

## 7. ALTERNATIVES TO THE PROPOSED ACTION

Under HAR Title 11, Department of Health, Chapter 200, Environmental Impact Statement Rules, Section 11-200-17(F), a Draft EIS must contain a section discussing alternatives that could attain the project objectives, regardless of cost, in sufficient detail to explain why the specific alternative was rejected.

This section presents other alternatives and potential impacts that have been considered during the planning process.

**Kaloko Makai Objectives:** The objectives of Kaloko Makai are integral to SCD – TSA Kaloko Makai, LLC’s desire to create an attractive master-planned residential community with a variety of housing opportunities and mixed uses, as well as abundant recreational resources. As a mixed-use community, the objectives of Kaloko Makai are to:

- Create a diverse, sustained community of mixed uses, including residential, retail and commercial spaces, light industrial areas, recreational spaces, and open space.
- Cultivate intrinsic respect for the land and natural surroundings, develop an inherent Hawaiian sense of place and nourish a sustaining living environment.
- Provide housing for the working families of Hawai’i nearby areas of workforce demand, resultantly improving overall quality of life through the reduction of commuting and facilitation of everyday function.
- Openly embrace a diversity of people and activities through offering mixed uses and housing types.
- Contribute to the social fabric of the community by providing infrastructure and facilities, and by including school, hospital, recreational, and civic sites.
- Engender and incorporate intelligent, planned sustainability by design.
- Emphasize non-vehicular transit for mainstream community-wide travel.

### Alternatives for Kaloko Makai EIS

In addition to the Preferred Alternative of a Neighborhood TOD With Hospital and 600,000 Sq.Ft. of Commercial Use which is analyzed throughout this document, the following are other alternatives included in this review.

- 7.1 No Action
- 7.2 Neighborhood TOD (Without Hospital and 600,000 Sq. Ft. Commercial Use)
- 7.3 Neighborhood TOD with Maximum Density Permitted Under Kona CDP Design Guidelines
- 7.4 Existing Zoning (5-acre Agricultural Lots, Golf, Conservation)
- 7.5 Conventional Subdivision Development (5-units/acre; Some Commercial and Industrial)
- 7.6 Alternate Location

#### 7.1 NO ACTION

This alternative assumes that no action will be taken and there will be no change in uses on the property. In this case, the no action alternative also serves as an alternative that postpones action

pending further study. Because the project impacts have been analyzed thoroughly in this EIS and no additional studies are necessary, the No Action alternative and postponing action pending further study are discussed under this heading.

The No Action alternative would not meet any of the objectives of the Kaloko Makai project. No housing, no mixed uses, no retail or commercial space, no schools and no transit oriented improvements would be provided.

Similarly, the environmental impacts of the No Action would be much less than under the Preferred Alternative. However, in light of the anticipated population growth, shortage in residential housing, and strong desire within the Kona community to emphasize public transit, the No Action alternative would compound the anticipated housing shortage, and continue the status quo of long distance non-public transit commuting. The No Action alternative means the services, products, facilities and amenities associated with the Kaloko Makai project will not be realized.

The following summarizes descriptions, potential impacts and mitigation measures for the No Action alternative:

**Construction** - No residential construction would occur at the site. The 5,000 single- and multi-family units, including affordable housing units would not be built. The Hospital would not be constructed within the Kaloko Makai project. Retail and commercial space would not be constructed. The 120-room Kaloko Makai Lodge and Business Center would not be built.

**Groundwater Resources and Nearshore Marine Environment** - There would be no change in groundwater resources and the nearshore marine environment.

**Flora and Fauna** - Impact on flora and fauna would be neutral in that while the habitat would remain relatively undisturbed by man, trends in the current "natural" processes would result in the slow loss of habitat from alien species encroachment and predation from rats and feral animals. Preservation and management of the Kaloko Makai Dryland Forest Preserve would not be realized.

**Archaeological and Cultural Resources** - Archaeological and Cultural preserves would not be created and these resources will slowly deteriorate due to lack of management. These resources would remain generally inaccessible.

**Trails and Access** - The Kohanaiki Trail would not be affected.

**Traffic and Transportation** - Traffic trip generation will not increase. This is a positive effect. However, traffic in the North Kona region will continue to increase due the ambient growth in traffic in the region from population growth and development.

**Roads** - Various road improvements would not be made, including widening of Hina Lani Street, construction of the Ane Keohokālole Highway through the Kaloko Makai property, and other intersection and road improvements that would benefit the local and regional traffic patterns.

**Noise** - There will be no change in noise impacts. With no construction, there will be no temporary noise impacts.

**Air Quality** - There will be no change in air quality.

**Visual** - The No Action alternative would retain visual resources in the area. Open space would be retained.

**Water** – The No Action alternative would not contribute to the improvement of the Department of Water Supply's system for the region by building additional water system facilities to serve the Kona area.

**Wastewater** - With no development, no wastewater would be generated, resulting in no impact on natural resources in the area.

**Soils, Topography and Drainage** - The No Action Alternative would have little or no impacts to soils, topography or drainage. The natural drainage pattern consists of rainfall percolating through layers of very porous lava to the subsurface strata.

**Solid Waste** - With no construction of residential, commercial and industrial development, there will be no added solid waste.

**Infrastructure/Power/Communications** - This alternative would not generate the need for public or private infrastructure. There will be no need for power or tele-communication services.

**Parks** - The district-scale park and TOD parks would not be realized.

**Housing** - The 5,000 single- and multi-family units, including affordable housing units, would not be built.

**Education** - No new students will be generated and there will be no need for new public schools. No new school sites will be made available for the DOE.

**Economic and Fiscal/Public Services** - No new jobs would be created, no additional tax and other revenues to the local and state government would be realized and there would be no increased need for public services.

## **7.2 NEIGHBORHOOD TOD (WITHOUT HOSPITAL AND 600,000 SQ. FT. COMMERCIAL USE)**

This alternative assumes the same number of residential units and commercial square footage as the Preferred Alternative, however, in this alternative no hospital will be included in the project. This alternative would still include a 120-room Lodge and Business Center; 75-acres of Light Industrial (SD-1); and the proposed Dryland Forest Preserve.

This alternative would achieve many of the Kaloko Makai objectives. However, it would not generate the economic diversification and increased employment anticipated from the hospital development contemplated under the Preferred Alternative

This alternative would generate similar impacts and require similar mitigation measures as anticipated under the Preferred Alternative.

**Groundwater Resources and Nearshore Marine Environment** – As with the Preferred Alternative, a Neighborhood TOD at Kaloko Makai is not anticipated to impact groundwater, marine waters or ocean biology, as noted in the conclusions of groundwater and marine water analysis reports that prepared on behalf of the project. This conclusion is based on analysis of potential impacts of Kaloko Makai’s proposed water, wastewater, irrigation (including fertilizer application) and drainage systems, as noted in this EIS.

**Flora** – As with the Preferred Alternative, this alternative will not impact botanical species currently listed as endangered under either the federal or the State of Hawai‘i’s endangered species programs. None of the plants that are listed will be “taken” in the development and construction of the project.

Three individual listed endangered plants (two hala pepe and one ‘aiea) found outside the Dryland Forest Preserve will be buffered by setbacks and enclosures (fence/wall). Kaloko Makai will develop a 50-ft. buffer between the two hala pepe and one ‘aiea and any structure. The plants will be incorporated into landscaping within the 50-ft. buffers.

Approximately 150-acres will be set aside as the Kaloko Makai Dryland Forest Preserve. Through the establishment of this Preserve, a variety of species will have continued permanent protection and their habitat set aside, in perpetuity.

**Fauna/Invertebrates** – As with the Preferred Alternative, this alternative will not impact avian species currently listed as endangered, threatened, or proposed for listing under either the federal or the State of Hawai‘i’s endangered species programs which were observed during the course of the survey. No invertebrate currently listed as endangered or threatened under either federal or state statutes was located within the survey area.

The principal potential impact that the project pose to Hawaiian hoary bat is during the clearing and grubbing phases of the project. Clearing of dense vegetation should not occur between June 1 – September 15, when bats may be carrying young and potentially could be at risk as a result of such clearing activities. In addition, the clearing of dense vegetation, including woody plants beyond 15 feet should also not be cleared during this period.

**Archaeological Resources** – As with the Preferred Alternative, this alternative will not negatively impact archaeological resources. All of the confirmed and suspected burials will be preserved pursuant to a burial treatment plan prepared in consultation with recognized descendants and the Hawai‘i Island Burial Council. The other preservation sites will be treated in accordance with a preservation plan submitted to and approved by State Historic Preservation Division (SHPD) prior to final subdivision approval.

**Cultural Resources** – As with the Preferred Alternative, this alternative will not impact cultural resources. With the possible exception of intermittent gathering of plant materials, there are no other traditional or customary native Hawaiian rights being exercised within the project area. The historic Kohanaiki Trail (Road to the Sea) runs through (*mauka-makai*) the entire length of the project; it will be restored and will interconnect the communities within the project.

**Trails and Access** – As with the Preferred Alternative, this alternative will incorporate the Kohanaiki Trail into the project. The *mauka-makai* alignment ("footprint") of the Trail shall be open for public use and retained in perpetuity. The Trail will be at least 10-feet wide and will be bordered by perpetual open space buffers of at least 10-feet wide on each side. In combination with the buffers, the total width of this perpetual public right of way will be at least 30-feet throughout its length across Kaloko Makai. Kaloko Makai proposes to incorporate the trail into the Kaloko Makai project, interconnecting the communities and providing pedestrian access throughout the project.

**Traffic** – As with the Preferred Alternative, this alternative is consistent with the policies of the Kona CDP. As a Neighborhood TOD, the project would be developed as a TOD with TND principles, consistent with Village Design Guidelines that promote transit-oriented and pedestrian oriented development, increase in transit use and management of traffic congestions.

**Noise** – As with the Preferred Alternative, this alternative, in the short-term, will create unavoidable construction noise during the duration of the construction of the proposed project. Operation of construction equipment and vehicles will raise ambient noise levels in the project vicinity. Mitigation measures such as the use of properly muffled construction equipment and incorporation of State Department of Health (DOH) construction noise limits pursuant to the provisions of the State DOH Hawai'i Administrative Rules, Title 11, Chapter 46, Community Noise Control are applicable to the project. In the long-term, traffic-generated noise to the community will be mitigated by adequate setbacks from the highway, in conformance with federal highway standards.

**Air Quality** - As with the Preferred Alternative, this alternative will create potential air quality impacts during construction of the project; these will be mitigated by complying with the State DOH Hawai'i Administrative Rules, Title 11, Chapter 60, Air Pollution. The construction contractor(s) is responsible for complying with the State DOH regulations that prohibit visible dust emissions at property boundaries. Compliance with State regulations will require adequate measures to control airborne dust by methods such as water spraying and sprinkling of loose or exposed soil or ground surface areas and dust-generating equipment, and the use of wind screens in sensitive areas during construction. In the long-term, air quality concerns are expected to remain below State and Federal standards.

**Water** – As with the Preferred Alternative, a Neighborhood TOD at Kaloko Makai will require development of additional water sources, storage and transmission facilities. As noted in

4.10.1 of this EIS, several alternatives are considered, with utilization of wells (at approximate 710-ft elevation) as the preferred alternative.

**Wastewater** – As with the Preferred Alternative, this alternative will create an on-site wastewater treatment plant for processing Kaloko Makai wastewater. An on-site wastewater treatment plant would be self-sufficient, water efficient, and environmentally sound. The Kaloko Makai facility will treat wastewater to produce reclaimed water meeting the highest (R-1) water standards for general irrigation within Kaloko Makai, thus reducing the use of potable water for irrigation.

**Drainage** – As with the Preferred Alternative, this alternative will not impact drainage. There are no streams or natural drainageways in or near the project site. The surrounding area consists of barren *a`ā* and *pāhoehoe* lava fields which are highly permeable. The natural drainage pattern consists of rainfall percolating through layers of very porous lava to the subsurface strata. Stormwater over Kaloko Makai will either percolate directly into the ground (in natural and landscaped areas) or will be collected in a system of catch basins and drain lines and disposed of in drywells located throughout the community.

Likewise, Kaloko Makai proposes a 100-foot wide natural greenbelt that will adjoin the north side of Hina Lani Street, from Ane Keohokālole Highway to Queen Kaʻahumanu Highway. In addition, the makai district-scale park may serve as a collection basin for any excess water. Drainage from Kaloko Makai is not expected to have an adverse effect on groundwater or coastal marine waters.

**Solid Waste** – As with the Preferred Alternative, this alternative will generate solid waste. To reduce solid waste generation, Kaloko Makai will incorporate waste diversion and reduction facilities into its design and recycling will be encouraged. Waste that cannot be recycled or incorporated into on-site green waste processing will be disposed of in the Puʻuanahulu landfill.

**Electrical** – As with the Preferred Alternative, electrical power supply for this alternative will be provided by the existing power grid that traverses through the project site. Kaloko Makai will seek to incorporate alternative energy generation strategies such as use of solar power or photovoltaic systems. Kaloko Makai will also consider possibilities for net energy metering in building design to allow residents and businesses to lower electricity costs and provide energy back into the system.

**Housing** – As with the Preferred Alternative, this alternative will provide a variety of housing options in the residential, commercial and industrial heart of West Hawaiʻi. This alternative will include the proposed development of up to 5,000 new single- and multi-family residential lots and units at a variety of densities, centralized commercial and neighborhood centers, recreational facilities (e.g. parks, trails, open spaces), 120-room Lodge and Business Center, urgent care medical facility, three schools sites and associated infrastructure (e.g., new roadways, utilities, drainage, wastewater and potable water distribution systems). Affordable housing will be provided in accordance with County of Hawaiʻi requirements.

**Education** - Since the number of residential units remains the same as the Preferred Alternative, there is no difference on impacts to education facilities between this alternative and the preferred alternative.

**Economic and Fiscal** - This alternative would provide a variety of economic benefits, as well as tax and other revenue to various governmental entities. Due to the reduced scale of the commercial development, there will be fewer benefits to governmental agencies in the form of real property and other taxes and fees. This alternative would not generate the fiscal impacts anticipated from the hospital development.

**Public Services** – As with the Preferred Alternative, this alternative will contribute to increased State and County tax revenues in the form of increased property, general excise and increased income taxes from increased employment. However, it would not generate the hospital-related jobs.

As with the Preferred Alternative, this alternative is consistent with the Hawai'i County General Plan (Urban Expansion) and Kona CDP (Transit Oriented Development). However, this alternative is not selected because it is preferred that the hospital is situated in Kaloko Makai.

In the event a hospital developer/operator is not arranged for the 40-acre site, then the residential units and commercial square footage will be reallocated throughout the area identified as Phase 1 (see Figure 2-15). The Kaloko Makai Neighborhood TOD uses will be redefined as a commercial core (recreational space, small-scale public/civic uses, office, retail, mixed-use, etc) to serve the needs of the immediate community (Kaloko Makai,) as well as neighboring communities. There will be no change in residential unit count or commercial square footage in each of Phases 1, 2 and 3, or the entire project, as compared to the Preferred Alternative.

### **7.3 NEIGHBORHOOD TOD WITH MAXIMUM DENSITY PERMITTED UNDER KONA CDP GUIDELINES**

This alternative assumes the existing Kaloko Makai layout (Figure 2-11,) including the GB, T3, T4, T5 and SD1 transects, and the Traditional Neighborhood Design component in the mauka-south portion of the property, are allocated units to each "T" transect according to the maximum allowable density permitted in the Kona CDP.

The maximum densities for the three primary development transects of the Kona CDP are as follows:

- T3 - Sub-Urban Zone, 6-units/acre
- T4 - General Urban Zone, 12-units/acre
- T5 - Urban Center Zone, 30-units per acre

This equates to approximately 11,400 residential units.

In addition, as supported by the market analysis and consistent with the Kona CDP, 600,000 square feet of Commercial (Office/Retail); 120-room Lodge and Business Center; 75-acres of SD-1 and a Dryland Forest Preserve will make up the balance of the development.

This alternative would attain the Kaloko Makai project objectives. The following summarizes descriptions, potential impacts and mitigation measures for this alternative:

**Groundwater Resources and Nearshore Marine Environment** – While the scale of the development is greater than the Preferred Alternative, this alternative is not anticipated to impact groundwater, marine waters or ocean biology. More wells will be required for potable water source; however, since the mid-level wells are drawing from a confined water source, drawing from this source is not expected to impact coastal hydrology nor affect the sustainable yield. If the water requires treatment, a larger facility will need to be constructed and the source distribution lines, also constructed at a larger scale.

**Flora** – While the scale of the development is greater than the Preferred Alternative, this alternative will not impact botanical species currently listed as endangered under either the federal or the State of Hawai'i's endangered species programs. None of the listed endangered plants will be "taken" in the development and construction of the project.

Three individual endangered plants (two hala pepe and one 'aiea) found outside the Dryland Forest Preserve will be buffered by setbacks and enclosures (fence/wall). Kaloko Makai will develop a 50-ft. buffer between the two hala pepe and one 'aiea and any structure. The plants will be incorporated into landscaping within the 50-ft. buffers.

150-acres will be set aside as the Kaloko Makai Dryland Forest Preserve. Through the establishment of this preserve, a variety of species will have continued permanent protection and their habitat set aside, in perpetuity.

**Fauna/Invertebrates** – While the scale of the development is greater than the Preferred Alternative, this alternative will not impact avian species currently listed as endangered, threatened, or proposed for listing under either the federal or the State of Hawai'i's endangered species programs were observed during the course of the survey. No invertebrate currently listed as endangered or threatened under either federal or state statutes was located within the survey area.

The principal potential impact that the project pose to Hawaiian hoary bat is during the clearing and grubbing phases of the project. Clearing of dense vegetation should not occur between June 1 – September 15, when bats may be carrying young and potentially could be at risk as a result of such clearing activities. In addition, the clearing of dense vegetation, including woody plants beyond 15 feet should also not be cleared during this period.

**Archaeological Resources** – While the scale of the development is greater than the Preferred Alternative, this alternative will not negatively impact archaeological resources. All of the confirmed and suspected burials will be preserved pursuant to a burial treatment plan prepared in consultation with recognized descendants and the Hawai'i Island Burial Council. The other preservation sites will be treated in accordance with a preservation plan submitted to and approved by State Historic Preservation Division (SHPD) prior to final subdivision approval.

**Cultural Resources** – While the scale of the development is greater than the Preferred Alternative, this alternative will not impact cultural resources. With the possible exception of intermittent gathering of plant materials, there are no other traditional or customary native Hawaiian rights being exercised within the project area. The historic Kohanaiki Trail (Road to the Sea) runs through (mauka-makai) the entire length of the project; it will be restored and will interconnect the communities within the project.

**Trails and Access** – While the scale of the development is greater than the Preferred Alternative, this alternative will incorporate the Kohanaiki Trail into the project. The *mauka-makai* alignment ("footprint") of the Trail shall be open for public use and retained in perpetuity.

**Traffic** – This alternative is consistent with the policies of the Kona CDP; however, under this scenario significantly more traffic will be generated and more roadway and intersection improvements will be required.

This alternative would be designed to be consistent with the TND concepts of having compact mixed-use villages to allow for easy walkability. However, this alternative would result in many more cars due to the significant increase of residential units, putting greater demands on existing roads.

**Noise** – This alternative is greater than the Preferred Alternative. Thus, the duration of the short-term, unavoidable construction noise, will be longer. Appropriate mitigation measures, as called for in the Preferred Alternative, will be implemented.

**Air Quality** – The scale of the development is greater than the Preferred Alternative, therefore the construction-related air quality impacts will be extended over a longer period of time. However, all such impacts will be mitigated by complying with the State DOH Hawai'i Administrative Rules, Title 11, Chapter 60, Air Pollution. In the long-term, air quality concerns are expected to remain below State and Federal standards.

**Water** – As with the Preferred Alternative, this alternative will require development of additional water sources, storage and transmission facilities. Several alternatives are being explored, including utilization of onsite wells (at approximate 710-ft. elevation) and possible desalination to potable water. Dedication of water facilities to the County DWS would be sought.

**Wastewater** – As with the Preferred Alternative, this alternative will generate wastewater, which would be processed at an on-site wastewater treatment. An on-site wastewater treatment plant would be self-sufficient, water efficient, and environmentally sound. The Kaloko Makai facility will treat wastewater to produce reclaimed water meeting the highest (R-1) water standards for general irrigation within Kaloko Makai, thus reducing the use of potable water for irrigation. Since the facility will need to be scaled larger than under the Preferred Alternative; disposal of treated wastewater effluent will also need to be dispersed to other areas.

**Drainage** – While the scale of the development is greater than the Preferred Alternative, this alternative will not impact drainage. There are no streams or natural drainageways in or near the project site. The surrounding area consists of barren *a`ā* and *pāhoehoe* lava fields which are highly permeable. The natural drainage pattern consists of rainfall percolating through layers of very porous lava to the subsurface strata. Stormwater over Kaloko Makai will either percolate directly into the ground (in natural and landscaped areas) or will be collected in a system of catch basins and drain lines and disposed of in drywells located throughout the community.

The 100-foot wide natural greenbelt that will adjoin the north side of Hina Lani Street, from Ane Keohokālole Highway to Queen Ka`ahumanu Highway, and the makai district-scale park, could serve as a collection basin for any excess water. Drainage from Kaloko Makai is not expected to have an adverse effect on groundwater or coastal marine waters.

**Solid Waste** – More solid waste would be generated under this alternative. Kaloko Makai will work with the County to identify and implement feasible alternatives for residential curbside collection, including source-separated recyclables. Waste diversion and reduction facilities would be incorporated into the project design, and recycling will be encouraged. Waste that cannot be recycled or incorporated into on-site green waste processing will be disposed of in the Pu`uanahulu landfill. Due to the scale of the residential development, the project may need to incorporate a transfer station (to be situated with the wastewater treatment facility,) as well as provide residential refuse collection.

**Electrical** – As with the Preferred Alternative, electrical power supply for this alternative will be provided by the existing power grid that traverses through the project site. Kaloko Makai will seek to incorporate alternative energy generation strategies such as use of solar power or photovoltaic systems. Kaloko Makai will also consider possibilities for net energy metering in building design to allow residents and businesses to lower electricity costs and provide energy back into the system.

**Housing** – As with the Preferred Alternative, this alternative will provide a variety of housing options, consistent with the Kona CDP. Kaloko Makai is strategically located along the major regional traffic corridor Queen Ka`ahumanu Highway, between the town of Kailua-Kona and the Kona International Airport. This area has a long-standing and growing residential base and will continue to be the focus of residential and related development as the Island's population grows.

This alternative will include the proposed development of up to 11,400 new single- and multi-family residential lots and units, centralized commercial and neighborhood centers, recreational facilities (e.g. parks, trails, open spaces), 120-room Lodge and Business Center, urgent care medical facility, necessary school sites, and associated infrastructure (e.g., new roadways, utilities, drainage, wastewater and potable water distribution systems). Affordable housing will be provided in accordance with County of Hawai`i requirements. All of this is consistent with the Kona CDP.

**Education:** Since the quantity of residential units offered is significantly higher than the Preferred Alternative, the impacts to education facilities under this alternative are significantly greater than the Preferred Alternative. According to BOE Policy, it is likely that at least two elementary schools, one middle school and a high school, would be required.

**Economic and Fiscal** - This alternative would provide a variety of economic benefits, as well as tax and other revenue to various governmental entities. Due to the significantly greater scale of the development, there will be more benefits to governmental agencies in the form of real property and other taxes and fees.

**Public Services** – With increased residential densities and more people, there is an expected increase in the need for public service, compared to the Preferred Alternative.

As with the Preferred Alternative, this alternative is consistent with the Hawai'i County General Plan (Urban Expansion) and Kona CDP (Kona Urban Area). However, this alternative is not selected for a variety of reasons, all related to the scale of the development.

This alternative has over twice the number of residential units as the Preferred Alternative. While the Kona CDP permits up to 30-units per acre and therefore 11,400 total residential units within Kaloko Makai, it is probable that significant public opposition would arise if any project proposed this scale in the North Kona, despite the fact that the Kona CDP obtained overwhelming community support.

Likewise, the traffic impacts generated by a development will burden the system, and require significantly more road and intersection improvements.

Finally, the market assessment for residential development does not support a project of this size. A project the scale of the Preferred Alternative (5,000 residential units) is fully supported by the market analysis; a scale of 11,400 residential units is not.

#### **7.4 EXISTING ZONING (5-ACRE AGRICULTURAL LOTS, GOLF, CONSERVATION)**

Under the Existing Zoning alternative there would be approximately 150 agricultural lots (5-acres each), a 190-acre golf course, State Land Use Conservation District land fronting Queen Ka'ahumanu, and a Dryland Forest Preserve would be developed.

The Existing Zoning alternative would develop a standalone golf course within approximately 190 acres of land that was reclassified to the State Urban District in 1985 to allow for such development. However, since most of the larger resort areas on the Kona Coast already offer golf courses, need for an additional golf-course is not justified.

The land in the State Conservation District would remain as open space, except a Conservation District Use Permit will be sought for the construction of a single-family dwelling.

The remainder of the property would be developed as a standard grid-format agricultural subdivision, each subdivided lot being a minimum of 5-acres, according to the existing zoning. A

Planned Unit Development Permit could also be sought in order to create clustered 2 to 3 acre lots, with a large open/agricultural area. As it currently stands, however, the land occupied by the project site is inadequate for agricultural production. The site itself is covered virtually entirely by a layer of hardened lava rock, and its potential for agricultural production would be further constrained by a functional lack of irrigation infrastructure.

Under the Existing Zoning alternative, similar mitigation measures to the Preferred Alternative will be incorporated into the overall community planning, although at a reduced scale, due to the reduced scale of the development. For areas of particular concern, the following summarizes descriptions, potential impacts and mitigation measures for the Existing Zoning alternative.

**Groundwater Resources and Nearshore Marine Environment** – As with the Preferred Alternative, development under the Existing Zoning is not anticipated to impact groundwater, marine waters or ocean biology, as noted in the conclusions of groundwater and marine water analysis reports that prepared on behalf of the project. This conclusion is based on analysis of potential impacts of Kaloko Makai’s proposed water, wastewater, irrigation (including fertilizer application) and drainage systems, as noted in this EIS. As noted in Chapter 3, resort development with golf course up the coast from Kaloko Makai have not had negatively impacted groundwater or nearshore marine resources.

**Flora** – As with the Preferred Alternative, this alternative will not impact botanical species currently listed as endangered under either the federal or the State of Hawai‘i’s endangered species programs. None of the listed endangered plants will be “taken” in the development and construction of the project.

Three individual endangered plants (two hala pepe and one ‘aiea) found outside the Dryland Forest Preserve will be buffered by setbacks and enclosures (fence/wall). Kaloko Makai will develop a 50-ft. buffer between the two hala pepe and one ‘aiea and any structure. The plants will be incorporated into landscaping within the 50-ft. buffers.

Approximately 150-acres will be set aside as the Kaloko Makai Dryland Forest Preserve. Through the establishment of this Preserve, a variety of species will have continued permanent protection and their habitat set aside, in perpetuity.

**Fauna/Invertebrates** – As with the Preferred Alternative, this alternative will not impact avian species currently listed as endangered, threatened, or proposed for listing under either the federal or the State of Hawai‘i’s endangered species programs, as were observed during the course of the survey. No invertebrate currently listed as endangered or threatened under either federal or state statutes was located within the survey area.

The principal potential impact that the project pose to Hawaiian hoary bat is during the clearing and grubbing phases of the project. Clearing of dense vegetation should not occur between June 1 – September 15, when bats may be carrying young and potentially could be at risk as a result of such clearing activities. In addition, the clearing of dense vegetation, including woody plants beyond 15 feet should also not be cleared during this period.

**Archaeological Resources** – As with the Preferred Alternative, this alternative will not negatively impact archaeological resources. All of the confirmed and suspected burials will be preserved pursuant to a burial treatment plan prepared in consultation with recognized descendants and the Hawai'i Island Burial Council. The other preservation sites will be treated in accordance with a preservation plan submitted to and approved by State Historic Preservation Division (SHPD) prior to final subdivision approval.

**Cultural Resources** – As with the Preferred Alternative, this alternative will not impact cultural resources. With the possible exception of intermittent gathering of plant materials, there are no other traditional or customary native Hawaiian rights being exercised within the project area.

**Trails and Access** – As with the Preferred Alternative, this alternative will retain the Kohanaiki Trail into the project. The mauka-makai alignment ("footprint") of the Trail shall be open for public use and retained in perpetuity.

**Traffic** – Unlike the Preferred Alternative, this alternative is inconsistent with the transit related polices of the Kona CDP. Development under Existing Zoning is characterized by a grid layout of 5-acre parcels scattered throughout the bulk of the project area. There are no transit stations and the development under Existing Zoning is not conducive to being a walkable community.

Since the number of residential units is approximately 150, there is a significant reduction in the number of automobiles generated by the project and the traffic impacts will, therefore, be significantly less than the Preferred Alternative.

**Noise** – As with the Preferred Alternative, this alternative, in the short-term, will create unavoidable construction noise during the duration of the construction of the proposed project. However, it will be significantly less than the Preferred Alternative. Appropriate laws, ordinances and rules will be followed to comply with noise limits.

**Air Quality** - As with the Preferred Alternative, this alternative will create potential air quality impacts during construction of the project. However, it will be significantly less than the Preferred Alternative. Appropriate laws, ordinances and rules will be followed to comply with air quality standards.

**Water** – As with the Preferred Alternative, this alternative will require development of additional water sources, storage and transmission facilities. However, even with a golf course, the needs and scale of improvements will be significantly less than the Preferred Alternative. Due to limited rainfall in this area, catchment is not feasible and a variance for catchment systems from Hawai'i County is unlikely. As noted in 4.10.1 of this EIS, several alternatives are considered, with utilization of wells (at an approximate 710-ft elevation) as the Preferred Alternative. The scale will be significantly reduced due to the reduced number of residential units, compared to the Preferred Alternative.

**Wastewater** – Due to the reduced scale of the project and scattered nature of the development, individual septic systems are preferred over a central on-site wastewater treatment plant. Each property owner will be responsible to design and construct their respective system on their property and will assure the systems are consistent with appropriate County and State laws, codes, ordinances and rules. Therefore, no R-1 treated effluent would be available for irrigation purposes.

**Drainage** – As with the Preferred Alternative, development under Existing Zoning will not impact drainage. There are no streams or natural drainageways in or near the project site. The surrounding area consists of barren *a`ā* and *pāhoehoe* lava fields which are highly permeable. The natural drainage pattern consists of rainfall percolating through layers of very porous lava to the subsurface strata. Stormwater over the project lands will either percolate directly into the ground (in natural and landscaped areas) or will be collected in a system of catch basins and drain lines and disposed of in drywells located throughout the community. Drainage is not expected to have an adverse effect on groundwater or coastal marine waters.

**Solid Waste** – Development under this alternative has significantly lower number of units than the Preferred Alternative. Lot owners will take their solid waste to the County transfer stations or landfill.

**Electrical** – Because development of this alternative has significantly lower number of units than the Preferred Alternative, electrical demands will be significantly reduced, compared to the Preferred Alternative. This alternative also allows for opportunity to incorporate alternative energy generation.

**Housing** – Development under this alternative will produce a single market type, rather than the diverse housing opportunities called for in the Preferred Alternative. This alternative would result in significantly lower overall density. Pricing for these lots would likely be high and marketing would be focused on higher income markets, thereby limiting the range of income groups that could afford these lots. In addition, no affordable housing would be provided, as none would be required under Chapter 11 of the Hawai'i County Code.

**Education:** Since the number of residential units are significantly less than the Preferred Alternative, the impacts to education facilities under this alternative are significantly less than the Preferred Alternative. No school sites will be provided.

**Economic and Fiscal** – Public economic revenue, benefits and demands will be less if the site is developed under this alternative, as compared to the Preferred Alternative.

**Public Services** - Because there would be significantly less units, if developed under this alternative, there would also be a significantly lower demand for public services.

Poor soil productivity has restricted historical use of the site, as well as the immediate surrounding area, for agricultural production and would most likely preclude future large-scale agricultural

activities. In addition, there is no significant source of low cost agricultural water nearby. Nevertheless, this alternative is plausible, as it conforms to the existing permitted land uses.

This alternative fails to address a range of Kaloko Makai and Kona CDP objectives including but not limited to: 1) Create a diverse, sustained community of mixed uses, including residential, retail and commercial spaces, light industrial areas, recreational spaces, and open space; 2) Provide housing for the working families of Hawai'i near areas of workforce demand, as a result improving overall quality of life through the reduction of commuting and facilitation of everyday function; 3) Openly embrace a diversity of people and activities through offering mixed uses and housing types; 4) Contribute to the social fabric of the community by providing infrastructure and facilities, and by including school, hospital, recreational, and civic sites.

This alternative would also not be consistent with the County of Hawai'i General Plan (as amended in December 2006), which designates a large portion of the project site for Urban Expansion, nor would it improve the current housing market, or increase jobs or tax revenues. The property would not be put to a higher economic use, forgoing contribution to a larger tax base for the County of Hawai'i.

#### **7.5 CONVENTIONAL SUBDIVISION DEVELOPMENT (5-UNITS/ACRE; SOME COMMERCIAL AND INDUSTRIAL)**

This alternative, considering the site in a development pattern consistent with recent development in the region, would include approximately 3,000 single and multi-family units in conventional grid layout; 100-acres in commercial uses; 75-acres of light industrial/commercial; and a Dryland Forest Preserve.

This alternative would attain some of the Kaloko Makai objectives, but it would not create a diverse, sustained community of mixed uses, reduce commuting, offer mixed uses, or emphasize non-vehicular transit for mainstream community-wide travel. However, it would add housing, and openly embrace a diversity of people and activities, and contribute to the social fabric of the community by providing infrastructure and facilities. To the extent possible the Conventional Subdivision would engender and incorporate intelligent, planned sustainability by design.

Under this alternative, the project layout would mimic typical existing development in the region. Given the neighboring uses, this would mean light industrial in the makai region, in grid pattern layout, similar to the adjoining Kaloko Industrial Park. Mauka of this would be a mix of residential and commercial on the balance of the property. Due to the existence of endangered plants within the Dryland Forest Area, the approximately 150-acres would be set aside for forest preservation.

Typical residential and commercial development has most commercial uses at major roadway intersections and along the major roads. This layout and pattern of use is characteristic of the "sprawl" that is evident in areas of North Kona.

Under this alternative similar mitigation measures to the Preferred Alternative will be incorporated into the overall community planning. For areas of particular concern, the following summarizes descriptions, potential impacts and mitigation measures for this alternative.

**Groundwater Resources and Nearshore Marine Environment** – As with the Preferred Alternative, this alternative is not anticipated to impact groundwater, marine waters or ocean biology, as noted in the conclusions of groundwater and marine water analysis reports prepared on behalf of the project, which are based on analysis of potential impacts of Kaloko Makai’s proposed water, wastewater, irrigation (including fertilizer application) and drainage systems, as noted in this EIS.

**Flora** – As with the Preferred Alternative, this alternative will not impact botanical species currently listed as endangered under either the federal or the State of Hawai‘i’s endangered species programs. None of the listed endangered plants will be “taken” in the development and construction of the project.

Three individual endangered plants (two hala pepe and one ‘aiea) found outside the Dryland Forest Preserve will be buffered by setbacks and enclosures (fence/wall). Kaloko Makai will develop a 50-ft. buffer between the two hala pepe and one ‘aiea and any structure. The plants will be incorporated into landscaping within the 50-ft. buffers.

Approximately 150-acres will be set aside as the Kaloko Makai Dryland Forest Preserve. Through the establishment of this preserve, a variety of species will have continued permanent protection and their habitat set aside, in perpetuity.

**Fauna/Invertebrates** – As with the Preferred Alternative, this alternative will not impact avian species currently listed as endangered, threatened, or proposed for listing under either the federal or the State of Hawai‘i’s endangered species programs, as were observed during the course of the survey. No invertebrate currently listed as endangered or threatened under either federal or state statutes was located within the survey area.

The principal potential impact that the project pose to Hawaiian hoary bat is during the clearing and grubbing phases of the project. Clearing of dense vegetation should not occur between June 1 – September 15, when bats may be carrying young and potentially could be at risk as a result of such clearing activities. In addition, the clearing of dense vegetation, including woody plants beyond 15 feet should also not be cleared during this period.

**Archaeological Resources** – As with the Preferred Alternative, this alternative will not negatively impact archaeological resources. All of the confirmed and suspected burials will be preserved pursuant to a burial treatment plan prepared in consultation with recognized descendants and the Hawai‘i Island Burial Council. The other preservation sites will be treated in accordance with a preservation plan submitted to and approved by State Historic Preservation Division (SHPD) prior to final subdivision approval.

**Cultural Resources** – As with the Preferred Alternative, this alternative will not impact cultural resources. With the possible exception of intermittent gathering of plant materials, there are no other traditional or customary native Hawaiian rights being exercised within the project area.

**Trails and Access** – As with the Preferred Alternative, this alternative will incorporate the Kohanaiki Trail into the project. The mauka-makai alignment ("footprint") of the Trail shall be open for public use and retained in perpetuity.

**Traffic** – Under this alternative, transportation needs are focused on the automobile, rather than transit. This alternative is expected to increase local and regional traffic because the emphasis is on the automobile.

Rather than development patterns and walkable concentration in an urban, walkable core, this alternative layout spreads the residential uses across the landscape of the site and forces owners within the development to drive to shop, work, recreate, etc.

Rather than minimize traffic congestion as sought in the Kona CDP through focus on transit and TOD, this alternative will maximize automobile activity on area roads, and force occupants into their cars, rather than onto their feet or into mass transit vehicles to get around.

**Noise** – As with the Preferred Alternative, this alternative, in the short-term, will create unavoidable construction noise during the duration of the construction of the proposed project. Operation of construction equipment and vehicles will raise ambient noise levels in the project vicinity. In addition, since the emphasis of travel will be on the automobile, automobile noise is expected to be significantly higher than the Preferred Alternative. Appropriate laws, ordinances and rules will be followed to comply with noise limits.

**Air Quality** - As with the Preferred Alternative, this alternative will create potential air quality impacts during construction of the project. In addition, since the emphasis of travel will be on the automobile, emissions from automobiles are expected to be significantly higher than the Preferred Alternative. Appropriate laws, ordinances and rules will be followed to comply with air quality standards.

**Water** – As with the Preferred Alternative, this alternative will require development of additional water sources, storage and transmission facilities. As noted in 4.10.1 of this EIS, several water system alternatives are considered, with utilization of wells (at approximate 710-ft elevation) as the Preferred Alternative. The proposed project will construct the required water system facilities that may be dedicated to the County's Department of Water Supply.

**Wastewater** – As with the Preferred Alternative, this alternative will create an on-site wastewater treatment plant as the Preferred Alternative for processing Kaloko Makai wastewater. An on-site wastewater treatment plant would be self-sufficient, water efficient, and environmentally sound. The Kaloko Makai facility will treat wastewater to produce reclaimed water meeting the highest (R-1) water standards. However, since this alternative contains 3,000 independent single-family lots in a conventional grid pattern, and DOH guidelines limit reuse of the treated effluent to residential property, an irrigation supervisor would be needed in order for the treated effluent to be used for irrigation purposes.

**Drainage** – As with the Preferred Alternative, this alternative will not impact drainage. There are no streams or natural drainageways in or near the project site. The surrounding area consists of barren *a`ā* and *pāhoehoe* lava fields which are highly permeable. The natural drainage pattern consists of rainfall percolating through layers of very porous lava to the subsurface strata. Stormwater will either percolate directly into the ground (in natural and landscaped areas) or will be collected in a system of catch basins and drain lines and disposed of in drywells located throughout the community.

**Solid Waste** – As with the Preferred Alternative, this alternative would include working with the County to identify and implement feasible alternatives for residential curbside collection, including source-separated recyclables.

**Electrical** – As with the Preferred Alternative, electrical power supply for this alternative will be provided by the existing power grid that traverses through the project site. Opportunities for alternative energy generation strategies such as use of solar power or photovoltaic systems are available, as in the Preferred Alternative.

**Housing** – Because this alternative is focused on developing single-family homes, there will not be a variety of housing options available to the market. Price differences may occur due to varying lot size or view opportunities; however, the pricing will remain relatively constant, thereby limiting the range of buyers to a relatively tight price range. However, the development would be required to comply with Hawai'i County's affordable housing requirements.

**Education:** Since the number of residential units are less than the Preferred Alternative, the impacts to education facilities under this alternative are generally less than the Preferred Alternative.

**Economic and Fiscal** – As with the Preferred Alternative, this alternative will contribute to increased State and County tax revenues in the form of increased property, general excise and increased income taxes from increased employment. However, since the focus is on residential development, with some commercial uses fronting roads and intersections, the economic and fiscal opportunities for the public benefit are less than the Preferred Alternative.

**Public Services** – With reduced number of residential units, there will be a reduced demand for public services.

The Conventional Subdivision Development pattern in West Hawai'i is reminiscent of urban/suburban sprawl and is heavily dependant on automobile transportation. This type of development is inconsistent with the TOD approach noted in the Kona CDP, that calls integration as a means to avoid the current trend toward sprawling low-density developments, disconnected subdivisions and business centers, and a general decline in the "Kona Way of Life." The Kona CDP land use policy seeks to concentrate growth within the TODs, in lieu of sprawl.

The Conventional Subdivision Development alternative is not selected because it is inconsistent with the Kona CDP (Transit Oriented Development) and is a continuation of urban sprawl discouraged under the Kona CDP.

## 7.6 ALTERNATE LOCATION

Alternative locations for the project were considered. However, since the Kaloko Makai site is designated as a Neighborhood TOD in the Kona CDP, the evaluation and opportunity for an alternative location was limited for several reasons.

The Kaloko Makai project was conceived, planned and designed to be consistent with the Hawai'i County *General Plan*, the *Keāhole to Kailua Development Plan* (K-to-K Plan) and the Kona CDP. The focus of planning for the Kaloko Makai site and the foundation of the layout, range of uses and densities have been designed to meet the purpose, details and village design guidelines of the Kona CDP.

As noted in the Kona CDP, most of the future growth in Kona will be directed to the Urban Area (UA,) as designated on its Official Land Use map. Within the Kona UA, growth would be directed to compact villages located along proposed transit routes or to infill areas within, or adjacent to, existing development. The general locations of these villages are within the designated TODs, as shown on the Official Kona Land Use Map.

The existing Kaloko Makai site is approximately 1,139-acres. No other properties of this size and with similar attributes are available for development within the Kona UA. Likewise, no other properties within the State of Hawai'i were found that possess these characteristics.

The project site is owned and/or controlled by the Applicant. No alternative sites are available, but if there was such a site, Applicant would have to acquire that site in order to develop the project. No other site has been designated as the "Kaloko Makai" TOD under the Kona CDP. Therefore, it is unreasonable to pursue an alternative location for the project.

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