Policies: Adequately plan and fund public safety facilities (fire, police, ambulance, civil defense) to meet community needs.

Encourage public-private partnerships to identify and resolve public facility plan shortcomings when consistent with the General Plan.

Incorporate community/area residents' input to determine the appropriate location and design of public facilities.

Schools and Libraries

Goal: Maui will have school and library facilities that meet residents' needs and goals.

Objective: Assist in providing appropriate school and library facilities in a timely manner and in strategic locations.

Policies: Work in partnership with all educational institutions to meet current and future needs including appropriate location, timing, and design of future facilities.

Encourage the Department of Education to build and maintain smaller, community-oriented schools.

Support partnerships (public/private/nonprofit) to build and staff new schools and improve existing facilities.

Objective: Provide a more expansive network of safe and convenient pedestrian-friendly streets, trails, pathways, and bikeways between neighborhoods and schools where appropriate.

Policy: Encourage the State to build new school facilities in appropriate locations that minimize time and distance for students to travel to and from school.

Implementing Action: Encourage the State to build new school facilities in appropriate locations that minimize time and distance for students to travel to and from school.

Health Care

Goal: All of Maui residents will have the best possible health care to include healthy living, disease prevention, as well as acute and long-term care.

Policies: Support the immediate development of a critical access hospital in West Maui.

Improve medical service to remote and outlying regions.

Energy

Goal: Maui will meet its energy needs through local sources of clean, renewable energy, and through conservation.

Policies: Support energy efficient systems, processes, and methods in public and private operations, buildings, and facilities.

Encourage the installation of renewable energy systems, where appropriate.

CHAPTER 7 LAND USE

Agricultural Lands

Policy: Strongly discourage the conversion of productive and important agricultural lands (such as sugar, pineapple, and other produce lands) to rural or urban use, unless justified during the General Plan update, or when other overriding factors are present.

Objective: Support and facilitate connectivity between communities.

Policy: Discourage land use and urban design that impedes interconnectivity between adjacent communities.

Rural Areas

Goal: Maui will have a rural landscape and lifestyle where natural systems, cultural resources, and farm lands are protected and development enhances and compliments the viability and character of rural communities.

Policies: Focus development to areas inside urban, small town, and rural growth boundaries to preserve natural, cultural, and agricultural resources.

Encourage the use of alternative stormwater management techniques that minimize land disturbance and preserve natural drainage features.

Encourage green belts, open space buffers, and riparian zones to minimize conflicts between agriculture and residential uses.

Objective: More appropriate service/infrastructure standards to enhance and protect the island's rural character and natural systems.

Policies: Minimize impermeable surfaces within rural areas.

Use infrastructure, public service, and design standards that are appropriate to rural areas.

Discourage land use and urban design that impede interconnectivity between adjacent communities.

Urban Areas

Goal: Maui will have livable human-scale urban communities, an efficient and sustainable land use pattern, and sufficient housing and services for Maui residents.

Objective: Facilitate and support a more compact, efficient, human-scale urban development pattern.

Policies: Encourage the development and implementation of neighborhood design standards that are environmentally friendly, such as LEED for Neighborhood Development (LEED –ND) standards.

Promote agriculture by encouraging community gardening, community-supported agricultural programs, and farmers markets within and adjacent to urban areas.

Discourage land use and urban design that impedes inter-connectivity between adjacent communities.

Objective: Facilitate more self-sufficient and sustainable communities.

Policies: When developing new communities, provide sufficient lands for commercial, appropriate industrial, educational, spiritual, and non-profit uses to serve the daily needs of community residents.

Site community facilities such as schools, parks, libraries, and community centers within walking and biking distance of residences.

Develop communities that provide sufficient parks, schools, libraries, and other essential public facilities and services to serve resident needs.

Promote agriculture by encouraging community gardening, edible landscaping, community-supported agricultural programs, and farmers markets within and adjacent to urban areas.

CHAPTER 8: DIRECTED GROWTH

The Directed Growth Maps include UGB, RGB, and STB as a directed growth strategy for Maui island. According to the MIP the UGBs, STBs, and RGBs are used to identify and protect farms and natural areas from sprawl and to promote the efficient use of land, and the efficient provision of public facilities and services within the respective growth boundaries. The UGBs, STBs, and RGBs take into account future growth projections through 2030, the availability of infrastructure and services, environmental constraints, and an approximate density of land development to determine the placement of the boundary. Land outside of the UGB is intended to remain rural in character with a strong agricultural and natural-resource

presence. The MIP designated Olowalu as an appropriate location for future growth and establishes UGB and RGB boundaries in this locale.

Alternative 1 and Alternative 2 of the OTMP have been reviewed with respect to the following directed growth goals and policies of the MIP:

Urban and Small Town Growth Area

Goal: Maui will have well-serviced, complete, and vibrant urban communities and traditional small towns through sound planning and clearly defined development expectations.

Policies: Community plans shall provide for urban density land use designations only within UGBs and Small Towns. The County may only support and approve State Urban Land Use Designations for areas within UGBs, STBs, and Rural Villages.

New development shall be consistent with the UGBs, STBs, and all other applicable policies of the MIP. New urban-density development shall not be allowed outside of a UGB or STB.

Rural Growth Areas

Goal: Maui will maintain opportunities for agriculture and rural communities through sound planning and clearly defined development expectations.

Policies: New development shall be consistent with RGB and all other applicable policies and requirements of the MIP. Public, quasi-public, civic, and limited commercial or industrial uses may be allowed in the RGB when the proposed uses demonstrate a public need and are consistent with the Community Plan and zoning.

Environmental protection and compatibility will be a top priority in rural growth areas.

Rural growth areas include Rural Residential Areas and Rural Villages. Rural residential areas may be designated when they are located in association with or on the border of urban growth areas or small towns; and/or when they

provide for complete, self-sufficient rural communities with a range of uses to be developed at densities that do not require urban infrastructure.

Urban-scale infrastructure and public facilities shall not be provided in rural areas except as described in the defined Level-of-Service (LOS) standards. There should be no expectations of urban services in rural areas.

The unique character and function of existing small towns and rural communities shall be protected to retain and preserve their sense of place.

Preserve rural landscapes in which natural systems, cultural resources, and agricultural lands are protected and development compliments rural character and contributes to the viability of communities and small towns.

The MIP addresses the following regions: Wailuku-Kahului; Kīhei-Mākena, Makawao-Pukalani-Kula; Pa`ia-Ha`ikū; West Maui; and Hāna. The West Maui region includes the Olowalu sub-region. According to the MIP, Olowalu Town is intended to meet the needs of Maui residents as a revitalized and sustainable community. Olowalu Town will provide housing, employment, recreational, and cultural opportunities in the context of a mixed-use sustainable community that preserves the area's natural cultural and historic resources. It is envisioned as a pedestrian-friendly community that integrates a variety of housing types with employment opportunities, commercial, and recreational uses developed concurrently with public services and infrastructure.

Olowalu Town will be designed to recognize and perpetuate the land and resource management system of the ahupua`a, provide public access between the ocean and mountains, and protect the natural environment.

UGB and RGB were established in Olowalu mauka of Honoapi`ilani Highway. Refer to **Figure 29** and **Appendix "R"**. However, the MIP states that "the future delineation of potential urban growth areas makai of the existing Honoapi`ilani Highway may be undertaken in conjunction with updates or amendments to the West Maui Community Plan" (MIP at 8-64). Such delineation may consider the need to protect adjacent coastal and marine ecosystems, enhance public shoreline access and open space, and implement the proposed Pali to Puamana Parkway plan. The distinct boundaries of parks and open space, specific location of the recreational uses, and the precise amenities will be further defined during the West Maui Community Plan update and

the project review and approval process. Both Alternatives 1 and 2 will require a Community Plan Amendment.

~~F~~G. WEST MAUI COMMUNITY PLAN

Within Maui County, there are nine (9) community plan regions. From a General Plan implementation standpoint, each region is governed by a community plan which sets forth desired land use patterns, as well as goals, objectives, policies, and implementing actions for a number of functional areas including infrastructure-related parameters. The proposed Master Plan project is located within the West Maui Community Plan region. The existing land use designations for the Master Plan area under the Community Plan are set forth in the existing West Maui Community Plan Land Use Map. The lands underlying the Master Plan area are designated "Agricultural", "Open Space", and "Park (Golf Course)" on the Land Use Map. Refer to **Figure 8** and **Table 4**.

At the appropriate time, the ~~a~~Applicants will file a Community Plan Amendment (CPA) application to change the designation from "Agricultural", "Conservation", and "Park (Golf Course)" to "Project District" to reflect the land use spatial relationships and allocations set forth in the proposed Master Plan. This land use entitlement action will apply to both Alternative 1 and Alternative 2.

Examples of goals, objectives, and policies from the West Maui Community Plan supporting the proposed Master Plan are provided below:

LAND USE

Goal:

An attractive, well-planned community with a mixture of compatible land uses in appropriate areas to accommodate the future needs of residents and visitors in a manner that provides for the stable social and economic well-being of residents and the preservation and enhancement of the region's open space areas and natural environmental resources.

Objectives and Policies:

- Protect and enhance the quality of the marine environment.

EXHIBIT "4"

Maui Planning Department
Response Letter (on CD)
(Included with Original Letter Only)

EXHIBIT "5"

State Office of Planning
Response Letter (on CD)
(Included with Original Letter Only)

	Actual Enrollment *SY 2014-15	**Projected Enrollment (SY 2015-16)
Lāhainālуna High School	1,014	1,081
Lāhainā Intermediate	635	672
Kamehameha III Elementary	773	788
Princess Nahi`ena`ena Elementary	724	675
Source: *Department of Education School Enrollment, 2014. **Analysis of the West Maui School Impact District, 2010.		

School bus transportation is currently provided to Olowalu residents to Princess Nahi`ena`ena Elementary, Lāhāina Intermediate and Lāhāinaluna High School. There is one (1) route from Olowalu Town which uses a 42-passenger bus (Joseph, 2012). University of Hawai`i Maui College (UH-Maui), which is located in Kahului, is a branch of the University of Hawai`i system. In addition, there is a UH-Maui Lāhainā Education Center that opened in West Maui in Fall 2007. UH-Maui is the primary higher education institution serving Maui.

The OCR currently provides educational experiences relating to its archaeological and cultural heritage to various groups, especially school children.

b. Potential Impacts and Mitigation Measures

Initially, until a new educational facility is constructed in the Master Plan for Alternatives 1 and 2, students would utilize the available school bus service to Lāhainā Town. If the student enrollment increases beyond the existing 42-passenger bus, the bus can be increased to a 72-passenger bus or separate routes established to the different schools (Joseph, 2012). Ongoing dialogue with the DOE to assess the impact of the proposed Master Plan for Alternatives 1 and 2 upon regional educational facilities will continue throughout the land entitlement process and implementation of the project. Based on the DOE's ~~student generation rates~~formula to determine impact fees for the West Maui Impact District, the proposed project's 600 single-family units and 900 multi-family units are anticipated to generate 462 new elementary, middle, and high school students. See **Table ~~2~~32**.

EXHIBIT 6

~~of the tunnel. These services currently are provided by the Lāhainā Fire Station.~~

The Master Plan for Alternatives 1 and 2 is not anticipated to adversely impact medical services.

3. Police and Fire Protection and Emergency Services

a. Existing Conditions

The Master Plan area ~~is~~for Alternatives 1 and 2 is within the Lāhainā Police Station service area, which services all of the Lāhainā district. The Lāhainā Station is located in the Lāhainā Civic Center complex at Wahikuli, approximately 7.5 miles from the Master Plan area.

Fire prevention, suppression and protection services for the Lāhainā District are provided by the Lāhainā Fire Station, also located in the Lāhainā Civic Center and the Napili Fire Station, located in Napili. The Lāhainā Fire Station includes an engine and a ladder company. The Napili Fire Station consists of an engine company. Ambulance service is provided from the Napili Fire Station.

Information received from the State Civil Defense agency confirms that there is an existing civil defense siren located on the makai side of Honoapi`ilani Highway near Camp Olowalu.

b. Potential Impacts and Mitigation Measures

The Maui Police Department commented that OTMP at full build-out will require an additional patrol beat. A new patrol beat will require six (6) police officers to cover a 24-hour period over a seven-day work week and would operate out of the Lāhainā Police Station. The new police beat is estimated to cost $360,000.00 annually for salaries and benefits and $51,000.00 for a new police vehicle which is replaced every four (4) years. A new Police Station in OTMP is not required at this time. If deemed necessary in the future, a police substation can be accommodated in Olowalu Town (Hudson, 2012).

EXHIBIT 1

The Master Plan for Alternatives 1 and 2 includes future areas to accommodate facilities that may be necessary for police and fire protection and emergency service. Although the Lāhainā Fire Station is located just 7.5 miles away from the Master Plan area for Alternatives 1 and 2, the Maui Fire Department has indicated that 1,500 new homes would impact emergency services. The Fire Department indicated that a future facility for emergency services would help to mitigate the impact and compliment protection provided on the north (Lāhainā) side of the Honoapi`ilani Highway tunnel. The Master Plan for Alternatives 1 and 2 includes areas along the relocated and widened Honoapi`ilani Highway for future emergency facilities.

The Department of Fire and Public Safety (Fire) supports the establishment of the new fire station in OTMP. Discussion with Fire indicated that a new fire station will require a total of 15 personnel to cover three (3) shifts with five (5) personnel each. A new fire station will require a fully equipped fire engine which is estimated to cost approximately $1 million. To operate the new fire station will cost approximately $1.25 million annually. It is estimated that a new fire station will cost $11 million to construct (Haake, 2012).

The West Maui area is susceptible to wildfires and the location of a new fire station in Olowalu will improve ~~the~~ Fire's ~~Department's~~ response time to such fires in the Pali to Lāhainā Town area. Through consultation with Fire, the department has indicated that although the alternatives should diminish the likelihood of such fires, the project's design should include measures that may address impacts to the project from wildfires which originate in surrounding outside areas. The department provided the example of designing greenways at the outer edge of the project that offer a defensible space against wildfires. It is noted that a significant area of the alternatives are envisioned for parks, greenways and open space.

The ~~applicant~~Applicants will continue to dialogue with the police and fire departments to ensure the location and adequate area for future facilities within the Master Plan for Alternatives 1 and 2 are accommodated.

The existing siren will provide coverage of the central area of the OTMP. Additional omni-directional 121 db(c) sirens will be required to complete coverage of the proposed development for Alternatives 1 and 2. The Applicants will coordinate with the State Civil Defense Agency, the placement

of the additional sirens and the timing when installation of the sirens are warranted.

4. Educational Facilities

a. Existing Conditions

The West Maui region is served by four (4) public schools (Lāhainālunа High School, Lāhainā Intermediate School, Princess Nahi`ena`ena Elementary School, and Kamehameha III Elementary School) operated by the State of Hawai`i, Department of Education (DOE) and two (2) smaller private schools (Sacred Hearts School and Maui Preparatory Academy). All four (4) of the public schools are located within Lāhainā town and three (3) of those schools are located along Lāhainālunа Road, mauka of Honoapi`ilani Highway. The enrollments in the four (4) schools have grown significantly in concert with the growth of residential development in the West Maui area. See **Table ~~19~~31**.

Table ~~19~~31. Actual and Projected Enrollments at Department of Education Schools in West Maui

School	~~Actual Enrollment~~				~~Projected Enrollment~~
	~~SY 09-10~~	~~SY 10-11~~	~~SY 11-12~~	~~Rated Capacity~~	~~SY 15-16~~
~~Lāhainālunа High School~~	~~969~~	~~1027~~	~~1057~~	~~969~~	~~1081~~
~~Lāhainā Intermediate~~	~~693~~	~~653~~	~~651~~	~~571~~	~~672~~
~~Kamehameha III Elementary~~	~~713~~	~~733~~	~~760~~	~~646~~	~~788~~
~~Princess Nahi`ena`ena Elementary~~	~~610~~	~~607~~	~~643~~	~~612~~	~~675~~
~~Source: Department of Education, 2011.~~					

EXHIBIT "8"

Updated TIAR on CD
Appendix "P-1" in EIS
(Included with Original Letter Only)

Note: Delineations are approximate and are intended to be illustrative only.

Source: Google Earth and NOAA, Office for Coastal Management Digital Coast

Figure 19

Proposed Olowalu Town Master Plan

Three (3) Feet Sea Level Rise Map South of Olowalu Wharf

NOT TO SCALE

MUNEKIYO HIRAGA

Prepared for: Olowalu Town, LLC and Olowalu Ekolu, LLC

EXHIBIT 9

OlowaluTown/MasterPl/Final EIS/SeaLevelRiseSouthOlowalu

Note: Delineations are approximate and are intended to be illustrative only.

Source: Google Earth and NOAA, Office for Coastal Management Digital Coast

Figure 20

Proposed Olowalu Town Master Plan

Three (3) Feet Sea Level Rise Map North of Olowalu Wharf

NOT TO SCALE

Prepared for: Olowalu Town, LLC and Olowalu Ekolu, LLC

MUNEKIYO HIRAGA

OlowaluTown/MasterPl/Final EIS/SeaLevelRiseNorthOlowalu

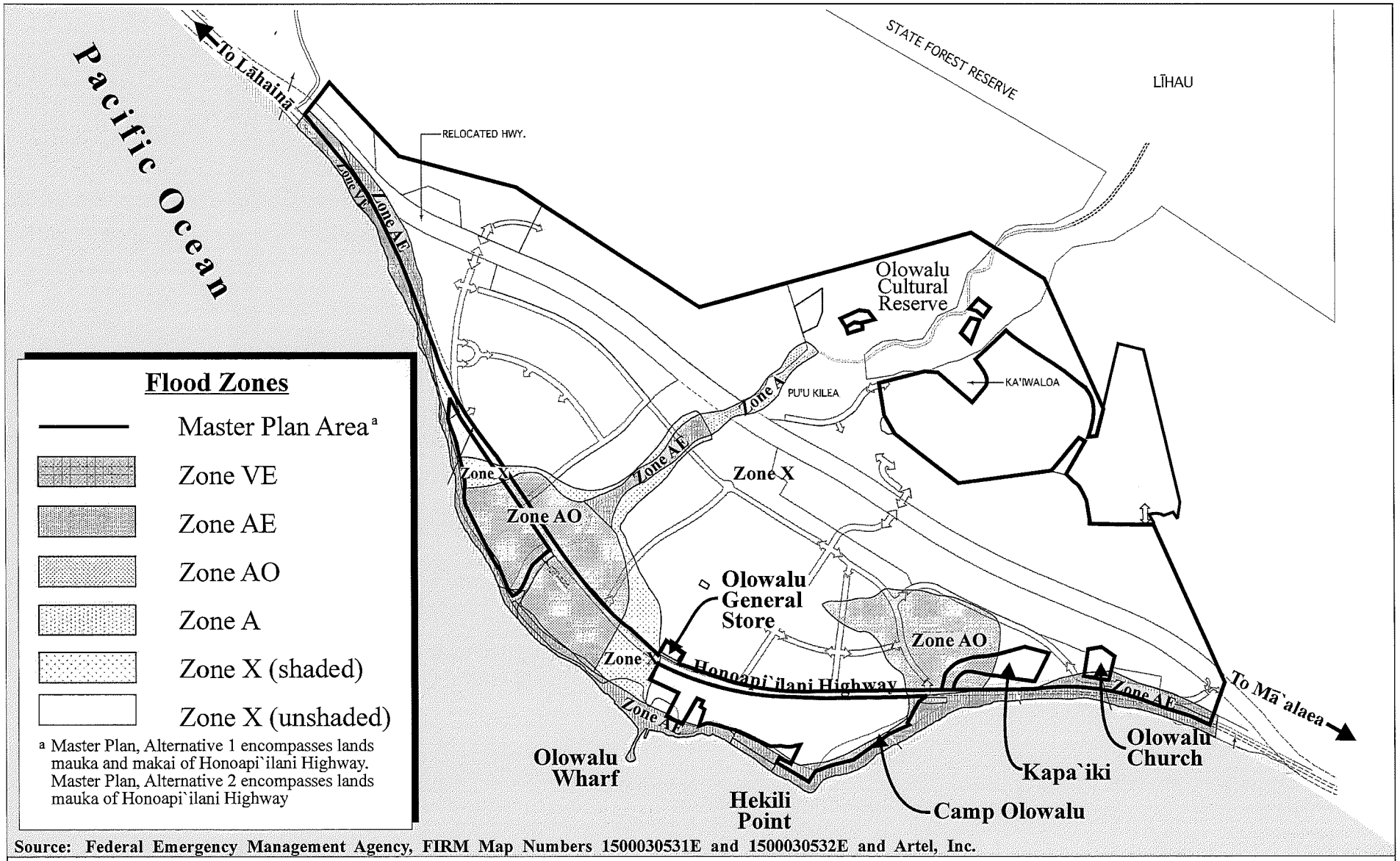
portion of coastline also reflects the area trend of erosion with an average AEHR of -0.7 ft/yr. Refer to **Figure 17**.

Average beach width for the Hekili Point study area has varied greatly. As a whole, average beach width has decreased 35 percent between 1949 and 1997. The western portion has experienced a decrease in average beach width of 33 percent between 1949 and 1997, while the eastern portion has decreased 37 percent for the same period.

In addition, the U.S. Geological Survey (USGS) Technical Hazard Map for the Olowalu region between Launiupoko Point and the southern limits of Ukumehame State Beach Park has an overall hazard rate from moderate to high which is a direct function of the low coastal slope of this area. To the east, where the individual hazards are mitigated by the increase in coastal slope and harder substrate, it is reduced to moderate to low (USGS, 2002).

The tsunami hazard is ranked high along this entire low-lying coastal terrace. It is reduced to moderately high for the steeper rocky head-lands to the east. The stream-flooding hazard is moderately high for the Ukumehame Beach area and moderately low only along the steep head-lands to the east. Along the Olowalu coast, it is ranked high where larger streams drain the increasingly wetter mountains to the west. The threat from high waves is ranked moderately low here where the greatest waves reaching the shoreline are associated with the southern swell. The storm hazard however, is ranked moderately high along this coast which faces south-west toward the majority of passing storms that track to the west. Erosion is greatest along the lowest-lying beach areas between Ukumehame Beach and Mōpua, where it is ranked high. Sections of the coastal highway, the sole southern access to West Maui, are threatened by coastal erosion and have been protected with armoring by the State Department of Transportation (HDOT). At Mōpua, the rocky point partly mitigates erosion, so this hazard is reduced to moderately low. Beyond Hekili Point, the erosion threat is ranked moderately high. The sea level and volcanic/seismic hazards are moderately high because of the low coastal slope and Olowalu's location within seismic hazard zone 2 (USGS, 2002).

EXHIBIT 10



Source: Federal Emergency Management Agency, FIRM Map Numbers 1500030531E and 1500030532E and Artel, Inc.

Figure ~~13~~15 Proposed Olowalu Town Master Plan

Flood Insurance Rate Map

NOT TO SCALE

MUNEKIYO HIRAGA

Prepared for: Olowalu Town, LLC and Olowalu Ekolu, LLC

Olowalu Town/MasterPl/Final EIS\FIRM

EXHIBIT 11

II. ALTERNATIVES ANALYSIS

This chapter addresses alternatives considered in the development of the Master Plan and its various implementation components.

A. ALTERNATIVE 1: PREFERRED PLAN UTILIZING LANDS MAUKA AND MAKAI OF HONOAPI`ILANI HIGHWAY (OLOWALU TOWN MASTER PLAN)

Alternative 1, the Preferred Plan, described in Chapter I of this document was developed through an extensive community-based planning process referred to as "Olowalu Talk Story", which began in November 2005. Refer to **Figure 4**. The "Olowalu Talk Story" workshop or planning charette included the input of participants consisting of residents, community organizations, professionals, town planners, and government agencies. Project plans were continuously evaluated, assessed, and updated to incorporate the views of the participants and their stated desires in order to preserve Maui's quality of life, provide affordable housing for local residents, and preserve natural resources. Significant natural resources that were identified in the planning process for preservation or protection in recognition of the ahupua`a system of land management included the Olowalu Cultural Reserve (OCR), the archaeological and cultural resources of Olowalu, Olowalu Stream, Kapa`iki, the historic Olowalu Church, Camp Olowalu (formerly Pecusa), Olowalu Wharf, Olowalu General Store, the monkey pod trees on Honoapi`ilani Highway, the makai open spaces and recreational uses, and the coastal waters of Olowalu.

Refinement of the Master Plan has been through continued dialogue with interested parties established during "Olowalu Talk Story", especially with the residents of Olowalu. Preferred Alternative 1 of the Master Plan took six (6) years to develop and numerous iterations of the plan. Refer to **Appendix "A"**. The basic concepts of a sustainable and walkable community have been incorporated in the Master Plan. The country town centers are on relatively flat land and residential uses are within a five (5) minute walk to or one fourth mile of centers of activity to reduce the dependency on the automobile.

Concurrent with the refinement of the Master Plan, Olowalu Ekolu, LLC and Olowalu Town, LLC have participated in the Maui Island Plan (MIP) process to include the Master Plan in the Urban Growth Boundary (UGB) and Rural Growth Boundary (RGB). Both the General Plan Advisory Committee and Maui Planning Commission recommended the Master Plan for

EXHIBIT 12

the MIP. The MIP includes portions of the Olowalu Town Master Plan in the Urban and Rural Growth Boundaries. The MIP was adopted by the Maui County Council by Ordinance No. 4004 on December 28, 2012. The MIP did not include the two (2) makai properties in the directed growth boundaries.

According to the MIP, Olowalu Town will be designed to recognize and perpetuate the land and resources management system of ahupua`a. The town will provide public access between the ocean and the mountains; protect the natural environment, particularly Olowalu Stream, the shoreline, and coral reefs and marine resources; preserve mauka and makai view corridors and perpetuate the OCR. In order to achieve these goals, the MIP made provisions for potential expansion of the growth boundaries makai of the existing Honoapi`ilani Highway in the context of the West Maui Community Plan update or amendment process. Expansion of the growth boundaries may consider the need to: protect adjacent coastal and marine ecosystems (including the reefs at Olowalu), enhance public shoreline access and open space, and implement the proposed Pali to Puamana Parkway Plan.

In order to create a sustainable community, perpetuating the land and resources management system of ahupua`a, use of both the mauka and makai lands are proposed in Preferred Alternative 1. Use of these lands allows for mauka to makai integration of a system of parks, public access, open space and the OCR with urban and rural uses and public infrastructure. Of particular importance is development of the mauka to makai drainage systems to protect the nearshore waters and ecosystems, as well as proposed plans by the Applicants to develop the park and open space lands. In keeping with implementation of the Pali to Puamana Parkway Plan, Preferred Alternative 1 allows relocation of Honoapi`ilani Highway landward and creation of enhanced recreation areas, such as parks, open space and public access makai of the existing Honoapi`ilani Highway.

According to the MIP, the Master Plan is intended to meet the needs of Maui residents as a revitalized and sustainable Olowalu community. Olowalu Town will provide housing, employment, recreational, and cultural opportunities in the context of a mixed-use sustainable community that preserves the area's natural, cultural, and historic resources. Olowalu Town is envisioned as a pedestrian-friendly community that integrates a variety of housing types with employment opportunities, commercial, and recreational uses developed concurrently with public services and infrastructure (MIP, pp. 8-63).

As a proposed sustainable community, the environment is a key element of the proposed Alternative 1 Master Plan. Of particular environmental concern is the relationship between project-related stormwater runoff and sediments and nearshore water quality conditions. As

such, stormwater quality enhancements incorporating Low Impact Development (LID) measures are proposed to mitigate impacts to the nearshore waters. The Master Plan proposes to retain as much runoff onsite as possible, primarily on the mauka side of Honoapi`ilani Highway and discontinue the existing conditions in which stormwater runoff from the mauka vacant lands exit through existing culverts under Honoapi`ilani Highway directly into the ocean. See **Appendices "C"** and **"C-2"**. As noted in the *Assessment of Marine Water Chemistry and Biotic Community Structure* study, the existing stormwater runoff is of concern to the area north of Hekili Point and south of Olowalu Stream due to the direct flow of runoff into the ocean. See **Appendix "E"**.

Creative solutions for new infrastructure will also be required for water, sewage, roadways, and related systems. These solutions will be implemented concurrent with the development of the Olowalu Town Master Plan (OTMP). Detailed discussion of infrastructure is provided in Chapter III of this EIS.

Alternative 1 utilizes vacant lands that were formerly used for agricultural cultivation and provides housing, shopping, and community-living opportunities for Maui residents, including seniors and first-time homebuyers. Infrastructure improvements will be necessary to provide needed services to the Master Plan community. These infrastructure improvements that will be built as part of the Master Plan community will also enhance and increase the services available to current Olowalu residents, such as upgraded water and fire protection systems, as well as the opportunity to eliminate individual wastewater systems through the construction of a state of the art wastewater treatment facility.

It is noted that cost benefit considerations were taken into account in affirming the viability of Alternative 1. As noted previously, the estimated construction cost for the project, including vertical construction and the Honoapi`ilani Highway realignment costs, is estimated to be $465.6 million. The Assessment of Economic and Fiscal Impacts (Appendix "M") further indicates that property values for the residential components at build-out is estimated to be $757.5 million while the value of commercial spaces is calculated to be about $52.5 million. While the valuations presented in the Assessment of Economic and Fiscal Impacts report are not framed in the context of a project development feasibility analysis, it does provide a positive indicator that the long-term feasibility of the project, under Alternative 1, is considered reasonable and appropriate.

B. ALTERNATIVE 2: UTILIZE LANDS MAUKA OF HONOAPI`ILANI HIGHWAY (MIP SCENARIO)

Alternative 2 (the MIP scenario) also follows the principles of ahupua`a land management and is in concert with the directed growth boundaries of the MIP. In this regard, Alternative 2 does not include the makai portion or approximately 45 acres in the proposed OTMP. Except for the existing residential uses, this alternative limits the use of the makai area to the existing OCR, agriculture, and recreation uses. Refer to **Figure 5**. Portions of the vacant makai lands are currently overgrown with kiawe, shrubs and grasses. Except for Camp Olowalu, which is available to fee paying guests, the vacant lands have not been developed for parks or recreational uses beyond public access to and informal access along portions of the shoreline from both ends of Olowalu and a public beach access with unpaved parking from the former Olowalu Mill site. A portion of the makai area is located within the OCR and will be subject to land altering activities to implement the objectives of the OCR. As with Alternative 1, LID measures will need to be incorporated into any land altering work necessary to meet the objectives of the OCR to minimize impacts on the nearshore waters.

Alternative 2 will keep the makai land in its present condition and retain it in the State Land Use (SLU) Agricultural District. Existing, limited, and agricultural uses (tree farms) will continue on the makai properties. Development of future parks and public access improvements will require land acquisition and development funds by the County of Maui. Also, current drainage patterns will be maintained with stormwater runoff eventually sheet flowing into the ocean.

With respect to the mauka lands, similar to Alternative 1, Alternative 2 will retain as much runoff onsite as possible, primarily on the mauka side of Honoapi`ilani Highway, and discontinue the existing conditions in which stormwater runoff from the mauka vacant lands exit through existing culverts under Honoapi`ilani Highway directly into the ocean.

Alternative 2 maintains the same residential unit count and land uses as Alternative 1, except it limits development to the area mauka of Honoapi`ilani Highway. Alternative 2 may be perceived as more appropriate due to the distance from the shoreline and perceived lesser impact to the nearshore waters, primarily the reefs (coral) and marine biota (i.e. manta rays and black tip sharks). However, as noted previously, under Alternative 2 stormwater runoff from the makai lands will continue to sheet flow into the ocean. Although Alternative 2 will leave the makai lands available for implementation of the County of Maui's proposed Pali to Puamana Plan which identifies portions of the makai lands for park use, it will require land acquisition by the County of Maui.

Alternative 2 will have similar impacts on infrastructure and public services as those assessed for Alternative 1.

From a financial feasibility standpoint, Alternative 2, like Alternative 1, is considered to be a viable planning option. The overall total cost for Alternative 2 will be slightly lower than that of Alternative 1 as the costs of developing the makai park and open space lands would not be a cost component. However, the cost savings will be offset with the elimination of potential ocean front market units, which will reduce overall revenue benefits. While market attractiveness may be diminished without the makai lands, the value of housing units and commercial areas is expected to exceed the cost of infrastructure systems and vertical construction, yielding a benefit-cost indicator which would point to project viability.

C. ALTERNATIVE 3: NO ACTION

On September 12, 2000 the Olowalu lands were granted Special Management Area Use Permit No. 990021 to develop the existing agricultural lots, including the Olowalu Makai Subdivision and Olowalu Mauka Subdivision. Lots in the Olowalu Makai Subdivision and the Olowalu Mauka Subdivision have been sold. Of the remaining agricultural lots under the control of Olowalu Ekolu, LLC and Olowalu Town, LLC, there is limited diversified farming occurring on the properties. These include a tomato farm, tree farms, cattle and horse grazing. It is noted that these current limited agricultural enterprises share the benefit of low lease rents which support the business-side element of the farming operations.

Alternative 3 would result in the continued sale of the remaining agricultural lots and the current small-scale agricultural use of the lots. While this option is considered an alternative from a planning perspective, it does not provide needed housing for local residents through a comprehensively planned sustainable community. Alternatives 1 and 2 will provide housing employment and recreational opportunities. In addition, Alternative 3 does not include any improvements to address the current runoff of sediments into the ocean. Therefore, Alternatives 1 and 2 are considered to yield a greater community benefit than Alternative 3. The rationale for the foregoing is provided below.

With the demise of Pioneer Mill in 1999 and cessation of pineapple cultivation in West Maui in 2009, there is an abundance of agricultural lands available for farming operations. Existing constraints, such as the ease in getting out-of-State agricultural products to State-wide markets at lower cost, limits diversified agriculture from expanding at a pace that would absorb the available agricultural lands. In the foreseeable future, there is no cash crop similar to sugarcane or pineapple envisioned that will be able to absorb the available vacant agricultural

lands that were created with the demise of these two (2) plantations. While there may be interest in bio-fuel crops, from an economic feasibility perspective, growing of such crops will more than likely require large-scale commercial farms rather than smaller diversified agricultural lots, such as those found in Olowalu.

With the surplus of agricultural lands available for farming operations on Maui, planning for future communities on the island must then discern lands which are most appropriate for meeting the needs of the island's residents and businesses, from historic, spatial relationship, infrastructural and environmental points of view. Based on the planning analysis and technical studies conducted for the MIP and Olowalu Town, the Olowalu area is considered a functionally appropriate opportunity for new community development.

Alternative 3, No Action, may be perceived by some as advantageous from the standpoint of maintenance of the status quo regarding community character and environmental management. However, the existing problems associated with sedimentation into Olowalu Stream and the ocean, as well as traffic and erosion on Honoapi`ilani Highway continues or is further exacerbated under Alternative 3. The No Action alternative does not enhance the opportunity for physical activity or support social interaction, which are key components of a healthy community. The tradeoff considerations, then, relate to best use of the Master Plan lands from a community benefit perspective. As discussed previously, the Applicants believe that the creation of a master planned sustainable community which meets local housing and economic development needs in the context of the community character and its environmental management is the appropriate scenario for the use of lands at Olowalu.

D. ALTERNATIVE 4: DEFER ACTION

Alternative 4 is to defer development of the area and, hence, land use entitlement applications until a future date. As noted previously, the proposed action has been in the planning and analyses phases of work since 2005. The process for securing appropriate land use entitlements typically span a number of years, to be followed by detailed design and engineering. In order to successfully program work for new community development, careful plotting of development milestones is needed to ensure that unnecessary delays are minimized. Alternative 4 is not deemed to be in alignment with the need for local housing which falls within a more immediate timeframe which coincides with the County of Maui's comprehensive planning processes adopting the MIP and future update of the West Maui Community Plan.

In particular, Alternative 4 introduces the element of uncertainty with respect to future

conditions. For example, revisions to regulatory protocols may result in added complexity in the land use entitlements processes resulting in lengthier approval durations and attendant higher costs of development (which ultimately translates to higher consumer costs). In this regard, project planning and land use entitlements processing for Olowalu Town is now approaching 10 years in length. Deferral of planning and land use entitlements will result in further delays in bringing new housing products to market for Maui's residents. The continued supply-demand imbalance has historically fueled higher housing costs for residents.

Delays in project implementation will also impact public-private partnership opportunities with respect to the realignment of Honoapi`ilani Highway, which is viewed to be a public interest infrastructure project. Delays in the realignment of Honoapi`ilani Highway is considered an adverse impact to the movement of people, goods and services for island businesses, residents and visitors. Delays in achieving a permanent transportation solution will then be replaced by interim and incremental improvements to address coastal erosion issues, and highway capacity concerns.

In addition, deferral of the project will result in a significant time lag of project benefits such as the implementation of sustainable LID stormwater management measures designed to enhance nearshore water quality conditions. Similarly, deferral of the project will place "on-hold" community sustainability benefits associated with new wastewater treatment technologies, water re-use practices, and agricultural infrastructure improvements. As a project designed to accommodate future growth, deferral of the OTMP will delay public-private partnership opportunities for addressing public service needs, including those related to police, fire, and educational system improvements.

E. ALTERNATIVE 5: RESORT AND RESORT RESIDENTIAL USE

From a master planning standpoint, alternative uses considered included developing resort uses, such as hotel units, with limited commercial support services to take advantage of the natural resources, especially the shoreline and ocean resources; as well as developing the area as a resort residential area as envisioned in Land Zoning Map No. 7. Refer to **Figure 9**. These types of uses could be established, however, these uses are viewed as taking away opportunity for focusing on a comprehensively planned sustainable community benefitting local residents including the provision of affordable housing. The Applicants' proposal is based on a philosophical priority embracing sustainability which yields the land uses, product mixes and spatial relationships identified in Alternatives 1 and 2, and which gives preference to local families.

The challenge for Alternative 5, then, is its focus on the visitor market and higher end housing product. The provision of public services, such as fire, police, recreational and educational services, would be provided to serve a market which in a larger context, may dilute and shift capital improvements programming and prioritization away from those needed by residents. The disadvantage of Alternative 5 is further illustrated by the likely housing product imbalance to be realized under this option. For example, resort residential housing is marketed to the higher-end customer who has the means to acquire housing products which have construction materials, quality and design amenities which lead to significantly higher sales prices. In today's market context, resort residential units are not sold to local families. Additionally, the 25 percent workforce housing requirement may not necessarily be located at Olowalu, which eliminates the locational advantage Olowalu offers to local residents from a commute efficiency standpoint. In general, the misalignment of Alternative 5 with the Applicants' values and desire to improve the quality of life for Maui's residents, results in an alternative which does not warrant further consideration.

Notwithstanding the foregoing disadvantages, Alternative 5 (Resort and Resort Residential Use) is considered financially viable. While vertical construction cost will be substantially higher than those presented for Alternatives 1 and 2, the values of the resort products at build-out will be substantially higher as well, likely yielding higher revenues to offset development costs. Specific quantifiable costs measuring feasibility potential of Alternative 5 is not presented because specific unit and product types have not been identified. However, if this alternative was to be considered, such costs would be developed through an iterative process of master plan development and cost estimating to ensure that units and products associated with the project yield a financially viable proposal. Notwithstanding, as noted previously, this alternative is not in keeping with the applicants' objective of providing housing for Maui residents.

F. ALTERNATIVE 6: OTHER LOCATIONS

Alternative 6 considered alternative locations within the West Maui region. Potential sites located within the UGB of the MIP do not have the geographic qualities to implement a sustainable community in accordance with the Hawaiian land management system of ahupua`a. Unfortunately, the lands within the UGB located in Lāhainā Town to Kapalua have been urbanized from Honoapi`ilani Highway to the shoreline and along the various stream systems, many of which have been channelized. As such, these alternative locations are not able to accommodate the sustainability plan proposed in Olowalu and does not meet the objectives of the Applicants.

Looking at lands beyond the UGB, alternative locations may be considered on State land use classified "Agricultural" lands mauka of Honoapi`ilani Highway between the Kā`anapali 2020 Master Plan area and the Pulelehua Master Plan area (near the West Maui Airport). Such lands, however, are not considered a viable option as they will require an amendment to the Maui Island Plan. This land use entitlement process will require the preparation of a new Chapter 343, Hawai`i Revised Statutes document, including new studies related to traffic, archaeology, engineering, flora and fauna, market and fiscal and economic impacts. In effect, consideration of lands beyond the UGB yields outcomes similar to Alternative 4, Defer Action.

G. INFRASTRUCTURE DEVELOPMENT CONSIDERATIONS

As a sustainable community, creative solutions for infrastructure systems will be required. The formulation of the preferred infrastructure system elements required careful engineering analysis, taking into account land use relationships, environmental impact mitigation, and relationships to existing and planned infrastructure systems. The basis for developing the preferred infrastructure system alternatives are described below.

Wastewater treatment and disposal requires utilization of technology that eliminates injection wells, locates facilities down gradient of water resources, locates facilities outside of any potential hazard area, such as the flood zones, and locates facilities in an area readily accessible, with limited impacts on existing and proposed residential and commercial uses. The wastewater facility site was placed on the northern portion of the property adjacent to the existing County of Maui's Recycling and Refuse Convenience Center which generates existing nuisances from noise, dust and odors and is accessible from an existing driveway. Additionally, the site needs to be accessible to large landscaped areas in order to utilize the R-1 recycled water for irrigation, as well as provide for the natural treatment systems consisting of a constructed wetland and soil aquifer treatment system. The facility's proposed location next to the County's Recycling and Refuse Convenience Center also will accommodate the solid waste to be generated by the project.

The existing private water system will be upgraded with additional source wells, storage and transmission lines. The area on the mauka side of the future relocated Honoapi`ilani Highway near the existing well and water storage tank was selected as the most likely area for the new source wells and storage for convenient connection to the existing system. This location is up-gradient to allow gravity flow transmission lines and minimize the need for pump stations to supply drinking water to the proposed and existing communities.

The alignment of the future relocated highway was designed to be consistent with the County's Pali to Puamana Master Plan, as well as the objectives of the Hawai`i Department of Transportation's (HDOT) Honoapi`ilani Highway Realignment/Widening Project (Mā`alaea to Launiupoko). The mauka alignment was selected based on the criteria of the Federal Highway Administration (FHWA) and HDOT, the topography of the site, and the existing natural constraints of the property where it narrows at both entrances to Olowalu along the shoreline. Relocating the highway further mauka will change the existing Honoapi`ilani Highway from a higher speed arterial to a lower-speed secondary roadway. The lower-speed secondary roadway will enhance and improve traffic safety of recreational users seeking to access the shoreline and create the opportunity to expand parks with associated amenities along the shoreline.

Drainage will be handled through a system of retention basins located within the approximate 140 acres of 223 acres (Alternative 1) and 200 acres (Alternative 2) of open space and park lands in the Master Plan, as well as Low Impact Development (LID) measures. There is adequate acreage of open space and park lands included in the Master Plan to handle not only drainage but to provide necessary open spaces and park lands for both passive and active recreation. As a fundamental design criterion, the drainage system also needed to retain all the post development flows, as well as some of the pre-development flows in order to minimize impacts on the nearshore water quality, especially at the Olowalu Stream outlet.

H. SUMMARY

The following criteria were used to evaluate the Alternatives:

1. Community Planning Effort
   - Community based planning effort initiated to develop Alternatives

2. Sustainability
   - Incorporates green infrastructure
   - Incorporates green buildings
   - Walkable community encourages transit, pedestrian, and bicycle transportation

3. Land Use
   - Consistent with Maui Island Plan Directed Growth Boundaries
   - Consistent with West Maui Community Plan Land Use Map
   - Supports agriculture

4. Natural Resources
   - Reduces sedimentation and protect water quality on mauka lands

- Reduces sedimentation and protect water quality on makai lands
- Protects scenic resources mauka of Honoapi`ilani Highway
- Enhances scenic resources mauka of Honoapi`ilani Highway
- Protects scenic resources makai of Honoapi`ilani Highway
- Enhances scenic resources makai of Honoapi`ilani Highway
- Protects open space resources

5. Infrastructure
   - Improve infrastructure (i.e., water, wastewater disposal, etc.)
   - Allows implementation of State Department of Transporation (HDOT) highway plans

6. Recreaction, Parks, and Public Access
   - Creates mauka recreational opportunities by providing additional parks
   - Creates shoreline recreational opportunities and access to the shoreline

7. Cultural Resources
   - Observe the Hawaiian land management system of ahupua`a
   - Expands the Olowalu Cultural Reserve or create Cultural Reserves

8. Housing
   - Provides housing for Maui residents
   - Provides affordable housing

9. Employment
   - Creates employment

10. Timeframe
    - Meets Applicants' timeframe (refer to **Table 5**)

Evaluation of the foregoing criteria is identified in the following **Table 6**.

Table 6. Evaluation of Criteria

CRITERIA	EVALUATION
1. Community Planning Effort	
Alternative 1	Olowalu Talk Story Provided Input on Master Plan; community desires considered during MIP process.
Alternative 2	Olowalu Talk Story Provided Input on Master Plan; community desires considered during MIP process.
Alternative 3	Community desires not considered.
Alternative 4	Community desires deferred to a later date in time.
Alternative 5	Community desires not considered. Requires community planning effort.
Alternative 6	Community desires not considered. Requires community planning effort.
2. Sustainability	
Alternative 1	Incorporates principles of green infrastructure and building design and walkable communities.
Alternative 2	Incorporates principles of green infrastructure and building design and walkable communities.
Alternative 3	Remains as is and does not promote green infrastructure, building design, or walkable communities.
Alternative 4	Defers consideration of green infrastructure, building design, and walkable communities to a later date in time.
Alternative 5	Does not promote green infrastructure or design.
Alternative 6	Does not promote green infrastructure or design.
3. Land Use	
Alternative 1	Partially consistent with MIP, requires community plan amendment, and includes agricultural lots.*
Alternative 2	Consistent with MIP, requires community plan amendment, and includes agricultural lots.
Alternative 3	Not consistent with MIP, consistent with community plan, and maintains agricultural land.
Alternative 4	Defers implementation of the MIP, community plan amendment, and temporarily maintains agricultural land.
Alternative 5	Not consistent with MIP and West Maui Community Plan.
Alternative 6	Requires finding an appropriate location and implementation of an amendment to the MIP and subsequent land entitlements.
4. Natural Resources	
Alternative 1	Proposed drainage system following Low Impact Development (LID) standards retains runoff mauka of Honoapi`ilani Highway in conjunction with LID measures makai of the highway and reduces sedimentation into the nearshore waters to protect water quality and marine biota. Scenic and open space resources mauka and makai of the highway are protected by the proposed system of parks, open space, greenways and expansion of the OCR.
Alternative 2	Proposed drainage system following LID standards retains runoff mauka of Honoapi`ilani Highway to reduce sedimentation into the nearshore waters to protect water quality and marine biota. Land makai of the highway will remain as is and will not decrease sedimentation into the nearshore waters. Scenic and open space resources mauka of the highway are protected by the proposed system of parks, open space, greenways and expansion of the OCR. Lands makai of the highway will remain unchanged.

Table 6. Evaluation of Criteria (Continued)

CRITERIA	EVALUATION
Alternative 3	The land remains unchanged and does not improve water quality or enhances scenic and open space resources.
Alternative 4	Defers improvements to reduce sedimentation and improve water quality and enhancement of scenic and open space resources to a later date in time
Alternative 5	Does not address LID drainage systems to reduce sedimentation and improve water quality or measures to enhance scenic and open space resources.
Alternative 6	No alternative location available.
5. Infrastructure	
Alternative 1	Improvements to existing infrastructure, including but not limited to drinking water and fire protection, is proposed, as well as a wastewater treatment facility that does not require injection wells. Provides corridor for Honoapi`ilani Highway inland.
Alternative 2	Improvements to existing infrastructure, including but not limited to drinking water and fire protection, is proposed, as well as a wastewater treatment facility that does not require injection wells. Provides corridor for Honoapi`ilani Highway inland.
Alternative 3	Remains unchanged, with no infrastructure improvements. Honoapi`ilani Highway remains in its present location.
Alternative 4	Improvements to infrastructure and relocation of Honoapi`ilani Highway is deferred to an indefinite timeframe.
Alternative 5	Improvements to infrastructure, including a wastewater treatment facility that does not require injection wells, have not been considered. Honoapi`ilani Highway remains in its present location.
Alternative 6	No alternative location available.
6. Recreation, Parks and Public Access	
Alternative 1	System of parks, open space, greenways, and expansion of the OCR mauka and makai of Honoapi`ilani is proposed to provide recreational opportunities, parks, and public access including to the shoreline.
Alternative 2	System of parks, open space, greenways, and expansion of the OCR mauka of Honoapi`ilani is proposed to provide recreational opportunities, parks, and public access on the mauka lands.
Alternative 3	Remains unchanged and does not provide new or improved recreational opportunities, parks, and public access.
Alternative 4	Defers development of parks, open space, greenways, and expansion of the OCR to an indefinite timeframe.
Alternative 5	Improvements to parks, open space, greenways, and expansion of the OCR are not addressed in this alternative.
Alternative 6	No alternative location available.
7. Cultural Resources	
Alternative 1	Is based on the ahupua`a Hawaiian system of land management and proposes to expand the OCR.
Alternative 2	Is based on the ahupua`a Hawaiian system of land management and proposes to expand the OCR.
Alternative 3	Remains unchanged and does not incorporate the ahupua`a system of land management and does not expand the OCR or create cultural reserves.
Alternative 4	Is based on the ahupua`a Hawaiian system of land management and proposes to expand the OCR but defers the project to an indefinite timeframe.

Table 6. Evaluation of Criteria (Continued)

CRITERIA	EVALUATION
Alternative 5	Is not based on the ahupua`a system of land management and does not expand the OCR.
Alternative 6	No alternative location available.
8. Housing	
Alternative 1	Provides housing for Maui residents and affordable housing.
Alternative 2	Provides housing for Maui residents and affordable housing.
Alternative 3	Remains unchanged and does not provide housing for Maui residents or affordable housing.
Alternative 4	Housing for Maui residents and affordable housing is deferred to a later date in time when the need is today.
Alternative 5	Provides resort residential housing that is for the off-island investor.
Alternative 6	No alternative location available.
9. Employment	
Alternative 1	Creates employment for future residents.
Alternative 2	Creates employment for future residents.
Alternative 3	The limited commercial uses remain unchanged and does not create future employment centers.
Alternative 4	Creates employment centers for future residents at a later date in time.
Alternative 5	Creates employment for hotel or resort workers.
Alternative 6	No alternative location available.
10. Timeframe	
Alternative 1	Meets Applicants' timeframe
Alternative 2	Meets Applicants' timeframe
Alternative 3	Require major redesign of Master Plan. Delay will not meet Applicants' timeframe.
Alternative 4	Does not meet Applicants' timeframe
Alternative 5	Requires major redesign of Master Plan. Delay will not meet Applicants' timeframe
Alternative 6	Requires locating an alternative location and initiating new environmental and land entitlement process. Delay will not meet Applicants' timeframe.
Note: * MIP includes footnote that potential urban growth areas makai of the existing Honoapi'ilani Highway may be undertaken in conjunction with updates or amendments to the West Maui Community Plan.	

The evaluation of the Development Alternatives are summarized below in **Table 7**.

Table 7. Summary of Evaluation of Alternatives

CRITERIA	ALTERNATIVES					
	1	2	3	4[a]	5	6[b]
Community Planning Effort						
Community Based Planning	Y	Y	N	Y	N	N/A
Sustainability						
Green Infrastructure	Y	Y	N	Y	N	N/A
Green Buildings	Y	Y	N	Y	N	N/A
Walkable Community	Y	Y	N	Y	N	N/A
Land Use						
Consistent with Maui Island Plan Directed Growth Boundaries	Y[c]	Y	N	Y	N	N/A
Consistent with West Maui Community Plan Land Use Map	N	N	Y	N	N	N/A
Support Agriculture	Y	Y	Y	Y	N	N/A
Natural Resources						
Reduces Sedimentation and Protect Water Quality on Mauka lands	Y	Y	N	Y	N	N/A
Reduces Sedimentation and Protect Water Quality on Makai Lands	Y	N	N	Y	N	N/A
Protects Scenic Resources Mauka of Honoapi`ilani Highway	Y	Y	N	Y	N	N/A
Enhances Scenic Resources Mauka of Honoapi`ilani Highway.	Y	Y	N	Y	N	N/A
Protects Scenic Resources Makai of Honoapi`ilani Highway	Y	Y	N	Y	N	N/A
Enhances Scenic Resources Makai of Honoapi`ilani Highway	Y	N	N	Y	N	N/A
Protects Open Space Resources	Y	Y	Y	Y	N	N/A
Infrastructure						
Improve Infrastructure	Y	Y	N	Y	Y	N/A
Implements HDOT Highway Plans	Y	Y	N	Y	N	N/A
Recreation, Parks and Public Access						
Improve Mauka Parks and Public Access	Y	Y	N	Y	N	N/A
Improve Makai Parks and Public Access	Y	N	N	Y	N	N/A
Cultural Resources						
Observes Hawaiian Land Management System (Ahupuaa)	Y	Y	N	Y	N	N/A
Expands the Olowalu Cultural Reserve or Create Cultural Reserves	Y	Y	N	Y	N	N/A
Housing						
Provides Housing for Residents	Y	Y	N	Y	N	N/A
Provides Affordable Housing	Y	Y	N	Y	Y	N/A
Employment						
Creates Employment	Y	Y	N	Y	Y	N/A
Timeframe						
Meets Applicants Timeframe	Y	Y	N	N	N	N/A
TOTAL	**23**	**20**	**3**	**22**	**3**	**0**

[a] Alternative 4 is the same as Alternative 1, except deferred to an indefinite date.
[b] N/A - Not Applicable (No Alternative Location Available).
[c] Partially consistent. MIP includes footnote that potential urban growth areas makai of the existing Honoapi'ilani Highway may be undertaken in conjunction with updates and amendments to the West Maui Community Plan.

Alternatives 1, 2, and 4 reflect positive attributes as related to the evaluation criteria, however, Alternative 4 would be deferred to a later date in time and will not provide housing for Maui residents that are needed today or meet the timeframe of the Applicants (refer to **Table 5**).

In general, the benefits of each alternative should be weighed against the project's goal of providing a comprehensively planned community for Maui's residents. Alternatives 1 and 2 reflect positive attributes as it relates to the evaluation criteria. Alternative 3 (No Action) is not aligned with the project's goal and Alternative 4 (Deferred Action) places "on-hold", the achievement of the project's goal and introduces an element of uncertainty as it relates to future conditions and circumstances.

The benefits of Alternatives 1 and 2 include the provision of a new mauka Honoapi`ilani Highway alignment which addresses coastal erosion issues and diverts traffic away from potential recreational opportunities along the existing Honoapi`ilani Highway corridor. Associated with the relocation of the highway is the opportunity to establish land use spatial allocations which respect the need to mitigate noise and air quality impacts, through the delineation of appropriate setbacks from the highway. Alternative 5 (Resort and Resort Residential Use) would likely include the realignment of Honoapi`ilani Highway as well, which would yield benefits similar to Alternatives 1 and 2.

Additionally, as a residential master planned community for Maui residents, Olowalu Town, under Alternatives 1 and 2, will provide the needed support facilities to ensure a fully integrated and functional community. Such facilities will include opportunities for new school, fire, and police infrastructure. Alternative 5 (Resort and Resort Residential Housing) could potentially include public service support facilities (fire and police), but will not likely provide new school facility opportunities based on this alternative's target population.

The evaluation summary, as presented in Table 7, indicates in a comprehensive fashion, the benefits associated with each alternative. The evaluation categories (e.g., sustainability, natural resources, recreation, land use, etc.) yield a rank order regime which places Alternatives 1, 2, and 4, as the leading options. As noted previously, however, Alternative 4 (Deferred Action) leads to implementation uncertainty which ultimately eliminates this option for the realm of development feasibility. Alternative 5 (Resort and Resort Residential Housing) yields a low rank order in terms of benefits, primarily due to its focus on the visitor industry as opposed to local resident needs.

Alternatives 1 and 2 satisfy the purpose and intent of Olowalu Town, LLC and Olowalu Ekolu, LLC to provide needed housing and employment opportunities to Maui residents in

a sustainable community in a timely manner. Formulation of plans and systems for the Master Plan for Alternatives 1 and 2 were based on lengthy study, in recognition that planning for a new sustainable community requires diligent and detailed analysis across a range of disciplines. The evaluation of these alternatives also involved a full process of community engagement which facilitated the identification of design and engineering options and their evaluative criteria. As such, Alternatives 1 and 2 are evaluated in this Environmental Impact Statement.

- Encourage building orientations that provide natural lighting and cooling effects to reduce dependency on artificial lighting and air conditioning.

- Incorporate on-site nonpolluting renewable energy generation, such as solar, wind, geothermal, small-scale or micro hydroelectric, and/or biomass, with production capacity of at least five (5) percent of the project's annual electrical and thermal energy cost.

- Encourage the development of energy-efficient neighborhoods by employing district heating and cooling strategies that reduce energy use and adverse energy-related environmental effects.

- Design, purchase, or work with the local government to install all new infrastructure, including but not limited to traffic lights, street lights, and water and wastewater pumps, to achieve a 15 percent annual energy reduction below an estimated baseline energy use for this infrastructure.

E. CUMULATIVE AND SECONDARY IMPACTS

1. Context for Cumulative Impact Analysis

Pursuant to Section 11-200-2 of the HAR, Chapter 200, entitled Environmental Impact Statement Rules, a cumulative impact means:

> *The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.*

A key element in understanding the requirement for assessing cumulative impacts, therefore, is the need to recognize what constitutes "reasonably foreseeable actions". Projects having relevance in this regard are the land use entitlements in Olowalu which are identified on the West Maui Community Plan, which include Kapa`iki and the surrounding agriculture designated lands.

2. Cumulative Impact Evaluation Parameters

To ensure that cumulative impacts are analyzed in a structured and systematic manner, parameters described in **Table ~~21~~39** have been used to address cumulative effects.

EXHIBIT 13

Table ~~21~~39. Criteria for Evaluating Cumulative Impacts

Assessment Criteria	Basis for Impact Evaluation
Time Crowding	Effects of frequent and repetitive actions on the environment
Time Lags	Delayed effects of a proposed action
Space Crowding	Effects of spatial density on the environment
Cross Boundary	Effects of an action occurring away from the source
Fragmentation	Effects or changes in landscape pattern
Compounding Effects	Effects arising out of multiple pathways
Indirect Effects	Secondary effects
Triggers and Thresholds	Effects defined by agency laws, policies or regulations

3. Methodology for Addressing Cumulative Impacts

A list of potential cumulative impact issues and concerns were identified through full review of comment letters received on the ~~EA/EIS~~PNDraft EIS. While the issues and concerns addressed a broad range of impact considerations, screening of these issues and concerns was required to ensure that the scope of the cumulative impact assessment fell within the scope of a "cumulative impact" analysis, as set forth in Section 11-200-2 of the HAR, Chapter 200. Issues and concerns relating to cumulative impacts, as well as secondary impacts are listed below:

1. Impacts on natural resources, such as coastal ecosystems

2. Impacts to archaeological and cultural resources, including traditional and customary practices

3. Impacts of the proposed action on neighboring land uses, (e.g., Kapa`iki, Olowalu Makai Subdivision ~~and~~, 14-lot Olowalu Mauka Subdivision, and Olowalu General Store)

4. Implementation relationship between Master Plan for Alternatives 1 and 2 and the provision of infrastructure and public facilities systems

5. Impacts on State and County transportation systems (e.g., Honoapi`ilani Highway)

6. Impacts of the proposed action on shoreline access and recreational use of the shoreline

7. Impacts to the County land use plans

8. Impacts to the County water resources

The next step in the analysis involved the identification of applicable evaluative criteria to each of the issues and concerns raised. This step resulted in the formulation of an evaluative criteria matrix, as presented in **Table ~~22~~40**.

Table ~~22~~40. Evaluation Criteria Matrix

Assessment Criteria	Issues to be Addressed
Time Crowding	a. Impacts to natural resources b. Effects on water resources c. Impacts on archaeological and cultural resources d. Impacts on shoreline access and recreation
Time Lags	a. Impacts on County land use plans b. Effects on County water resources c. Effects on the State and County transportation systems
Space Crowding	a. Impacts to existing neighboring land uses b. Impacts to water resources c. Impacts on natural resources d. Impacts on archaeological and cultural resources
Cross Boundary	a. Effects on County land use plans b. Effects on State and County transportation systems
Fragmentation	a. Impacts upon existing neighboring land uses
Compounding Effects	a. Impacts on County land use plans b. Impacts on infrastructure systems and public services
Indirect Effects	a. Impacts to County land use plans b. Impacts on infrastructure systems and public services
Triggers and Thresholds	a. Effects on water resources b. Effects on State and County transportation systems

4. Cumulative Impact Assessment

Based on the methodology described in the previous sections, an analysis of each assessment criteria was undertaken for each applicable issue/concern. The analyses are presented below.

a. **Time Crowding Effects on Natural Resources, Water Resources, Archaeological and Cultural Resources and on Shoreline Access and Recreation**

Time crowding refers to the repetitive and frequent effects from an action upon a particular component of the environment. For example, from a natural resource perspective, time crowding effects may be possible depletion of a resource or opportunity based on recurring impacts on that resource or opportunity.

Natural Resources

Natural resources having a potential time crowding relationship to the Master Plan for Alternatives 1 and 2 include marine waters, marine biota, flora and fauna. The time crowding effect associated with marine waters, for example, includes potential water quality degradation, with repetitive contributions of stormwater runoff from the project site. The time crowding effect on flora and fauna relates to displacement of onsite flora and fauna and their habitat on an incremental basis over the anticipated construction build-out period.

With regard to the marine biota and flora and fauna, biological resource investigations have concluded that populations of reef fish in the area are typical of Hawai`i reefs ~~and there are no rare,~~. No threatened or endangered species ~~or their habitat~~ were found within the Master Plan area and along its offshore waters.

The endangered nēnē goose may use a portion of an irrigated pasture as a temporary habitat. Development of the Master Plan will retain some of the existing reservoirs that will remain available for wildlife. No mitigation measures are necessary. The OCR has succeeded in cultivating native dry land species which the Master Plan for Alternatives 1 and 2 will incorporate in its landscaping, to the extent practicable. Refer to **Appendices "D", "E"** ~~and "E-1"~~, **"F"**, and **"F-1"**.

~~With respect to marine waters, appropriate stormwater runoff mitigation will be required in accordance with County drainage regulations.~~ Information received from NOAA, NMFS identified three (3) marine species protected under the ESA. They included the threatened green sea turtle, endangered

hawksbill sea turtle, and endangered Hawaiian monk seal. Consultation with USFWS and NOAA will continue through project design to ensure the protection of ESA protected species, such as designing the outdoor lighting to be shielded and directionally downward. Measures such as developing an educational program, including appropriate signage within the project limits, to inform residents and visitors to Olowalu of the need to minimize human disturbances and interactions with Hawaiian monk seals will be coordinated with USFWS and NOAA. Although not listed under the ESA, it was noted by several commenters of the Draft EIS that the Olowalu waters are home to manta rays and is a nursery for black tip reef sharks, as well as frequented by tiger sharks.

Sediments from stormwater runoff is a major stressor of corals in the area. The OTMP proposes implementation of Stormwater Quality Enhancements (refer to **Table 21** and **Appendix "C-2"**) to reduce sediments and stormwater runoff from entering the ocean.

Proposed surface and subsurface retention basins, as well as LID measures in the Stormwater Quality Enhancements (refer to **Appendix "C-2"**), will handle 100 percent of the increased stormwater runoff from the project at full build-out as well as retaining a portion of the pre-development runoff. Project plans will also include mechanical filtration measures to mitigate impacts to the ocean's water quality. Properly managed, the use of the mechanical filtration measures and the retention basins with its natural filtering characteristics and implementation of the Stormwater Quality Enhancements and recommended BMPs will ensure that water quality degradation will not occur as a result of time crowding effects. It is anticipated the reduction of stormwater runoff to the ocean will improve water quality in the nearshore waters, especially at Olowalu Stream. Refer to **Appendices "BC"** and **"~~B-1~~C-2"**.

The implementation of BMPs and the reduction of stormwater runoff and sediments to the ocean primarily from Olowalu Stream is expected to improve the limited affected areas of the reefs off Olowalu and maintain the ecological settings unaffected by most human activities, with the exception of fishing. Refer to **Appendix "~~D~~E"**.

Water Resources

According to the Impact on Water Resources Study prepared by Tom Nance Water Resource Engineering, the Olowalu Aquifer has sufficient resource to accommodate existing users and the Master Plan. ~~Although the~~The CWRM in 2008 set the sustainable yield at two (2) MGD~~, the~~ using the low estimated recharge of 3.89 MGD. The 2012 USGS study suggests that the Olowalu Aquifer System may have a developable supply of approximately seven (7) MGD based on a higher estimated recharge of 16.12 MGD to 17.15 MGD. Preliminary calculations indicate that based on DWS standards at full build-out, utilizing for planning purposes 900 single-family and 600 multi-family units, it is estimated that daily ~~potable~~drinking water demand for the Master Plan ~~and~~, all existing users and the eventual buildout of the Olowalu Mauka Subdivision is approximately ~~672,300~~951,000 GPD, which is ~~well below~~within the threshold of the sustainable yield established by the CWRM. Refer to **Appendix "~~C~~D"**.

It is also estimated that approximately 0.65 MGD of total non-~~potable~~drinking water will be needed of which 0.24 MGD will be provided by the R-1 water from the wastewater system, and 0.39 MGD from surface water supplied by an improved Olowalu Ditch system that will reduce leakage from the system. Additionally, 0.02 MGD of brackish water (as a year round average) would be periodically supplemented by Pumps "N" or "O".

Archaeological and Cultural Resources

Several archaeological inventory surveys have been conducted within the project area. An Archaeological Literature Review was prepared by CSH for the proposed action. Refer to **Appendix "~~F-1~~G-1"**. Interim protection measures during construction will be implemented and long-term preservation measures shall be implemented in accordance with the Secretary of the Interior's Standards for Historic Preservation Projects to protect archaeological and cultural resources. As the Master Plan is developed during the ten (10) year period as may be required, site specific detailed archaeological surveys will be conducted and as appropriate, mitigation measures incorporated into the Master Plan, in consultation with SHPD.

A ~~Preliminary~~Final Cultural Impact Study prepared by CSH indicated there are traditional cultural practices that need to be preserved and safeguarded. Refer to **Appendix "H-1"**. Traditional access between the mountains and ocean, abundant ocean resources and rich forest resources need to be preserved and protected to ensure the quality of these resources are not degraded or over-used by the new residents and public. However, an increase in traditional Hawaiian fishing and gathering practices are viewed as a good thing.

Cultural participants noted that Olowalu, besides limu gathering, has excellent opportunities for fishing. The waters of Olowalu contain subsistence resources for the community and is known for its ʻōʻio, aku, and akule fishing. Concerns voiced included sediment-laden runoff and potential injection wells degrading the waters of Olowalu. As noted previously, measures proposed in the Stormwater Quality Enhancements are expected to reduce sediments and stormwater runoff from entering the ocean. Also, OTMP proposes to utilize a constructed wetland and soil aquifer treatment system to treat wastewater prior to reuse of the R-1 recycled water. These measures are proposed to mitigate potential impacts to water quality and marine resources at Olowalu. Refer to **Appendix "H-1"**.

The OCR will ensure that access between the mountains and ocean is maintained and preserved in perpetuity ~~and work~~. The ongoing work of the OCR includes the perpetuation of traditional Hawaiian agriculture, as well as restoration of native plants and historic properties, and educational and outreach programs developed by members of the OCR. Work in the OCR will safeguard the natural, archaeological and cultural resources in the Olowalu Ahupuaʻa. Development of the Master Plan for Alternatives 1 and 2 will incorporate environmental systems that will protect the environment. As such, adverse impacts to cultural resources are not anticipated.

Shoreline Access and Recreation

The shoreline area located within the State of Hawaiʻi beach reserve area is designated ~~as~~ "Conservation" ~~on the State land use map~~by the State Land Use Commission. The beach reserve is not included in the Master Plan for Alternatives 1 and 2. The Master Plan does not propose any changes to the SLU "Conservation" ~~designated lands~~district lands in ~~the Master Plan~~Olowalu. Accordingly, those lands will remain designated as

"Community Plan", "Open Space" or "Park" land under the West Maui Community Plan.

~~The~~As previously noted, the Master Plan observes an existing minimum 150 ~~feet~~-foot shoreline setback from the current shoreline where no development is proposed except for public access to and along the shoreline and non-structural recreational parks uses. It is noted that Alternative 1 encompasses both mauka and makai lands, while Alternative 2 covers land mauka of Honoapi`ilani Highway. Refer to **Figures 4** and **5**. The setback was established in 2000 as part of the SMA Use Permit granted for the Olowalu Mauka subdivison, as well as in~~In~~ recognition of potential concerns related to shoreline erosion and sea level rise that may result in an inland recession of the shoreline and disappearance of the beach reserve over time~~, a~~. The existing minimum 150-foot shoreline setback area will be maintained within the Master Plan during its development to prevent future endangerment of structures, as well as ensure public access to the shoreline. Refer to **Figure 4** and **Figure 5**.

Makai of the existing Honoapi`ilani Highway, the Master Plan for Alternative 1 proposes establishing significant land areas as "Open Space" or "Park" to provide continuous access to and along the shoreline and greater opportunities for recreational purposes. Alternative 2 will retain the makai lands in its existing use, which includes limited public access to the shoreline. Once Honoapi`ilani Highway is relocated further mauka, the existing highway will become a lower speed roadway that will provide safer access to the recreational uses in the makai shoreline area as well as to the Master Plan area.

b. <u>Time Lag Effects on County Land Use Plans, County Water Resources and State and County Transportation Systems</u>

Time lag effects refer to changes to the environment which may occur over a longer duration. Such effects, for example, may include changes in microclimates resulting from changes in land cover characteristics. Such changes may not be immediately identified, but may, over a period of time, become apparent. The applicability of time lag effects to cumulative impact issues has been evaluated with regard to the County's land use plans, County water resources and the State and County transportation systems.

County Land Use Plans

The Master Plan ~~is~~for Alternatives 1 and 2 is consistent with the themes and principles of the Maui County General Plan Countywide Policy Plan. Refer to Chapter ~~HH~~IV, Section ~~D~~F. The ~~draft~~ Maui Island Plan (MIP) ~~which~~ will guide long range planning for the island ~~is currently under review by the Maui County Council. Both the General Plan Advisory Committee (GPAC) and Maui Planning Commission (MPC) recommended inclusion of the Master Plan in the Urban and Rural Growth Boundaries for the West Maui region. Olowalu Town, LLC and Olowalu Ekolu, LLC will continue to be an active participant in the MIP process to encourage the County Council to include the Master Plan in the growth boundaries of the MIP. If the MIP is adopted prior to the Final EIS, conformity with the MIP will be addressed.~~and was approved by Ordinance No. 4004 on December 28, 2012.

The MIP included portions of the OTMP in the Urban Growth Boundary (UGB) and the Rural Growth Boundary (RGB). The makai (ocean-side) portion of the OTMP was not included in the directed growth maps. However, the MIP includes language that the future delineation of potential urban growth areas makai of the existing Honoapi`ilani Highway may be undertaken in conjunction with updates or amendments to the West Maui Community Plan. Alternative 1, in an application for a community plan amendment, will request inclusion of the makai portion in the UGB. The proposed request is in accordance with the MIP in order "to enhance public shoreline access and open space; protect adjacent coastal and marine ecosystems (including the reefs of Olowalu); and implement the proposed Pali to Puamana Parkway Plan" (MIP at 8-64).

Alternative 2 implements OTMP in accordance with the current UGB and RGB of the MIP. However, exclusion of the makai lands leaves the area in its present use and does not enhance shoreline access, parks, and recreational facilities, or implement the intent of the Pali to Puamana Parkway Plan to provide shoreline parks.

It should be noted that "the distinct boundaries of the parks and open space, specific locations of the recreational uses, and the precise amenities will be further defined during the West Maui Community Plan Update and the project review and approval process" (MIP at 8-64). As such, during the community

plan amendment process, the parks and open space areas and uses will be further defined.

In addition to the State Land Use Commission district boundary amendment, the Master Plan for Alternatives 1 and 2 will require a community plan amendment and change in zoning to establish appropriate underlying land use designations. The approving authority for the community plan amendment request and the change in zoning request is the Maui County Council. Applications will be filed with the County of Maui ~~after the MIP has been adopted~~.

The County's proposed Pali to Puamana Parkway Master Plan proposes to preserve lands on the makai side of a future mauka relocation of Honoapi`ilani Highway for parks and open space. The plan includes the ~~Master Plan~~OTMP area and identifies a mauka alignment of the highway and parks makai of the existing and realigned Honoapi`ilani Highway at both ends of ~~the Master Plan~~Olowalu at Camp Olowalu and on lands north of Olowalu Stream. The ~~Master Plan~~OTMP as identified in Alternative 1 is consistent with the purpose of the proposed Pali to Puamana Parkway Master Plan and includes a future mauka relocation and widening of Honoapi`ilani Highway, an expanded Camp Olowalu area as "Park" and "Open Space", and a portion of the area north of Olowalu Stream and along the shoreline within the 150 feet shoreline setback area as "Park" and "Open Space". ~~A~~In Alternative 1, a sizable amount of park and open space area makai of the existing highway has been provided in the vicinities recommended by the Pali to Puamana Parkway Master Plan. Refer to **Figure 4**.

It is noted that the proposed Pali to Puamana Parkway Master Plan has not been adopted by the County of Maui through an amendment to the West Maui Community Plan. However, both Alternatives 1 and 2 include the corridor for the realignment of Honoapi`ilani Highway inland from the shoreline and retention of the existing highway. Alternative 1 also promotes the intent of the Pali to Puamana Parkway Master Plan to establish parks, open space, and recreational amenities on the makai-side of Honoapi`ilani Highway. Although it maintains existing public access to the shoreline and recreational uses, Alternative 2 lands lie mauka of Honoapi`ilani Highway and does not affect park and open space development potential on the makai side of the highway.

County Water Resources

The County's Water Use and Development Plan was adopted in 1990 and is currently being updated by the DWS. Significant changes have occurred since development of the plan such as the demise of large scale agriculture (sugarcane and pineapple) by Pioneer Mill Company and Maui Land and Pineapple Company, who were major users of surface water and groundwater in West Maui. The plan also envisioned the development of brackish groundwater sources as ~~potable~~drinking water in areas such as Olowalu by utilizing new technologies, such as reverse osmosis, electrophoresis, and solar powered stills to reduce chloride levels to acceptable levels.

The Master Plan for Alternatives 1 and 2 proposes to expand and upgrade the existing public water system servicing Olowalu Town, including those to existing users, and installing two (2) new ~~potable~~drinking water wells in the Olowalu Aquifer. Besides improving the ~~potable~~drinking water source, the upgrade of transmission lines will provide improved fire protection to Olowalu. The approximate total ~~potable~~drinking water demand, including current water users, is estimated as ~~672,300~~951,000 GPD, well below the two (2) MGD sustainable yield for the Olowalu Aquifer. The lower demand for ~~potable~~drinking water is due to the proposed reuse of R-1 recycled water and repair of the leaks in the Olowalu Ditch system for irrigation purposes, as well as on an as-needed basis brackish water from pumps "N" and "O".

The Master Plan for Alternatives 1 and 2 will require two (2) new wells in the Olowalu Aquifer. The future development of the new wells will follow the process for well construction and pump installation set forth under Chapter 174, HRS, with the likely imposition of conditions. Pump capacity limits for the wells, will be required to respect the Olowalu Aquifer's two (2) MGD sustainable yield, although the 2012 U.S.G.S. study has indicated the sustainable yield may be greater at 7.0 MGD.

Measures such as the use of recycled water and repairs to the existing Olowalu Ditch for irrigation reduces the use of ~~potable~~drinking water for such purpose and ensures long-term water availability will be provided for the project and existing users. As a self–sustaining privately-owned public water system with an independent source not connected to the County's West Maui water system,

the Master Plan for Alternatives 1 and 2 will not affect the County's water system.

State and County Transportation Systems

Both the Hawai`i Statewide Transportation Plan and Maui Long-Range Land Transportation Plan recommend improving Honoapi`ilani Highway to a four-lane roadway. The HDOT's Honoapi`ilani Highway Realignment/ Widening Mā`alaea to Launiupoko project and County's Pali to Puamana Master Plan proposes to relocate Honoapi`ilani Highway further mauka to facilitate the State's and County's vision to move the highway inland, away from its existing, more environmentally sensitive coastal alignment. In accordance with these plans the Master Plan for Alternatives 1 and 2 includes the corridor for a future relocated highway following a mauka alignment.

Existing traffic flows through Olowalu is primarily through traffic entering or leaving West Maui communities. Construction of the future relocated highway will allow traffic to continue to flow freely through Olowalu while the existing Honoapi`ilani Highway will become a local roadway providing access mainly to the Master Plan area and shoreline recreation areas. The future widening of the relocated highway to four (4) lanes will provide increased highway capacity to accommodate future traffic flows to the West Maui region as well as accommodate a future transit system.

In terms of time lag, therefore, processes are in place to ensure that the County's land use plans and State and County transportation plans are implemented and that water resources of the Olowalu Aquifer are adequately protected. Approval processes for the two (2) new wells ensure that long-term water availability will be provided for the project, within the context of protocols and measures designed to protect the integrity of the Olowalu Aquifer.

c. Space Crowding Effects on Existing Neighboring Land Uses, Water Resources, Natural Resources and Archaeological and Cultural Resources

Space crowding refers to the effects of added density of the proposed Master Plan for Alternatives 1 and 2 upon the Olowalu community, including

neighboring landowners. In this regard, comments were raised expressing concern regarding the density of the project and the effects of the project's added population.

Existing Neighboring Land Uses

The Master Plan for Alternatives 1 and 2 proposes the addition of another 1,500 dwelling units, plus commercial and public/quasi-public uses. The estimated population of the Master Plan for Alternatives 1 and 2 at full build out is approximately 4,239 persons. The Master Plan ~~was~~for Alternatives 1 and 2 was developed with the input of the residents of Olowalu and neighboring landowners to ensure that impacts on the existing community are appropriately addressed. In particular, the proposed SmartCode will be incorporated into the Project District ordinance development standards to encourage the orderly development of a sustainable community.

To minimize impacts to Kapa`iki, park land is proposed adjacent to Kapa`iki as a separation from the urban town center. To moderate the effects of added densities, the future relocation and widening of Honoapi`ilani Highway and lower density rural lots serve as a transition zone between the country town centers and the existing 14-lot Olowalu Mauka agricultural subdivision. The proposed agricultural lots along Olowalu Stream will minimize impacts to the OCR, while the Olowalu Makai agricultural subdivision will preserve the low density character along the shoreline. Olowalu Stream and the OCR preserve the physical connection between the ocean and mountains, as well as separating the urban densities into two (2) lower density urban centers to encourage a country town character rather than a single consolidated higher density urban center.

In summary, the Master Plan for Alternatives 1 and 2 considers spatial relationships which seek to ensure an integrated land plan encompassing density allocations which respect surrounding land uses, as well as land use transitions which preserve character distinctions among the various land use types (i.e., urban-agricultural conflicts are avoided with appropriate land use transitions).

Water Resources

The Master Plan for Alternatives 1 and 2 will create additional water usage needs in order to accommodate the increased population. The need for additional water will improve the existing service in Olowalu Town with an expanded and upgraded water source and transmission system, including fire protection, for the existing residents. The improved water system serves to mitigate space crowding effects on water resources which may otherwise occur.

Natural Resources

The Master Plan for Alternatives 1 and 2 will create increased stormwater runoff and additional wastewater and solid waste disposal needs.

Stormwater runoff will be collected by a system of retention basins and filtration measures that will accommodate 100 percent of the increased runoff as well as a portion of the pre-development runoff. The drainage system is expected to prevent flooding in the area, as well as improve the near shore water quality by removing a portion of the sediment that currently enters the ocean. The construction of an environmentally sound wastewater treatment facility adjacent to the County's Recycling and Refuse Convenience Center will provide the opportunity for portions of the existing community to connect to the system and eliminate individual cesspools and septic systems ~~and accommodate solid waste from the Master Plan~~.

The foregoing measures serve to mitigate the space crowding effects on natural resources which may otherwise occur.

Archaeological and Cultural Resources

As stated previously, the proposed agricultural lots along Olowalu Stream will minimize impacts to the OCR by providing a buffer from the two (2) country town centers. The OCR is an integral part of the Master Plan for Alternatives 1 and 2. The OCR, with the continued support of Olowalu Town LLC and Olowalu Ekolu, LLC, will be able to implement its mission to create an educational and cultural pu`uhonua or sanctuary in Olowalu.

d. **Cross Boundary Effects on County Land Use Plans and State and County Transportation Systems**

Cross boundary effects refer to the effects the proposed action will have on areas outside the limits of the affected action. For example, the ~~withdrawal of water in one aquifer may affect the water level in an adjacent aquifer or over pumping of a well in close proximity to another well can result in less pumpage capacity from the adjacent well~~effects of increased land uses and improved infrastructures may encourage intensification in the use of neighboring properties.

The evaluative criteria for cross boundary effect considers whether the proposed action will affect future land uses and transportation systems for the West Maui region.

County Land Use Plans

Future land uses are guided by the County's General Plan, including the community plans. As previously stated, the County of Maui as part of updating its General Plan ~~is in the process of adopting~~ adopted the MIP ~~which proposes to~~by Ordinance No. 4004 effective on December 28, 2012. The MIP established ~~Urban Growth Boundaries~~UGB and ~~Rural Growth Boundaries~~RGB for the island of Maui. The MIP ~~is a comprehensive review of~~comprehensively considered the future land use needs for Maui to the year 2030 in order to accommodate anticipated growth. In the context of this comprehensive planning process for the West Maui region, ~~both the GPAC and MPC have recommended inclusion of the Master Plan in the Urban Growth Boundary and Rural Growth Boundary in Olowalu. Olowalu Town LLC and Olowalu Ekolu LLC continue to participate in the MIP process to ensure the Master Plan is included in the MIP. The General Plan update process then, seeks to look at the West Maui region comprehensively, with the results being full consideration of cross boundary effects.~~portions of the OTMP were included in the MIP UGB and RGB.

As noted previously, the MIP included a provision that allows consideration of the makai lands in the UGB in the context of the West Maui Community Plan Update or a community plan amendment. Alternative 1 will pursue inclusion of the makai lands in the UGB during the community plan

amendment process. Alternative 2 is in compliance with the MIP's UGB and RGB.

Further, during the General Plan Update and adoption of the MIP, the Maui County Council comprehensively reviewed the West Maui region and was fully aware of cross boundary effects on the adjacent land uses, especially on Kapai`ki, OCR, Olowalu General Store, and the 14-lot Olowalu Mauka Subdivision. Proposed mitigation includes developing park land as a buffer area adjacent to Kapai`ki, expansion of the OCR, and developing agricultural lots along Olowalu Stream, developing the commercial core adjacent to Olowalu General Store, and developing proposed rural lots as a transition in land uses between the urban uses and the 14-lot Olowalu Mauka agricultural subdivision.

State and County Transportation Systems

~~The 2002 Hawai`i Statewide Transportation Plan provides policy guidance to the horizon year 2025 for the development and management of Hawai`i's transportation systems. The goals of the Plan were to achieve a multi-modal transportation system, ensure the safety and security of our transportation systems, protect and support Hawai`i's unique environment, improve the quality of life, support Hawai`i's economic vitality, and implement a Statewide planning process.~~The 2014 Federal-Aid Highways 2035 Transportation Plan for the District of Maui was prepared to aid the State of Hawai`i in its decision making process relating to its long range transportation planning to the Year 2035 to modernize its transportation systems, improve safety and meet the sustainable goals of the State of Hawai`i. To increase roadway capacity, safety, and multi-modal facilities, the 2035 Transportation Plan recommends two (2) additional travel lanes for Honoapi`ilani Highway. The Master Plan for Alternatives 1 and 2 include the corridor for the realignment of Honoapi`ilani Highway further inland while maintaining the existing highway. This will provide an additional two (2) lanes of travel in the Olowalu Town area.

As part of the Statewide planning process, the HDOT has initiated the Honoapi`ilani Realignment/Widening (Mā`alaea to Launiupoko) project to connect to the Lāhainā Bypass currently under construction. The relocation and widening project will relocate the highway away from existing shoreline

erosion problems, improve highway capacity, and improve the reliability of access to and from the West Maui region. HDOT is in the process of preparing an EIS for the project. Olowalu Town LLC and Olowalu Ekolu, LLC, in conjunction with discussions with the HDOT, have included a future relocated highway through Olowalu to accommodate a future four-lane divided highway and landscaping. Ongoing dialogue with the HDOT is envisioned to determine the preferred alignment of the relocated highway.

In 2012, the HDOT, in coordination with FHWA and with the cooperation of the landowner, West Maui Land Company, proposed the relocation of the Lāhainā By-Pass Southern Terminus to the vicinity of the former Olowalu landfill. This roadway improvement is included in the 2015-2018 STIP. The proposed realignment of Honoapi`ilani Highway in Olowalu connects to the Lāhainā By-Pass.

The County of Maui Long-Range Land Transportation Plan, February 1997, recommended island-wide highway improvements which included widening of Honoapi`ilani Highway to a four-lane roadway four (4) miles west of Mā`alaea Harbor to the Lāhainā Bypass. In 2005, the County prepared the Pali to Puamana Parkway Master Plan which recommended realigning the highway further mauka from the shoreline and development of open space and parks makai of the new highway alignment. The Master Plan ~~is~~for Alternatives 1 and 2 is a refinement of this Plan in Olowalu and is consistent with the purpose of the County's proposed Pali to Puamana Parkway Master Plan. The Master Plan for Alternatives 1 and 2 includes a mauka relocation of Honoapi`ilani Highway~~,~~. Makai of Honoapi`ilani Highway, Alternative 1 includes an open space/park north of Olowalu Stream and south at Camp Olowalu while Alternative 2 does not affect land use conditions makai of the highway. The Pali to Puamana Parkway Master Plan recommended approximately 28 acres for park use in Olowalu~~, while the Master Plan includes approximately 223 acres of green space which includes parks, open space, landscape medians and grassed swales along roadways and large lawns at public and civic facilities.~~ makai of Honoapi`ilani Highway. Alternative 1 proposes approximately 23 acres makai of Honoapi`ilani Highway for park use. Alternative 2 does not include the makai lands.

Inasmuch as the Master Plan ~~has~~for Alternatives 1 and 2 has been and will continue to be a part of larger ongoing planning processes, it is anticipated that cross boundary effects will be appropriately addressed.

e. **Fragmentation Effects on Existing Neighboring Land Uses**

Fragmentation refers to changes to landscape patterns as a result of a proposed action. For example, fragmentation of a historic district may occur if development approvals for a project having non-historic architectural design elements are approved and developed adjacent to such district. Fragmentation may also result with the construction of a new highway through a habitat area, where the functional continuity of the habitat may be disrupted by the highway.

Existing Neighboring Land Uses

In the case of the Master Plan for Alternatives 1 and 2, the development will create a new community in the once thriving plantation town of Olowalu which will alter the area's character. The issue is whether an increase in the urban and rural landscape is deemed to be an adverse effect on Olowalu and the West Maui region. As stated previously, in its comprehensive review of the West Maui region, the ~~GPAC and MPC recommended the Master Plan be included in the growth boundaries of the MIP. As such, if the MIP is adopted to include portions or the entire Master Plan then such changes are planned in the context of future growth in Olowalu and the West Maui region.~~Maui County Council included portions of OTMP in the UGB and RGB of the MIP through Ordinance No. 4004 effective on December 28, 2012. The MIP also included provisions that will allow consideration of the makai lands in the UGB through the proposed community plan amendment process. Location of population growth to Olowalu will disperse growth outside of the Lāhainā to Kapalua area and reduce the outward expansion of the urban boundaries between these existing urban centers.

Historically, Olowalu has been a distinct and separate community with its own sense of place. The Olowalu Ahupua`a boundaries and the mountain ridges surrounding Olowalu physically separates it from Ukumehame and Launiupoko. The Master Plan ~~has~~for Alternatives 1 and 2 has been developed in consultation with the existing Olowalu Town community in order to ensure

a cohesive development pattern compatible with the existing landscape. The Master Plan for Alternatives 1 and 2 proposes to develop two (2) small country town cores with a country town character that will integrate into the existing community.

The formulation of the preferred infrastructure system elements required careful engineering analysis, taking into account land use relationships, environmental impact mitigation, and relationships to existing and planned infrastructure systems. The alignment of the mauka Honoapi`ilani Highway and site planning for infrastructure, such as the wastewater facility and public services considered the location of sensitive habitat, endangered and threatened flora and fauna, archaeological and cultural sites and other environmental constraints. These constraints were evaluated to minimize any disruptions to the environment and community.

f. Compounding Effects on County Land Use Plans and Infrastructure Systems and Public Services

Compounding effects relate to the additive and synergistic effects of impacts arising out of multiple pathways. For example, the implementation of new infrastructure which will ultimately serve new residential communities must be analyzed not only in terms of the Master Plan for Alternatives 1 and 2 itself, but also the reasonable foreseeable future developments which may develop as a result of the Master Plan for Alternatives 1 and 2.

County Land Use Plans

With regard to the Master Plan for Alternatives 1 and 2, compounding effects were assessed in connection with anticipated growth within Olowalu and the West Maui region.

Implementation of the Master Plan for Alternatives 1 and 2 will accommodate future population growth outside of Lāhainā town reducing the land use practice of outward urban sprawl between Lāhainā and Kapalua. The physical constraints of the West Maui Mountains surrounding Olowalu, current land ownership and environmental constraints limit future opportunity to develop Olowalu beyond the Master Plan for Alternative 1. Also, the land uses north and south of the Master Plan area for Alternatives 1 and 2 are limited to

agriculture, park and open space and are not proposed for any housing developments.

Infrastructure Systems and Public Services

The nearest existing agricultural subdivisions located at Launiupoko and Ukumehame have self-contained infrastructure to serve their developments and are not conveniently located adjacent to Olowalu to take advantage of the new infrastructure being provided in the Master Plan for Alternatives 1 and 2. As such, benefits of new infrastructure, except for the regional highway improvement, to be constructed in conjunction with the Master Plan for Alternatives 1 and 2 in the foreseeable future will accrue primarily to existing residents and future residents of the Master Plan for Alternatives 1 and 2.

If public facilities, such as a school, police and fire station, are constructed within the Master Plan for Alternatives 1 and 2, these services will become available to existing residents creating new operational relationships among the Master Plan residents of Alternatives 1 and 2, existing residents and agencies providing the respective public services. For example, new police and fire protection services in Olowalu will reduce the service area limits of the Lāhainā fire and police stations, thereby creating operational improvements for these services. From a recreational services perspective, the OCR, as well as the open space and park lands proposed in the Master Plan for Alternatives 1 and 2, will be open to residents and visitors outside of Olowalu, thereby relieving demand on other existing recreational facilities.

g. ~~Indirect Effects~~Secondary Impacts on County Land Use Plans and Infrastructure Systems and Public Services

Indirect effects are also referred to as secondary impacts, secondary effects, or indirect impacts. According to Section 11-200-2 of the Hawaii Administrative Rules, Chapter 200, entitled Environmental Impact Statement Rules, a secondary impact or indirect effect means:

> *Effects which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and*

related effects on air and water and other natural systems, including ecosystems.

County Land Use Plans

The indirect effect associated with the Master Plan for Alternatives 1 and 2 pertains to its implications for future growth in Olowalu and the West Maui region. Implementation of the Master Plan for Alternatives 1 and 2 will accommodate future population growth outside of Lāhainā Town reducing the land use practice of outward urban sprawl. This particular indirect effect will allow for the development of a new sustainable community while enabling a more moderate pace of development in existing urbanized areas of West Maui. As stated previously, the physical constraints of the West Maui Mountains surrounding Olowalu, current land ownership and environmental constraints limit future opportunity to develop Olowalu beyond the Master Plan area for Alternative 1, while opportunity exists to expand into the makai lands. The Master Plan for Alternatives 1 and 2 as a sustainable community proposes to include potential employment centers and public services to reduce the need to commute outside of the Master Plan for Alternatives 1 and 2. Importantly, the Master Plan ~~is~~for Alternatives 1 and 2 is envisioned as a housing project for residents that will encourage in-migration from other areas of Maui so workers who work in West Maui but live outside of the district can reduce their commute time and distance.

Infrastructure Systems and Public Services

New infrastructure needs created by the Master Plan for Alternatives 1 and 2 will result in additional water usage, increased stormwater runoff; additional wastewater and solid waste disposal needs in order to accommodate the increased population. The need for these services will improve the existing services in Olowalu Town with an expanded and upgraded water source and transmission system, including fire protection, for the existing residents. Stormwater runoff will be collected by a system of retention basins and filtration measures that will prevent flooding in the area, as well as improve the near shore water quality by removing a portion of the sediment that currently enters the ocean. The construction of an environmentally sound wastewater treatment facility adjacent to the County's Recycling and Refuse Convenience Center will provide an opportunity for portions of the existing

community to connect to the system and eliminate individual cesspools and septic systems as well as create an opportunity for the convenience center to expand into the Master Plan area for Alternatives 1 and 2. The Master Plan for Alternatives 1 and 2 will also require an increase in energy. To reduce dependency on fossil fuels, the Master Plan for Alternatives 1 and 2 proposes to utilize renewable energy systems, such as hydro-electric power, photo voltaic, solar, etc.

In this context, the Master Plan for Alternatives 1 and 2 is anticipated to have beneficial indirect or secondary impacts in the West Maui region.

h. Triggers and Thresholds Effects on Water Resources and State and County Transportation Systems

Triggers and thresholds refer to impacts which may be tied to indicators established through laws, policies, regulations or standards. Triggers and thresholds may include standards which identify key indicators which, when exceeded, would require special study or mitigation efforts. In traffic analysis for example, the LOS "F" reflects a worst case condition in terms of traffic operations. Such a LOS would require that traffic mitigation be implemented to bring conditions back within the acceptable range of operations.

Water Resources

With regards to the Master Plan for Alternatives 1 and 2, the parameter identified as requiring evaluation with respect to triggers and thresholds is the effect of the project on water resources. The threshold which must be considered is the two (2) MGD sustainable yield of the Olowalu Aquifer. The Master Plan for Alternatives 1 and 2 will require two (2) additional wells, however, at full build-out the project is estimated to require ~~672,300~~951,000 GPD, ~~well below~~within the two (2) MGD sustainable yield for the Olowalu Aquifer, although the U.S.G.S. has indicated the sustainable yield may be greater at 7.0 MGD. The future development of the new wells will follow the process for well construction and pump installation set forth under Chapter 174, HRS. Pump capacity limits for the wells will be required to respect the Olowalu Aquifer's two (2) MGD sustainable yield.

State and County Transportation Systems

The proposed Master Plan for Alternatives 1 and 2 envisions a system of arterials, collectors and local roads, integrated to provide an efficient and effective network for multiple forms of transportation including automobiles, bicycles, pedestrian and mass transit. Traffic impact evaluation will be required on an ongoing basis, over the 10-year project development timeframe to ensure that appropriate design features are incorporated into project plans as each phase of transportation infrastructure is implemented. In particular, at each phase of Project District development, traffic operations will need to be considered to ensure that applicable HDOT and County of Maui operational thresholds are met, either through design measures or transportation management measures.

i. Summary

The evaluation of cumulative and secondary impacts addressed key issues raised through the EIS process. Each issue has been analyzed with respect to applicable cumulative impact evaluative criteria. In general, appropriate mitigation measures and/or regulatory oversight processes have been identified to ensure that cumulative impacts for each key issue is managed, such that adverse conditions affecting the natural and man-made environments are mitigated and/or minimized.