the development of a *materials recovery facility* on Maui.



ACTION PLAN

The Solid Waste Division with the Department of Environmental Management will remain the lead agency related to the improvement of solid waste systems throughout the Island. Yet culturally, we must all foster greater accountability for the solid waste we generate and the way in which we dispose of it.

- 5.3-Action-1** Regularly update the Integrated Solid Waste Master Plan.
- 5.3-Action-2** Encourage grassroots efforts to reduce, reuse, recycle and compost.
- 5.3-Action-3** Implement the County's solid waste Management Plan.

ROADWAYS

Streets and highways are the primary infrastructure supporting Maui's transportation system and play a major role in shaping urban settlement patterns. The quality of the roadway system affects various modes of travel including automobile, transit, bicycle, and pedestrian. The condition of Maui's roadway system also impacts the safety of all roadway users, efficiency of emergency services, and quality of life. As the roadway network experiences increasing demand associated with island growth and development, maintaining the existing roadway network and improving traffic flow, safety and efficiency is a key objective of the Plan.

SUMMARY OF ROADWAY ISSUES

The State of Hawaii Department of Transportation (HDOT) has jurisdiction over State roadways while the County of Maui Department of Public Works, Highways Division has jurisdiction over County roadways. The primary plan governing improvements to Maui's regional roadway network is the Hawaii Statewide Transportation Improvement Program (STIP). The primary regional transportation challenges include:



- Topographic and geological constraints, as well as community preferences can limit opportunities to connect communities. In some areas this has worked as a benefit and kept communities rural and fairly undeveloped. In other areas, development has occurred despite the transportation limitations and has created congestion on the few regional connector highways.
- Until recently, Maui's transportation system focused only on automobile travel.
- Recent roadway design standards have reflected more suburban patterns of development and land use. As communities fill in and become denser, this type of street design results in an environment that lacks the functional and aesthetic characteristics desired by residents.

GOAL & POLICIES

5.4 Goal: Maui's roadway network will provide for safe and convenient movement of all users while contributing to the beautification of the island.

- 5.4.1** Plan for and implement an integrated *multi-modal transportation* network within and between Maui's urban communities.
- 5.4.2** Require developers to integrate sidewalks, bikeways, and transit infrastructure into new streets where appropriate.
- 5.4.3** Support Federal, State, and County investment into regional and sub-regional roadway improvements to mitigate traffic congestions and to support the timely development of planned growth areas.
- 5.4.4** Establish urban street and block patterns that promote mobility between residential neighborhoods, core commercial areas, transit stops, schools, and parks.
- 5.4.5** Encourage the implementation of *transportation demand management* strategies.
- 5.4.6** Regularly optimize traffic signal timing and coordination to reduce travel time and delay.
- 5.4.7** Plan for and protect key corridors linking urban centers for near and distant future multi-modal projects.
- 5.4.8** Encourage *traffic calming* measures where appropriate.
- 5.4.9** Support the development of design guidelines for *pedestrian-oriented* streets. Design future roadways to enhance community character.
- 5.4.10** Support street tree planting along existing streets where appropriate.
- 5.4.11** Support the *mauka* realignment of Honoapiilani Highway in accordance with the objectives of the *Pali-to-Puamana Parkway Master Plan (2005)* and the *supporting Environmental Assessment (2008)*.
- 5.4.12** Through the development review process, require developers to set aside land for rights-of-way to facilitate the development of transportation corridors in accordance with the Maui Island Regional Transportation Network Map or the latest Maui Long Range Land Transportation Plan.

ACTION PLAN

Improving capacity on the island's roadway system will be a key objective. The State Department of Transportation and the County Department of Public Works should seek to encourage drivers to carpool and may want to consider:

5.4-Action-1 Establishing additional park-n-ride facilities in key locations.

5.4-Action-2 Establishing High Occupancy Vehicle (*HOV*) lanes within major arterials.

5.4-Action-3 Evaluate the impact rental cars have on roadways, particularly between Kahului Airport and the West and South Maui resort areas.

5.4-Action-4 Developing and implementing a *comprehensive transportation demand management* program.



Transportation networks are inherently expensive to construct and maintain. Maui's roadways are primarily financed through Federal, State, and County programs, with Federal and State programs providing the majority of funds. However, in recent years Federal and State roadway funding has declined resulting in increased pressure on the County to finance needed transportation network improvements. As Federal funding continues to constrict, the County will need to explore alternative financing mechanisms to address roadway needs. This may include some of the following activities:

5.4-Action-5 Establishing island-wide transit impact fees.

5.4-Action-6 Coordinating with major employers and hotels to establish ridership incentive programs.

TRANSIT

Transit is the newest component of Maui's public infrastructure system. Public transit has arisen on Maui in the last 15 years as roadway congestion has stimulated the need for alternative modes of transportation. Public transit was initiated on Maui in 1992 with two fixed routes servicing Central Maui. The current public transit system, which began on July 1, 2006, includes a public bus system, rural shuttles, and a variety of social service transportation programs. The current system is administered and funded by the County of Maui Department of Transportation (MDOT) and operated through private contracts for the for the transportation service. The key distinction between the original transit service and the new service is the increase in frequency and connectivity of the new services which address communities.

MDOT has taken an adaptive management approach to establishing public transit and has initiated positive steps towards addressing roadway congestion and mobility issues on the island. MDOT transit ridership statistics indicate that ridership is steadily increasing, and this trend is expected to continue.

SUMMARY OF TRANSIT ISSUES

- Since the visitor industry is a major contributor to Maui's roadway congestion problems, the industry must also be a significant player in the formulation of solutions. Through a coordinated effort, the visitor industry and MDOT can devise creative methods to alleviate the impacts visitors have on Maui's roadways.
- Long-range transit planning must be integrated with land use decisions. The location of future transit operations is directly dependent on future development and creation of population centers. Expansive parking, segregated land uses and a lack of pedestrian infrastructure are deterrents to transit use.
- Coordination between rail transit, bus service, park-and-ride facilities, bike routes, and pedestrian paths must be achieved to encourage inter-modal transit.

GOAL & POLICIES

5.5 Goal: *Maui will have transit service that both caters to and celebrates the island lifestyle and culture.*

- 5.5.1** Provide an integrated system of transit services, facilities, and infrastructure that better serves the mobility needs of Maui's residents and visitors.
- 5.5.2** Expand regional and inter-regional transit services and reduce headways in high traffic corridors and within communities.
- 5.5.3** Provide adequate transit supportive infrastructure (i.e. bus pullouts, waiting benches and shelters, signs, etc.) within existing and future roadways.
- 5.5.4** Provide convenient transit service to visitors between the airport and resort destination areas.
- 5.5.5** Require new subdivisions to accommodate transit circulation and supporting facilities within the project.

ACTION PLAN

Numerous opportunities exist for the County to integrate transit and land use planning. MDOT and the Planning Department should work with the State to improve planning for the following areas.

- 5.5-Action-1** Providing adequate transit-supportive roadway infrastructure is vital to the efficient operation of a transit service. Bus pullouts, waiting benches and shelters, and signs are key roadway infrastructure items which are needed to support transit.
- 5.5-Action-2** A key element of a successful public transit system is the presence of a main transit facility. Potential sites for a main public transit facility should be identified.
- 5.5-Action-3** Identification of potential corridors is essential for the future of transit on Maui. Potential corridors and transit stations should be identified so that these lands could be protected for future use.
- 5.5-Action-4** Plan future development and redevelopment to easily accommodate transit. *Transit-Oriented Development (TOD)* areas should be strategically located along major transit routes to accommodate a mix of residential, retail, office, and open space and public uses in a walkable environment.
- 5.5-Action-5** Prepare and regularly update a system-wide public transit plan for Maui

PARKS AND RECREATION

Maui's rich geography, history, and culture make the island lifestyle uniquely oriented to ocean and outdoor recreation. Local actions to designate and protect parks and open space will play a key role in ensuring a high quality of life for Maui's residents as the island's population continues to grow. As such, it is important to plan for growth so these qualities are not lost.

Maui's developed parks and system of *open spaces* include lands utilized for both active and passive recreation purposes. The Maui County Department of Parks and Recreation is responsible for the development, operation, and maintenance of County park facilities. The State Department of Land and Natural Resources (DLNR) has jurisdiction over State Beach Parks, Natural Area Reserves, and other managed lands. The National Park Service manages Haleakala National Park.

SUMMARY OF PARKS AND RECREATION ISSUES

- Maui's beach parks are world renowned and attract residents and visitors on a daily basis. However, population growth has resulted in significantly greater use of the beach parks, coupled with a demand to develop the shoreline.
- *The Maui County Public Facilities Assessment Update* (March 2007) concluded that there is a notable deficit in dedicated park land with relation to Maui's existing and projected population.
- Generally parks investment has been focused around active recreation parks in recent years. Additionally, as the island urbanizes, it will be just as important to protect and create *open spaces* and passive recreation opportunities within urban areas as well as throughout the island.



GOAL & POLICIES

5.6 Goal: *Maui will have a diverse range of active and passive parks, wilderness areas and natural resources linked by a network of bikeways, trails and pedestrian greenways.*

- 5.6.1** Encourage private developers to incorporate functional mini-parks and accessory facilities into their projects, and/ or make improvements to neighboring public parks in lieu of impact fees when in conformance with appropriate park and recreation plans.
- 5.6.2** Require developers to incorporate a mix of park facilities into large master planned communities pursuant to park and recreation plans.
- 5.6.3** Encourage the development of regional parks, district parks and greenways in a manner that helps to contain sprawl or provides for significant open space and visual relief within urban communities.
- 5.6.4** Support the implementation of open space and recreational plans, such as the *Pali to Puamana Parkway Master Plan* and the *Upcountry Greenways Master Plan*.
- 5.6.5** Support the development of new regional park complexes and fairgrounds in Central Maui.
- 5.6.6** Provide a balanced mix of passive and active parks.
- 5.6.7** Provide an expanded network of *pedestrian-oriented* roadways, greenways, trails and bikeways linking existing and future park sites with the ocean, natural areas, open space resources, and residential communities, where feasible.

ACTION PLAN

5.6-Action-1 The Department of Parks and Recreation should develop an island-wide parks and recreation functional plan. This should address priorities for funding, identify potential park sites, recommend design guidelines for park develop and incorporate the recommendations of existing parks plans into a single prioritized document. The County should work with stakeholders to implement the following plans:

- *North Shore Bikeway Master Plan*
- *Upcountry Greenway Master Plan*
- *South Maui Community Park and Open Space Master Plan*
- *Pali-to-Puamana Master Plan*
- *Shoreline Access and Inventory Update – Final Report*
- *North Shore Corridor Report*

PUBLIC FACILITIES

Along with infrastructure systems, public facilities are also important elements of building and supporting healthy communities. These facilities and the services they provide support social and economic activity and play a key role in our everyday lives.

The following discussion examines public facilities from a regional perspective and projected 2030 demand for facility services. The Public Facilities Assessment Update (March 2007) provided the primary source of information for this section relating to:

- Fire Control, Police and Prisons
- Hospitals and Long-term Care
- Libraries and Schools
- Government offices and parking are currently being studied in *The Wailuku Campus Space Study* expected to be completed in 2009.

SUMMARY OF PUBLIC FACILITIES ISSUES

There are several types of public facilities that have service areas that span more than one region of the island. Any growth and development on the island can impact these region-serving facilities in a way that affects the capacity or quality of service. Many of these facilities are not the responsibility of the County, although they directly affect the quality of life of island residents. The challenges for each system of facilities and services are described in depth in the *Public Facilities Assessment Update*.



- The high cost of living and lack of affordable housing makes staffing these essential public facilities difficult.
- An aging population affects the capacity of the hospitals and long-term care facilities.
- A few of the facilities systems were designed using models that reflected a more rural population base. In some cases the island has now outgrown the rural model and some of the facilities systems need to transform into a more cosmopolitan paradigm.

GOAL & POLICIES

5.7 Goal: Maui will be served by high quality public facilities that meet the demands of the island's projected population.

- 5.7.1** Support the provision of additional police and fire stations in urban areas as required to service growth and development.
- 5.7.2** Support the relocation of the Maui Community Correctional Center (MCCC) from Wailuku to Puunene or another location.
- 5.7.3** Recognize Wailuku Town as Maui County's Civic Center and support the revitalization of Wailuku's Civic Center District with additional municipal office space, landscape beautification and public parking.
- 5.7.4** Work with the State and private care providers to fill the existing and projected deficit of long-term care beds in a variety of environments.
- 5.7.5** Collaborate with the Board of Education Hawaii State Library System to expand and upgrade a central library to become the resource library for Maui Island.
- 5.7.6** Work in partnership with the State Department of Education to identify capacity surpluses/deficits and the most appropriate location, timing, and design of future facilities based on projected population growth and the location of future communities.
- 5.7.7** Require the dedication of adequate land for school site(s) within new developments that generate sufficient students to warrant additional school(s).
- 5.7.8** Support the construction of a new high school in Kihei which will provide regional benefits such as decreased enrollment and traffic impacts to the Central Maui region.
- 5.7.9** Provide pedestrian friendly infrastructure and traffic calming features, such as wide sidewalks, bike paths, extended curbs, speed humps, and highly visible signs near schools, libraries and community centers.

ACTION PLAN

The activities related to improving public facilities should be well planned and coordinated with the update of the General Plan to the greatest extent possible.

- 5.7-Action-1** Develop an island-wide public facilities master plan.
- 5.7-Action-2** Work with the State to facilitate the planning and construction of additional intermediate schools in Central Maui and West Maui to address projected capacity deficits.

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