
PROJECT DOCUMENT

County of Hawai'i General Plan Comprehensive Review

Future Land Use System Technical Report

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Introduction

This technical report documents the process used to update the County of Hawai'i's future land use system as a part of the comprehensive review of the General Plan. The process of updating the future land use system relied heavily on work done by Hawai'i's Community Development Plans (CDPs) and a major portion of the effort included translating and reconciling land policy work that the CDPs had completed over the last 11 years. In the years since the County has published its last General Plan (2005), a large number of land use changes have occurred and new sources of information have been published. Beyond land policy data from the CDPs, this update process used best available information to address changes in state policy, local land use, utilities, neighborhood structure, parks, and natural environment. Lastly, the update process introduced a new system of land use designations that update and modernize the former designations.

About Future Land Use

The development of a future land use map provides a framework to more effectively realize the vision and principles for the county and increase both the quality of life and the conservation of the natural environment. The future land use map is not a zoning map. It is intended to show, in a general sense, the desired types, locations, patterns and intensities of future development. By organizing the county using future land use designations, intentional and informed decisions can be made about how the county government organizes itself and efficiently delivers services. The map should guide revisions to the county's zoning and development ordinances (as needed) to ensure rules and regulations are consistent with the vision set forth in the General Plan. These designations imply varying degrees of land conservation and growth. They reaffirm the notion that development should grow primarily within and near the county's towns and villages to make the most efficient use of services and infrastructure.

The County of Hawai'i (CoH) has an existing future land use plan called the General Plan Land Use Pattern Allocation Guide (LUPAG). The LUPAG Map indicates the general location of various land uses in relation to each other. The methodology used to develop the LUPAG reflected estimates of future population based on economic and employment evaluations, existing land uses and zoned areas, determination of community facility needs, and transportation demands for the entire island. As a part of the update to the County's General Plan the LUPAG designations are intended to be updated and refined.

Hawai'i County is unique in that its towns and villages do not maintain their own municipal governments and land use authority. But in recognizing the size and diversity of the island as well the need to organize and empower local residents, the county has developed Community Development Plans (CDPs). These plans were created to translate broad General Plan statements to specific actions as they apply to specific geographical areas of the county. Every plan is drafted through an extensive community outreach process, in order to try to best reflect the values of each specific community. There are six adopted CDPs: Kona, North Kohala, Puna, South Kohala, Ka'ū and Hāmākua.

Revisions to Hawai'i County's Future Land Use

Incorporating the Community Development Plans

The first step towards revising Hawai'i's future land use designations involved incorporating the future land use maps from the CDP processes. All CDP plans provide guidance on intended land use via written policy and explicitly defined geographic areas. Some CDPs (Puna, Ka'ū and Hāmākua) use the same LUPAG designations as the county's general plan, making interpreting the scope and intent of the CDP's land use policy very easy. Other CDPs (Kona, North Kohala, South Kohala) developed their future land use maps using approaches that varied by location and shaped by their own unique planning processes. Translating the future land use maps from these CDPs required some interpretation in order to translate the intent of the CDP into the county's LUPAG land use system. The consultant worked closely with CoH planning staff to make sure that the scope and intent of the CDPs in these cases was clearly reflected in the revisions.

CDP District	CDP Growth Map Summary
North and South Kona	The Kona CDP was adopted in September 2008. While the Kona CDP uses GP LUPAG as a guide to appropriate land use and growth within defined locations, Kona takes a different approach than other CDPs in setting up a framework for proposed future development. The CDP defines an Urban Area boundary to steer future development within and near existing developed areas. It also provides for Rural Town areas where continued growth is anticipated and where growth outside of the Urban Area is preferred. Within the Urban Area, the Kona CDP also establishes guidelines and some recommended locations for Transit Oriented Development (TOD) and Traditional Neighborhood Development (TND). TODs are represented as circles, or nodes, along a potential future transit corridor During the LUPAG revisions, the Regional Center TODs were classified as high density urban, while the Neighborhood TODs were classified as either medium or low density residential. All secondary area recommended by the CDP were classified as low density urban.
Puna	The Puna CDP was adopted in September 2008. The overarching plan goals center around reversing the potential consequences to environmental and agricultural uses of continued rural and suburban development. Much of Puna has been subdivided into lots varying in size from 1 acre to 5 acres. These subdivisions rely mainly on services and infrastructure through private means (homeowner's

	association, initial developer provision, site-maintained cesspools, septic and water, etc.). Additionally, there are safety concerns given the myriad of hazards these communities are exposed to with limited public infrastructure. The Puna CDP establishes the concept of Regional, Neighborhood, and Village Centers to help serve local communities with commercial and civic uses. Additionally, these centers provide a focal point for future urban growth. The concept is that where development has not yet filled in, new homes should be concentrated in and around the Centers, reducing the need for new roads and expanded water infrastructure. The regional, neighborhood and village centers approach was largely maintained in the updated LUPAG designations. Generally, these areas were assigned low-density urban designations but several areas of medium density urban were maintained from the 2005 LUPAG in Kea'au and Pahoa.
North Kohala	The North Kohala CDP was finalized in November 2008. North Kohala more than other plans focuses on limited growth and change for the community. The strong policies in the North Kohala CDP center on agriculture, cultural and view protections. The plan identifies "Centers" in the small urban communities along the northern highway and this approach was maintained in the LUPAG updates by assigning the low-density urban designation to the centers.
South Kohala	The South Kohala CDP was adopted in November 2008. The plan developed community goals and policies around land use and growth. In addition to district-wide policy, each urban center (Waimea, Waikoloa Village, Kawaihae and Puakō) was assigned a chapter in the CDP and analyzed individually. The future land use guidance provided for each urban place was depicted in concept plans. In most cases, concept plans showed where future intent differed from existing LUPAG plan areas. The South Kohala CDP provided maps and policy language that made clear adjustments to LUPAG plan areas while not explicitly using the LUPAG designations. In many cases, the CDP advocated for reducing the areas classified as Urban Expansion and Low Density Urban near the existing urban centers.
Hāmākua	The Hāmākua CDP was adopted by the county council in August, 2018. The CDP included proposed changes to the LUPAG, primarily shrinking urban classes, focusing development near village centers and expanding agricultural areas. The Hāmākua CDP used LUPAG designations and its CDP map was incorporated directly into the update process.
Ka'ū	The Ka'ū CDP was adopted by the County in October 2017. Similarly to Hāmākua, Ka'ū used GP LUPAG classes to define areas where the community is interested in changing the direction of land use. As with Hāmākua, the LUPAG was updated in Ka'ū with amended LUPAG classes from the CDP. The Ka'ū CDP was incorporated directly into the update process without any need for reconciling.
Hilo	Hilo does not have a CDP, using the General Plan LUPAG as its sole guiding document. The only changes made during this update included incorporating maps made for the Banyan Drive Concept Plan.

During the process of incorporating the future land use from the CDPs, additional information was used to refine the boundaries of the updated LUPAG. This data included:

- **State Land Use Districts.** Originally adopted by the State Legislature in 1961, the Land Use Law establishes an overall framework of land use management whereby all lands in the State of Hawai'i are classified into one of four land use districts: urban, rural, agricultural, conservation. The most recent version of the State Land Use Districts (version published February, 2016) was used.
- **Parcels Existing Land Use.** A basic classification of land use was created using Real Property Tax (RPT) data in 2016, primarily using the RPT "Land Class" classification system and residential and non-residential structures. As an RPT product, the land use is by-parcel and does not address land use at a finer scale. This land use classification does not include space dedicated to roads and other rights-of-way that are generally not included in the CoH parcel maps. RPT's Land Class uses nine classes, and to create the base scenario three classes were added to create a more comprehensive land use palette. Existing land use was used occasionally to refine land use designations in certain areas.. An example of this was the refinement of an area at the Waimea airport where LUPAG had classified a 604 acre for Industrial use. Using the parcel-based existing land use and guidance from the CDP, the area classified for industrial development was reduced to 161 acres. This was rare however as most development had occurred in areas already classified as urban by the LUPAG.
- **Neighborhoods.** The CoH neighborhoods were originally created by county staff to bridge the divide between county tax parcels which were the focus for land use scenario modeling and areas used for forecasting future growth, the Forecast Analysis Zones (FAZs). The neighborhoods were also intended to represent how county residents think about places. Neighborhoods may be shaped by the predominant urban form (e.g., suburban or rural), subdivision (e.g., Hawai'iian Paradise Park or Orchidland Estates) and physical features that may divide or unite certain areas. They were revised for the 2016 public workshops and afterwards, incorporating stakeholder input. There are over 400 neighborhoods, which include most of the 144,000 parcels in the County. Areas not encompassed by the neighborhoods layer are in protected areas and/or classified as Conservation by the State Land Use. The formation of the neighborhoods incorporated multiple information sources, including tax parcel boundaries, existing land use, municipal water and wastewater services, best available hazard areas (in particular flood, tsunami risk). Complete documentation on the layer is available from the Hawai'i County Planning Department. Neighborhood boundaries were often used to help refine the proposed land use where the CDPs used written policies or conceptual land use shapes (e.g., circles for nodes or centers) to show intent, such as in Kona, North and South Kohala.
- **Ahupua'a.** Ahupua'a is a Hawai'iian term for a large traditional socioeconomic, geologic, and climatic subdivision of land. While the Ahupua'a weren't explicitly used in this review process, their use is apparent in the 2005 LUPAG in many instances. For example, north of Hilo the Ahupua'a boundary provides the boundary between areas classified for Low Density Urban and the Important Agriculture Lands. This distinction was maintained in the revised future land use.
- **Department of Hawai'i Home Lands (DHHL).** The DHHL oversees management of the lands held in trust for Native Hawai'ians by the State of Hawai'i. The DHHL maintains a separate land planning process for areas under its jurisdiction. Its plans were reviewed and incorporated

where applicable into the LUPAG updates, in particular where the DHHL has near-term plans to develop housing (e.g., Lālāmilo near Waimea).

- **Development Projects.** The CoH planning staff maintains a list of land development and master plan projects that are approved and/or under construction. During the development of the Trend Scenario, CoH staff identified a set of development projects that were deemed likely to occur called pipeline projects. The pipeline projects were divided into two groups. Group one consists of two projects, Kamakana Villages and Kealakehe Homesteads, which are very likely to develop or are in the process of development. The second group includes five projects that are less advanced in the planning process but have greater than average chances of developing. These projects are documented in the Trend Allocation Technical Report and in the Evolution of Scenarios Technical Report. Also reviewed are cases where a property includes approved master plans such as Lili'uokalani Trust Master Plan and Parker Ranch Master Plan. Where county planning staff felt an update was appropriate, LUPAG designations were assigned (e.g., low density urban) to reflect these development projects and plans as a part of the update process.
- **Parks and Protected Areas.** The most recent data showing the county park system was incorporated as necessary to show additions to the county's system of protected and recreation areas.

Spatial locations in the form of GIS data was obtained for all of these sources. The editing process itself involved comparing the CDP land use designations against the existing LUPAG. The LUPAG boundaries were then adjusted to reflect the intent of the CDPs. While this process was underway, LUPAG was also compared against the additional data sources described above. For example, if the SLU was used to refine boundaries in the Waimea area, both adding and subtracting areas designated as Low Density Urban..

Updating the LUPAG Categories

A second round of update to the LUPAG introduced an updated land use category system. This category system is intended to replace LUPAG while keeping many of the same concepts. The new land use category system was developed by CoH long-range planning staff and provided to the consultant. The new land use categories are described below.

Proposed Future Land Use Designation	Description
High Density	General commercial, multiple family residential and related services (36 to 60 units per acre).
Medium Density	Village and neighborhood commercial and single family and multiple family residential and related functions (7 to 35 units per acre).
Low Density	Residential, with ancillary community and public uses, and neighborhood and convenience-type commercial uses; overall residential density may be up to six units per acre.
Light Industrial	Uses in this category include, but are not limited to, business parks, research and development centers, product assembly, distribution centers, laboratories, cottage industries, and light service industrial uses.

Heavy Industrial	Uses in this category include, but are not limited to, landfills, quarries, chemical plants, heavy equipment baseyards, towing yards, and other uses with the potential to create public nuisance conditions (e.g., noise, environmental impacts).
University	Public university, including ancillary public uses, residential, and support commercial uses.
Resort	These areas include a mix of visitor-related uses such as hotels, condominium-hotels (condominiums developed and/or operated as hotels), single family and multiple family residential units, golf courses and other typical resort recreational facilities, resort commercial complexes and other support services.
Rural	Areas are situated outside of the urban growth areas. Except where noted, these areas should retain their rural character with low density residential development, supporting small scale commercial development, and agricultural land uses. Rural areas should not be targeted with the development of major public infrastructure or the extension of public sewer service except where a documented health, safety, and/or welfare condition warrants such an expansion. (1/2 to 5-acre lot sizes)
Productive Agricultural	Productive agricultural lands are those with better potential for sustained high agricultural yields because of soil type, climate, topography, or other factors. (5-acre minimum lot size) Productive agricultural lands were determined by including the following lands: • Lands identified as “Important Agricultural Lands” on the 2005 General Plan Land Use Pattern Allocation Guide maps. • Lands identified in the Agricultural Lands of Importance to the State of Hawai’i (ALISH) classification system as “Prime” or “Unique”. • Lands classified by the Land Study Bureau’s Soil Survey Report as Class B “Good” soils. (There are no Class A lands on the Island of Hawai’i) Lands classified as at least “fair” for two or more crops, on an irrigated basis, by the USDA Natural Resource Conservation Service’s study of suitability for various crops. • In North and South Kona, the “coffee belt”, a continuous band defined by elevation, according to input from area farmers. • State agricultural parks.
Pastoral	Includes lands that are not capable of producing sustained, high agricultural yields without the intensive application of modern farming methods and technologies due to certain physical constraints such as soil composition, slope, machine tillability and climate. These lands are better suited for other less intensive agricultural uses such as grazing and pasture. (40-acre minimum lot size)
Natural Area	Lands not considered suitable for productive agriculture; areas to be kept in a largely natural state with minimal facilities consistent with open space uses. Includes areas vulnerable to natural hazards, steep slopes, lava fields, and areas set aside for cultural and/or natural resource preservation purposes.
Conservation	Forest and water reserves, natural and scientific preserves, areas in active management for conservation purposes, areas to be kept in a largely natural state with minimal facilities consistent with open space uses, such as picnic

	pavilions and comfort stations, and lands within the State Land Use Conservation District.
Recreational Area	Parks and other recreational areas, such as golf courses, historic sites, and shoreline setback areas.

The following chart illustrates the conversion of the LUPAG designations to the proposed future land use types. At left the chart divides the County into areas within and outside of the proposed Urban Growth Boundaries and includes the State Land Use designations which form the framework of the land use policy system. The existing LUPAG designations are contrasted against the proposed future land use designations and comments are provided to illustrate how and where categories are applied.

Urban Growth Boundary	State Land Use	Existing LUPAG Designation	Proposed Future Land Use	Comment
Inside Growth Area	Urban	High Density Urban	High Density Urban	Only exists within Urban Service Areas
		Medium Density Urban	Medium Density Urban	Mostly confined to Urban Growth Areas
		Low Density Urban, Urban Expansion	Low Density Urban	Mostly confined to Urban Growth Areas
		Industrial	Light Industrial	Uses ML, MCX zoning districts to distinguish the Light Industrial class
			Heavy Industrial	Uses MG zoning districts to distinguish the Light Industrial class
		University	University	No change
Outside Growth Area	Rural	Resort Area, Resort Node	Resort	Two resort designations become one.
		Rural, Urban Expansion	Rural	Urban Expansion areas become Rural outside of urban growth area. Inside Growth Boundary become Low Density Urban.
	Agriculture	Important Agricultural Land, Orchard	Productive Agricultural	Use LUPAG Important Agricultural Lands designation. The LUPAG Orchard class becomes productive agriculture.
		Extensive Agriculture, Orchard	Pastoral	Pastoral uses a 2015 University of Hawai'i agricultural classification for pasture areas, removing areas classified as Important Agricultural Lands which become Productive Agricultural
	Conservation	Conservation	Conservation	Keeps existing areas and includes all State Land Use conservation
		Extensive Agriculture, Open	Natural Area	Includes any Extensive Agriculture areas that are not included in other designations. Includes Urban Expansion areas outside of the Urban Growth Boundaries.

	Others	Open	Recreational Area	Recreation includes a 300-foot buffer from the coastline. Other areas classified as Open in LUPAG revert to nearest land use classification. Recreation also includes any county, state and national park unless it is already designated conservation.
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Additional Refinements to Future Land Use

A third round of revisions updated the proposed future land use categories based on the proposed urban growth boundaries, urban service areas and areas impacted by lava in recent volcanic eruptions in the Puna District.

Proposed Urban Growth Area Boundaries

Urban growth area boundaries represent an attempt to manage urban growth, orienting future urban development to suitable areas inside the boundary and encouraging areas outside the boundary to be used for agriculture, rural use or preserved in their natural state. Urban growth areas were developed using the CDP future land use maps, interpreting where urban growth is intended to occur where the CDP shows a clear desire to encourage urban development. Where the CDPs were not clear or not available (as, "Priority Development Zones" were used to guide the development of urban growth boundaries. These areas were developed by the consultant and CoH planning staff during the technical studies phase of the comprehensive plan review. The Priority Development Zones used a set of criteria and a scoring system that was based on the existing zoning and land use, housing types, road density, and the presence of utilities and public facilities such as schools or parks. A complete description of the priority development zones can be found in the Alternative Scenarios Technical Report. The land use designations that imply the most urban uses (low, medium, high density urban; light and heavy industrial; university and resort) fall within the urban growth area boundaries. The rural designation which allows some development falls outside the urban growth area boundaries.

Urban Service Areas

The Urban Services Areas are locations where utilities, services and transportation networks exist to support denser urban growth. Key inputs to the Urban Services Areas are the county's water and sewer distribution networks which are the most limited in distribution. While most of the county's water and sewer services are delivered by the county government, a substantial portion of these services on the leeward side of the island are privately owned and managed, such as the Waikoloa area. A best effort was made to include these private infrastructure systems in the Urban Services Areas. The intent of the Urban Services Areas is to signal where higher density urban development would be appropriate because the existing utilities are present to support that higher density. Urban development can occur outside the Urban Service Areas, but at a lower density because one or more utilities are absent. The land use designations for high density urban is entirely within the Urban Services Areas; most resort areas are also confined to Urban Services Areas.

Puna Volcanic Area

An 18,387 acre area in the eastern district of Puna that was affected by the Kilauea volcanic eruption is being addressed in a separate long-term recovery plan. No future land use designations were suggested for this area at this time and maps delivered to the CoH by the consultant used the designation of "pending" to describe this area.

Results

During the entire course of the update process, each edit to the LUPAG map greater than one acre was noted. Edits to the LUPAG feature layer in the GIS data have a comment field that records the type of change and the source. For example, if the CDP class differed from the LUPAG class, the rationale, source (e.g. Kona Community Development Plan) and conversion (e.g., low density urban to medium density urban) were recorded. Two phases of comments are noted. The first documenting the incorporation of the CDP data and the second documenting changes that were done during the category updates. Merging GIS layers together typically creates many thousands of minor changes. Generally, edits smaller than an acre were not recorded in the database. This process also created remnant GIS errors that should be corrected for the final product.

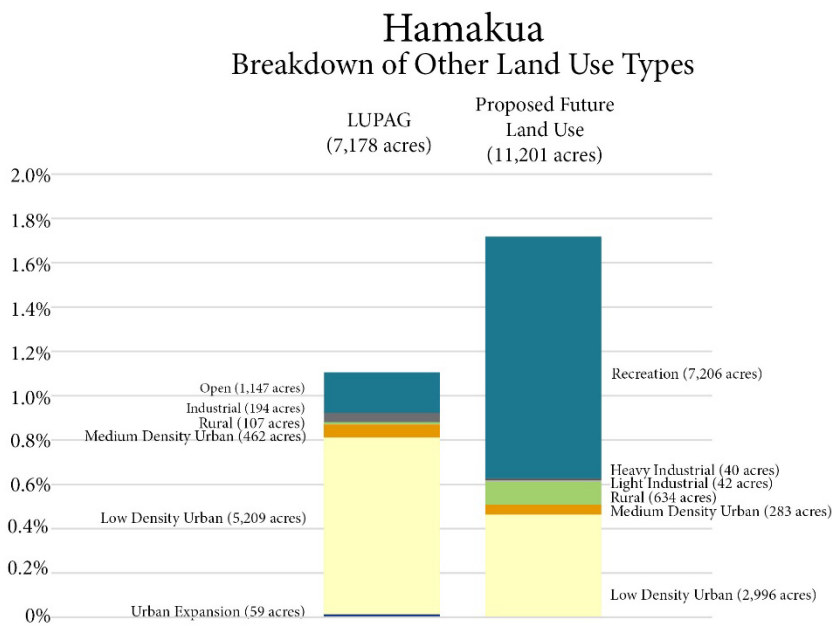
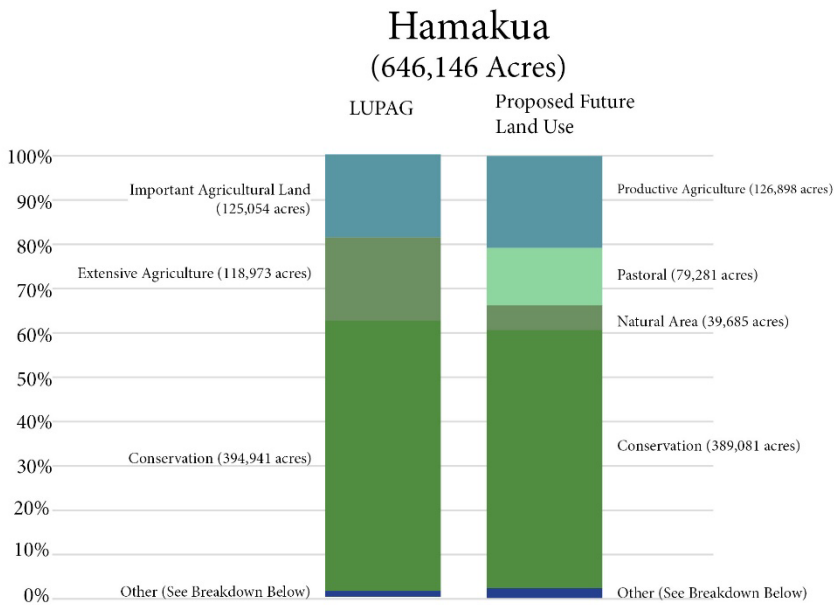
The image below provides a glimpse of the attribute table created during the revision process. The table was structured so that any change to the LUPAG could be tracked and a rationale understood. The table uses a combination of codes (e.g., ind) and definitions (e.g., industrial) to track land use designations. A comments field notes the source and reason for a particular change. For example, the top record shows where LUPAG Urban Expansion is converted to Low Density Urban, conforming with the Kahului Puapua Village Transit Oriented Design (TOD) Center (a feature from the Kona CDP). As described above, the table shows two phases of edits: the incorporation of the CDPs (and supporting information) and the incorporation of the new future land use category system and accompanying edits. A metadata document (including as an appendix) was developed so that each attribute and any specific terminology were defined.

	CLASS	CLASS_DEF	CDP_CLASS	CDP_CLASS_DEF	CDP_COMMENTS	CAT_CLASS	CAT_CLASS_DEF	CAT_COMMENTS	District
	ue	urban expansion	ldu	Low Density Urban	Kahului Puapua Village TOD Center LDU	ldu	Low Density Residential	<Null>	Kona
	ue	urban expansion	ldu	Low Density Urban	Kahului Puapua Village TOD Center LDU	ldu	Low Density Residential	<Null>	Kona
	ind	industrial	lal	Important Agricultural Land	Industrial area to lal, conforming to neighborhood and par	prag	Productive Agriculture	LUPAG lal to productive agriculture category	North Kohala
	ind	industrial	lal	Important Agricultural Land	Industrial area to lal, conforming to neighborhood and par	prag	Productive Agriculture	LUPAG lal to productive agriculture category	North Kohala
	ind	industrial	ind	Industrial	ind, some ope to ind, conforming to Kawaihae Area Plan	hind	Heavy Industrial	ind to Heavy Industry, per MG zoning	South Kohala
	ind	industrial	ope	Open	ind to ope, conforming to Waikoloa Area Conceptual Plan	nat	Natural Area	ope to nat, not proximate to coastline, little overlap with parks or SLU C	South Kohala
	ind	industrial	ope	Open	ind to ope, conforming to Kawaihae Area Plan	rur	Rural	To Rural, otherwise ope to nat, not proximate to coastline, little overlap with parks or SLU C	South Kohala
	ind	industrial	ope	Open	ind to ope, conforming to Banyan Dr Concept Plan	nat	Natural Area	ope to nat, not proximate to coastline, little overlap with parks or SLU C	Hilo
	ind	industrial	ope	Open	ind to ope, conforming to Banyan Dr Concept Plan	nat	Natural Area	ope to nat, not proximate to coastline, little overlap with parks or SLU C	Hilo
	ind	industrial	ope	Open	ind to ope, conforming to Banyan Dr Concept Plan	nat	Natural Area	ope to nat, not proximate to coastline, little overlap with parks or SLU C	Hilo
	ind	industrial	mdu	Medium Density Urban	ind to mdu, reflecting present mix of uses, Makaeo Villag	mdu	Medium Density Residential	<Null>	Kona
	ind	industrial	mdu	Medium Density Urban	ind to mdu, reflecting present mix of uses, Makaeo Villag	rec	Recreation	To recreation, conforming to county parks layer	Kona
	ind	industrial	mdu	Medium Density Urban	ind to mdu, conforming to Waikoloa Area Conceptual Plan	mdu	Medium Density Residential	<Null>	South Kohala
	ind	industrial	mdu	Medium Density Urban	ind to mdu, commercial, per Banyan Dr Concept Plan	mdu	Medium Density Residential	<Null>	Hilo
	ind	industrial	ldu	Low Density Urban	ind to ldu, per Hamakua CDP, see Bethany Morrison note	ldu	Low Density Residential	<Null>	Hamakua
	ind	industrial	ind	Industrial	ind to ind, conforming to airport parcel boundary	ind	Light Industrial	ind to Light Industry, absent MG zoning	South Kohala

The following charts illustrate the changes made to the LUPAG and proposed future land use classes. For purposes of visualization, the charts split the classifications into two groups. Each district has its own graph with the County wide totals following.

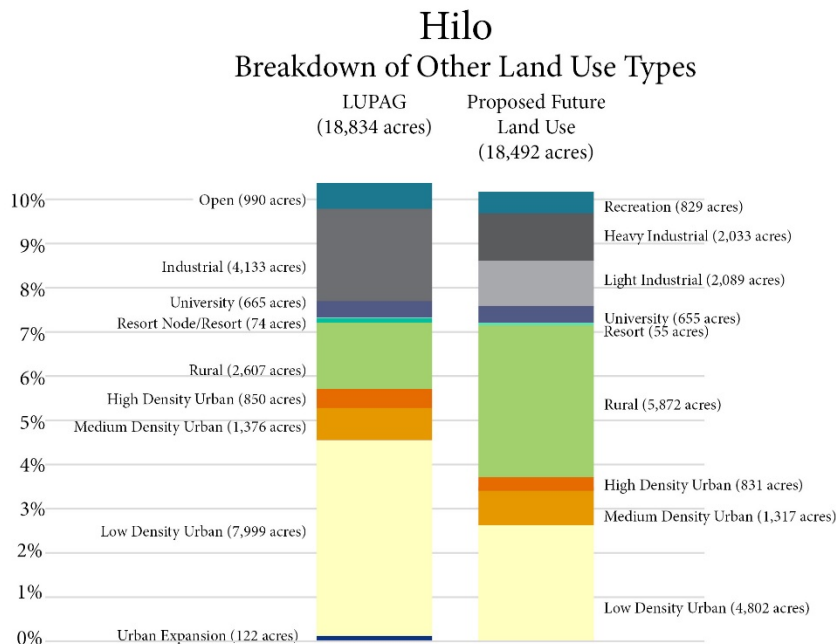
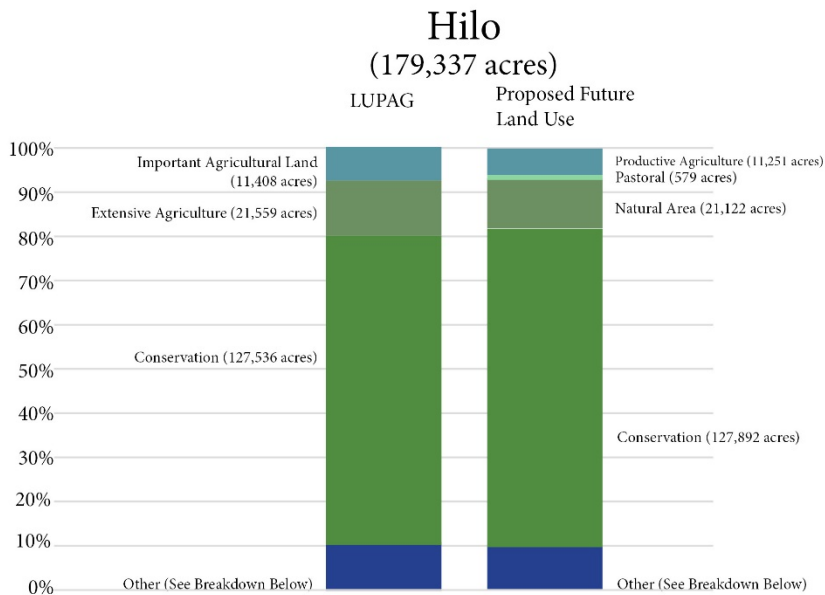
Hamakua

In Hamakua, the amount of area dedicated to urban uses drops significantly. Most of this is due to the decrease in Low Density Urban designation but Medium Density Urban also decreases significantly. The areas classified as Rural increases slightly while areas classified as Recreation increases dramatically, mostly due to the inclusion of the 7,000 acre Mauna Kea State Recreation Area.



Hilo

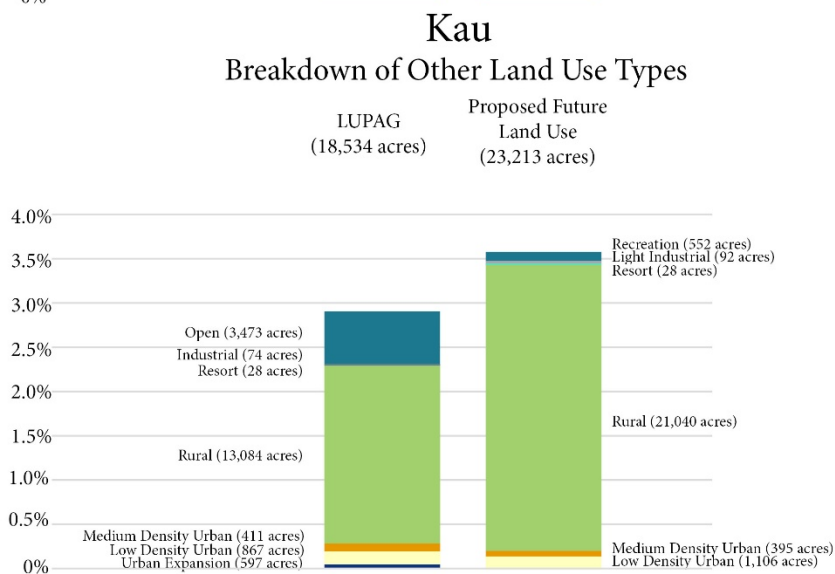
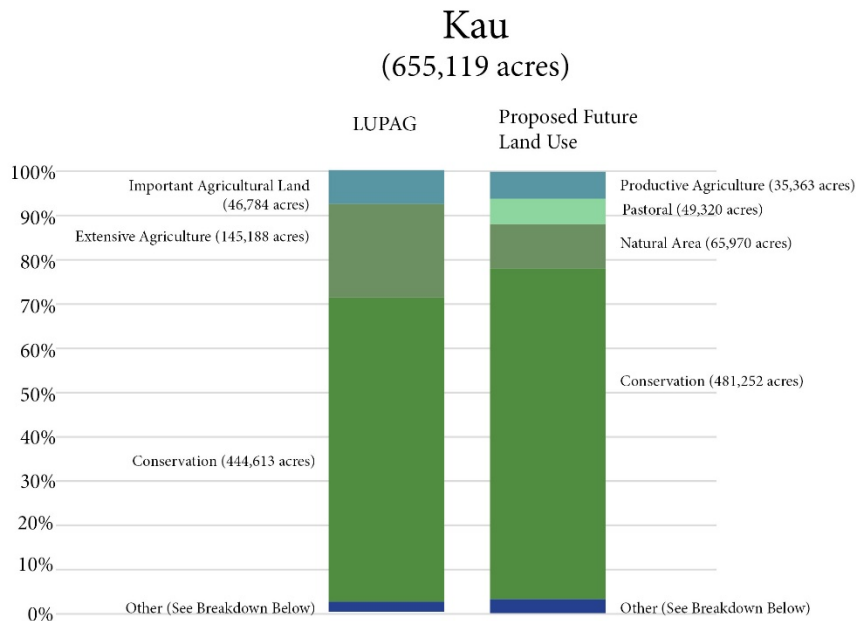
In Hilo district large areas that LUPAG had classified as Low Density Residential become Rural. This is largely due to the application of the Urban Growth Area Boundary and policies to reduce urban density outside of it. Urban Areas dedicated to Industrial uses increase slightly while areas High and Medium Density areas decrease slightly.



Kau

Kau makes a number of land use shifts under the proposed designations. Significantly, the CDP expanded the Rural designation to the existing subdivisions south of the Ocean View area. These areas had previously been classified as Extensive Agriculture in LUPAG but as residential subdivisions, the

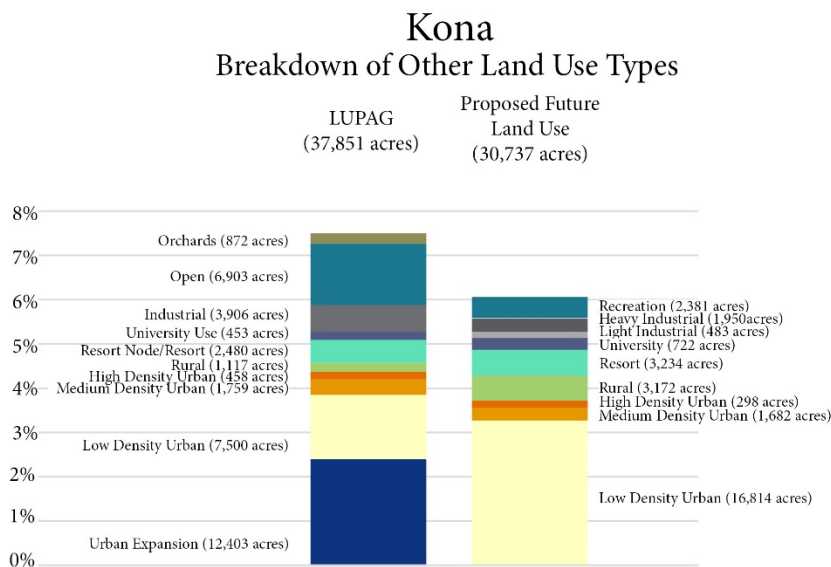
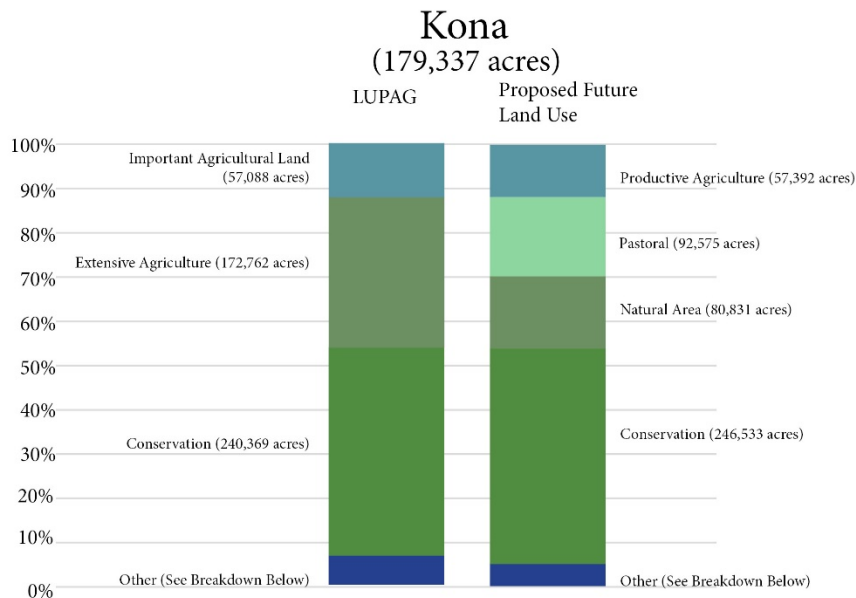
CDP likely felt that the current use was more appropriately described as rural residential than agriculture.



Kona

In Kona, most areas classified as Urban Expansion under LUPAG are converted to Low Density Residential, falling within the Districts Urban Growth Boundaries. Industrial areas, High and Medium

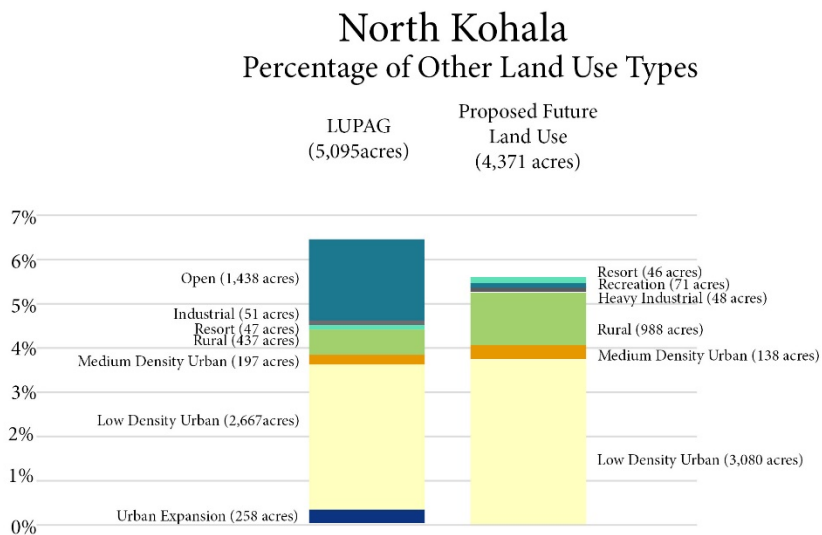
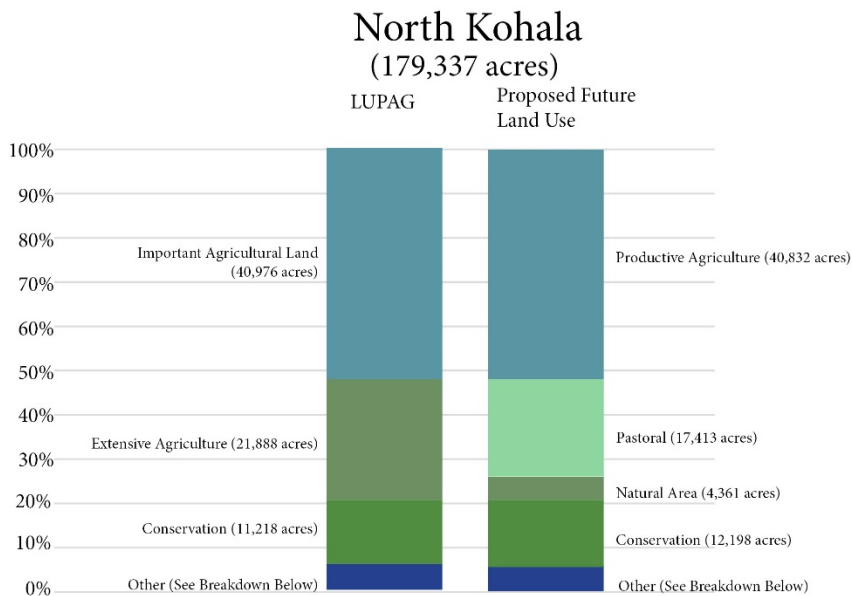
Density Urban decrease slightly while Resort and Rural classifications increase modestly. Areas classified as Open under LUPAG become Recreation, Resort, and Natural Area.



North Kohala

In North Kohala, the Open category becomes a mix of Rural, Recreation and other non-urban uses. Low Density Urban and Rural increase slightly in the proposed future land use. The North Kohala CDP

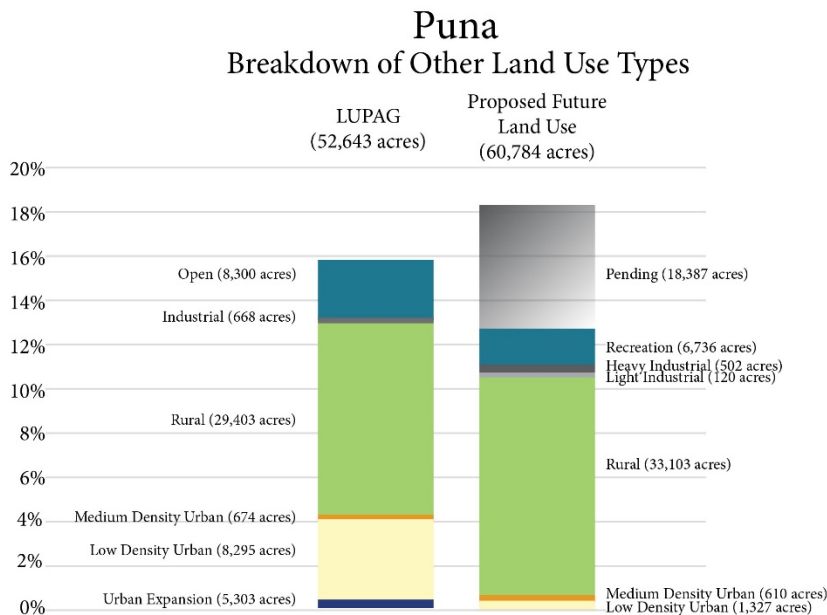
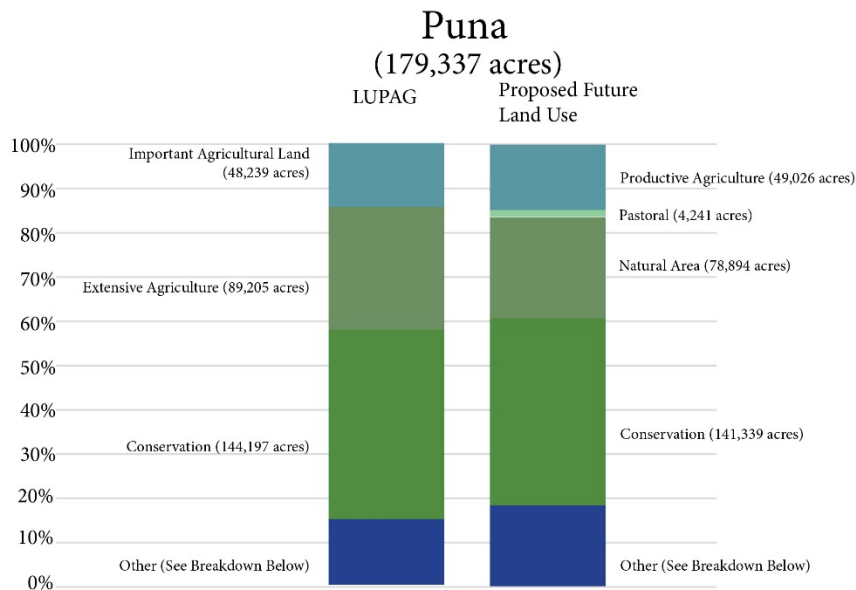
focused on village center areas such as Hawi and Kapaau. In other areas of North Kohala, concepts from 2005 LUPAG were maintained.



Puna

In LUPAG, Puna had a number of Urban Expansion areas that in the proposed system are largely converted to Natural Area and Productive Agriculture. Smaller areas of Urban Expansion near Kea'au are converted to Low Density Urban. Areas classified as Low Density Urban in LUPAG are significantly

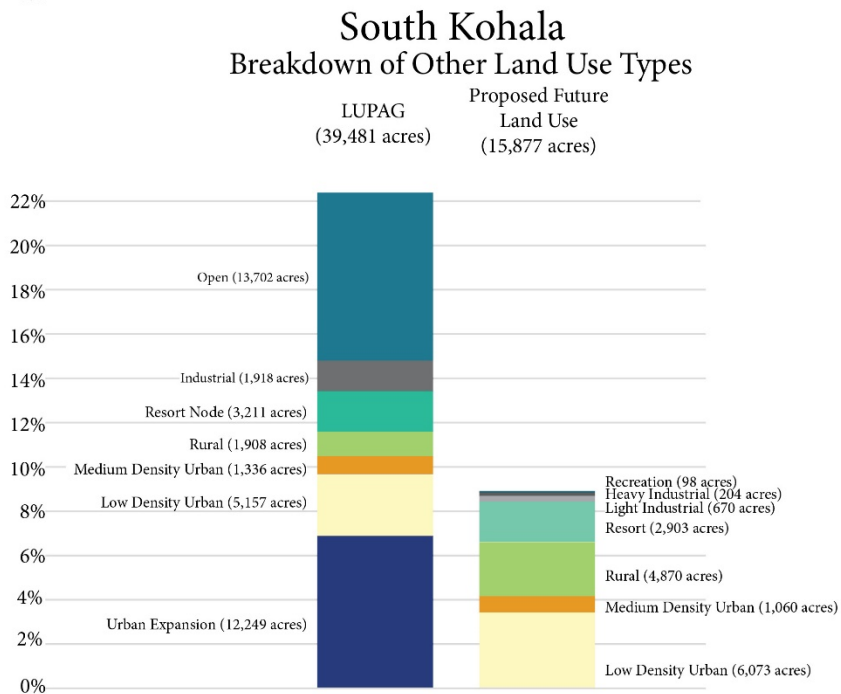
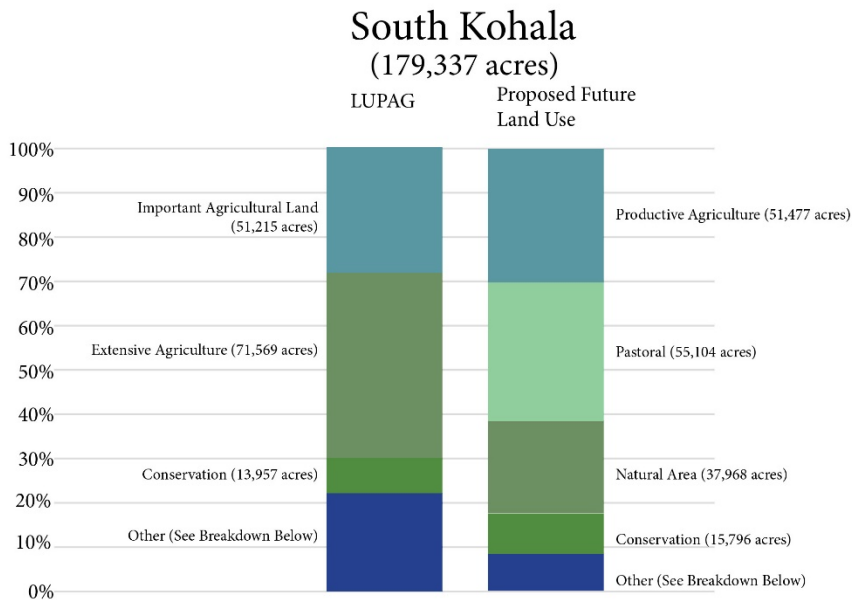
reduced; most of these areas are reclassified as Rural, Natural Area and Productive Agriculture. Areas designated as Rural in LUPAG increase slightly under the proposed future land use. An 18,000-acre area in eastern Puna district that was affected by the Kilauea volcanic eruption remains pending to be addressed in a separate long-term recovery plan.



South Kohala

In South Kohala, large areas designated Urban Expansion near Waikoloa and the coastal resorts become Natural Area, Pastoral, Rural and Low Density Urban. Areas designated as Urban Expansion

within the Waimea Urban Growth Boundary become Low Density Urban. Open primarily becomes Natural Area and Conservation, with a mix of other designations depending on the location.



County Totals

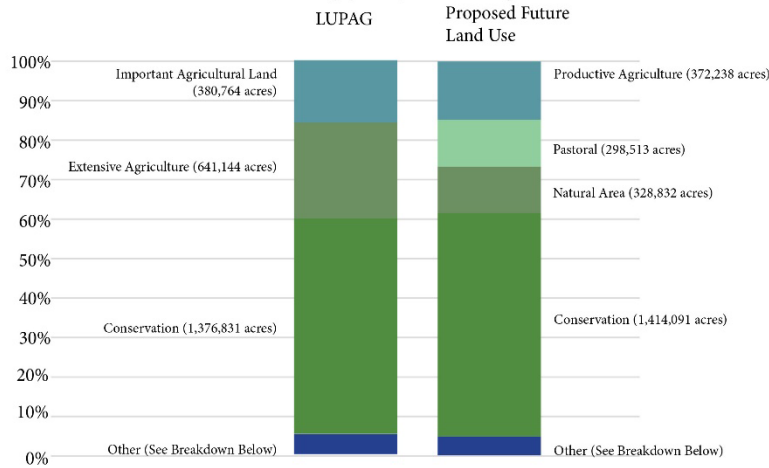
Overall the removal of the LUPAG Urban Expansion and Open categories present the largest changes for the county. As noted in the sections above, areas classified as Urban Expansion in LUPAG are largely reclassified depending on where these areas fall relative to the proposed Urban Growth Area

Boundary. Open areas mostly convert to Recreation however, depending on the existing land use and direction from the CDPs, these areas convert into other uses as well.

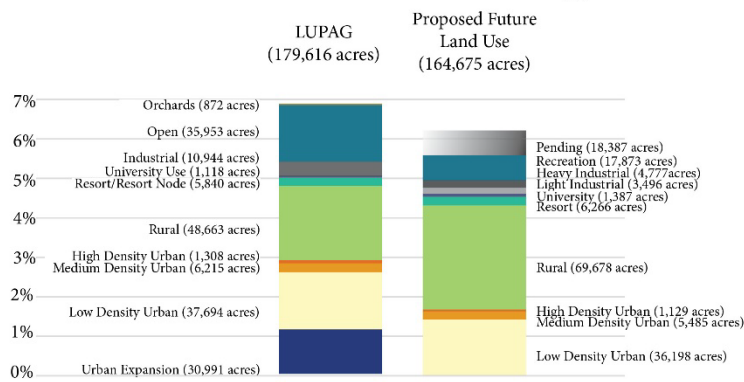
As the proposed land use system works to implement the Urban Growth Area Boundaries, strategically placed areas of medium and low density residential in particular should develop accordingly to meet the needs of the County. Areas classified as Rural increase under the proposed plan and while most Rural areas exist outside of the Urban Growth Area Boundaries, significant residential growth has historically occurred in these areas and may continue to do so without additional policy mechanisms to reverse this trend.

Another issue that arose during the revision process was the discrepancies between areas that were classified as Low Density Urban (in particular) and areas that were classified as Agriculture under the State Land Use system. This was particularly common in North Kona where the CDP focused on a handful of growth nodes but didn't provide explicit guidance regarding what the intended land use should be elsewhere (in particular, where future growth should be discouraged). When the County's land use and the State Land Use systems disagree about the fundamental use of the land this creates uncertainty and confusion for landowners, neighbors and other community members. In other areas such as Waimea, the State Land Use Urban classification was used to better align where the County's Low Density Urban designation would be applied.

County of Hawaii (2,578,349 acres)



County of Hawaii Breakdown of Other Land Use Types



Appendix 1

Hawaii Draft General Plan Future Land Use Map Metadata.

The present document is a metadata (description of data) that accompanies an ArcGIS map package (.pmf) file which is available to open for users of ArcReader, a free ArcGIS tool.

<https://www.esri.com/en-us/arcgis/products/arcreader>

Below are descriptions of key attributes.

Draft GP Future Land Use

This layer shows draft updates to the 2005 General Plan Land Use Pattern Allocation Guide (LUPAG). Updates to the future land use designations is one component of the county's general plan comprehensive review. For more information on this process see: <http://www.hiplanningdept.com/general-plan/general-plan-comprehensive-review/>

Several rounds of updating are contained in this layer. The first round involved the incorporation of the Community Development Plans (CDP) for Puna, Hamakua, North Kohala, South Kohala, Kona, and Kau. Hilo does not have a CDP but information from the Banyan Drive Concept Plan was incorporated. The CDP updates to the LUPAG used the same category system as LUPAG but interpreted the intent and vision of the CDPs whenever possible. This round of changes is recorded in the attribute table with a "CDP_" designation.

A second round of updating introduced an updated category system and set about updating the future land use designations based on updated state land use districts, proposed urban growth boundaries, urban service areas and areas impacted by lava in recent volcanic eruptions in the Puna District. This second round of updates is recorded in the attribute table with a "CAT_" designation and this is the attribute information symbolized in the map package for review.

Key Attributes

CLASS: The LUPAG future land use designation, as a three-letter code. See description of the LUPAG layer below for more information.

CLASS_DEF: The LUPAG future land use designation, defined.

CDP_CLASS: The three letter LUPAG class designation adjusted where appropriate, based on input from the Community Development Plans (CDPs). The CDP class uses the same LUPAG category system.

CDP_CLASS_DEF: The CDP_CLASS definition.

CDP_COMMENTS: If the CDP class differs from the LUPAG class, the rationale, source (e.g. Kona Community Development Plan) and conversion (e.g., ldr to mdu) are recorded here.

CAT_CLASS: The three letter CDP_CLASS designation adjusted where appropriate, based on County of Hawaii suggested category changes and other general updates to the LUPAG.

CAT_CLASS_DEF: The CAT_CLASS definition.