

# Agricultural Resource Lands in Hawaii

Abbey Seth Mayer  
State of Hawaii, Office of Planning

Hawaii Biomass and Bioenergy Workshop  
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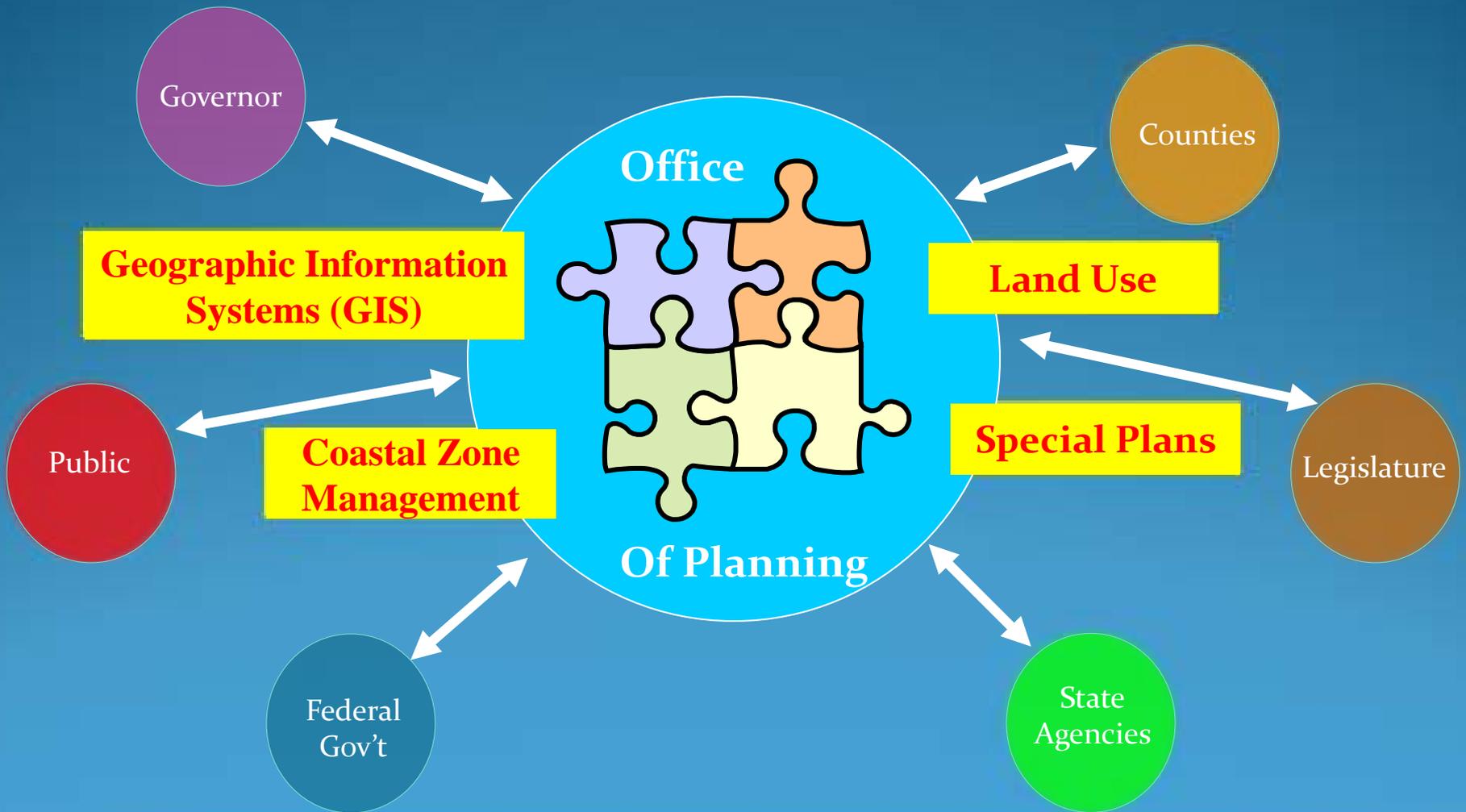
# Chapter 225M, HRS

## Office of Planning

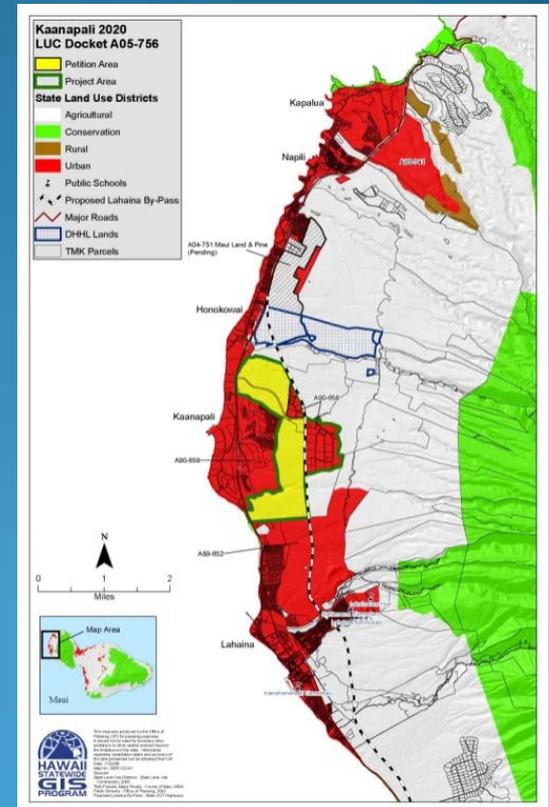
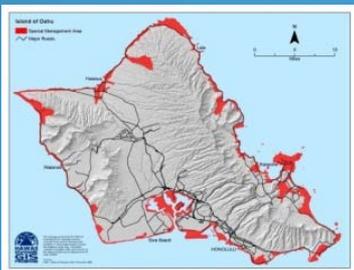
### Functions

- Comprehensive, strategic, regional planning
- Facilitate coordinated planning
- Land use
- Ocean and coastal zone management
- Geographic Information System (GIS)

# State Office of Planning



# Combination of Planning and Regulatory Functions



# Agricultural Resource Lands Mapping Project

## Need & Approach

- Mapping of Important Agricultural Lands (IAL) statewide is still long way off
- Need for (interim?) guidance for State land use policy & investment decisions on strategic land protection for long-term food and energy security
- Approach taken: Identify best soils & lands with agricultural resource value statewide that would constitute long-term ag land base

# Agricultural Resource Lands Mapping Project

## Mapping of Agricultural Resource Lands

- Started by mapping lands within the State Agricultural Land Use District that have been identified as having the high resource value under one or more agricultural rating systems developed for Hawai'i

# Agricultural Resource Lands Mapping Project

## Agricultural Rating Systems Used

- **Agricultural Lands of Importance to the State of Hawai'i (ALISH), DOA, 1977**
  - Prime, Unique, or Other Important Agricultural Land
- **Land Study Bureau (LSB), UH, 1972**
  - A, B, or C overall master productivity rating
- **USDA Soil Survey, USDA-NRCS, 2003**
  - Capability Classes I-IV
  - Prime farmland & prime if irrigated, drained, or managed
- **State Land Evaluation & Site Assessment (LESA) Commission, 1988**
  - Important Agricultural Land (LE component)

# Agricultural Resource Lands Mapping Project

## Prime, Unique or Other Important Ag Lands, ALISH, DOA, 1977

- Prime
  - Soils with best physical, chemical, & climatic properties for mechanized field crops
  - Excludes built-up land/urban, water bodies
- Unique
  - Land other than prime for unique high-value crops--coffee, taro, watercress, etc.
- Other important agricultural lands
  - State or local important lands for production, not prime or unique; needing irrigation or requiring commercial production or management
- ALISH Statewide: 846,363 acres (estimate)

# Agricultural Resource Lands Mapping Project

## A, B, or C overall master productivity rating, LSB, UH, 1972

- Developed concurrently with USDA soil survey
- Soils grouped into land types based on soil & productive capabilities
- Overall Productivity Rating -“A”, very good to “E”, not suitable
- LSB A-C Statewide: 447,250 acres (estimate)

# Agricultural Resource Lands Mapping Project

## Land Capability Classification (LCC) I-IV, USDA-NRCS, 2003

- Based on Statewide USDA & UH soil surveys  
(Soil data used by all 5 systems)
- Agricultural suitability as limited by soil & climatic conditions  
(System favors mainland field crop & mechanization)
- 8 Classes I-VIII, best to worse - Effective cutoff = Class IV
- LCC I, II & III Statewide: 381,609 acres (estimate)

# Agricultural Resource Lands Mapping Project

## Prime Farmland & Irrigated/Drained/Managed Prime Farmland, USDA-NRCS, 2003

- Derived from NRCS Soils Data
- Select soils categorized as Prime Farmland or Prime Farmland if: irrigated, drained, protected from flooding, or not frequently flooded during growing season
- Prime Farmland Statewide: 527,280 acres (estimate)

# Agricultural Resource Lands Mapping Project

## Important Agricultural Land, LESA Commission, 1988

- State of Hawaii Land Evaluation & Site Assessment Commission established by Legislature in 1983, to develop standards & criteria for identifying important agricultural lands, inventory of important agricultural lands
- Three Components:
  - Land evaluation (LE) - physical properties (e.g. soils, topography, climate)
  - Site assessment (SA) - non-physical properties (e.g. location, land use)
  - Agricultural production goals – to determine acreage needed for crops
- Only LE factors mapped and digitized
- LESA IAL Statewide: 759,534 acres

# Agricultural Resource Lands Mapping Project

## Baseline for Agricultural Resource Lands Maps

- Lands mapped based on high resource values under rating systems provided baseline maps for what OP terms 'Agricultural Resource Lands' (ARL)
- Lands traditionally or currently farmed that were not classified by the systems used may need to be reevaluated for inclusion in mapping
- County boundary amendments reclassifying land from the Agricultural District are not all accounted for

*Note: It is important to distinguish this ARL inventory from Important Agricultural Lands (IAL), as that system is legislatively established and exists independently. The IAL system has yet to prove itself capable of providing the necessary framework for protecting and preserving a base inventory of workable agricultural lands in the State.*

# Agricultural Resource Lands Mapping Project

## Refinement of ARL Maps

- Federal lands were also removed
- Lands contained within County Urban Growth Boundaries (UGB) or proposed UGBs were removed from the baseline ARL maps
  - Where County UGBs were absent, lands designated for urban use on County general or community development plans were removed

# Agricultural Resource Lands Mapping Project

## Refinement of ARL Maps

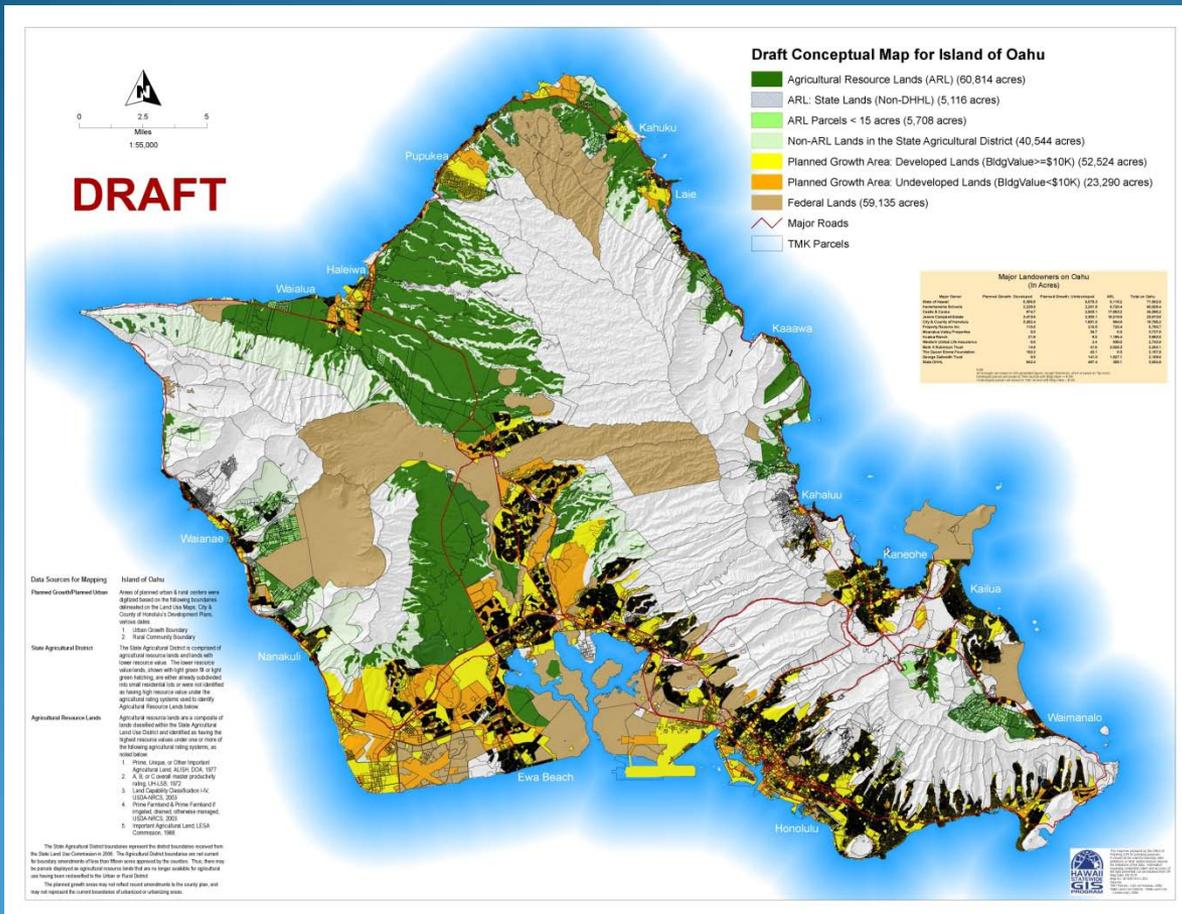
Ground-truthing of ARL baseline maps will be needed for the following types of lands:

1. Parcels of less than 15 acres – may already be developed with non-conforming ag or may lack economies of scale for sustainable agricultural operations.
2. State of Hawaii-owned ARL lands (Non-DHHL) – may be developed with non-agricultural uses.
3. DHHL lands were treated identically with other private landowners, and not visually distinguished on the maps, though the total number of acres in DHHL possession is listed on the maps' reference tables. (Adding this visual layer can be readily accomplished).
4. Information pertaining to water availability will need to be gathered/updated (e.g., infrastructure, water, permits, etc.).



# Agricultural Resource Lands Mapping: Island of Oahu

Total Oahu ARL Acres: 60,814



**Major Landowners on Oahu (In Acres)**

Major Owner	Planned Growth: Developed	Planned Growth: Undeveloped	ARL	Total on Oahu
State of Hawaii	6,305.6	5,079.3	5,116.2	71,502.8
Kamehameha Schools	2,225.9	2,201.9	8,726.4	50,026.4
Castle & Cooke	674.7	2,003.1	17,663.2	34,095.2
James Campbell Estate	3,473.8	2,302.1	10,218.0	23,913.6
City & County of Honolulu	3,262.4	1,691.0	684.8	18,795.2
Property Reserve Inc	110.6	218.6	720.4	5,758.7
State DHHL	642.4	487.4	306.1	3,524.9
Moanalua Valley Properties	0.0	34.7	0.0	3,327.8
Kualoa Ranch	21.9	9.3	1,195.4	3,692.0
Western United Life Assurance	0.0	2.4	835.0	2,742.9
Mark A Robinson Trust	14.5	41.8	2,029.3	2,282.1
The Queen Emma Foundation	192.2	42.1	0.0	2,157.9
George Galbraith Trust	0.0	141.0	1,927.1	2,109.5

**Note:**

- All acreages are based on GIS generated figures, except Total Acres, which is based on Tax Acres.
- Developed parcels are based on TMK records with Bldg Value > \$10K.
- Undeveloped parcels are based on TMK records with Bldg Value < \$10K.

# Agricultural Resource Lands Mapping: Islands of Molokai & Lanai

Total Molokai ARL Acres: 52,964



## Major Landowners on Molokai (In Acres)

Major Owner	Planned Growth: Developed	Planned Growth: Undeveloped	ARL	Total on Molokai
Molokai Ranch	396.4	386.9	19,477.2	44,926.1
State DHHL	71.1	42.8	14,562.5	24,745.0
State of Hawaii	187.8	60.4	1,720.4	24,196.4
Puu O Hoku Ranch	0.0	0.0	1,628.1	13,108.9
Molokai Acquisition	0.0	0.0	3,119.7	7,063.4
Kawela Plantation	0.0	4.1	218.8	5,523.5
Kamehameha Schools	0.0	0.0	657.9	4,936.7
George Brown	0.0	0.0	0.0	4,590.4
Molokai Properties	131.4	0.0	2,553.4	4,282.9

Note:  
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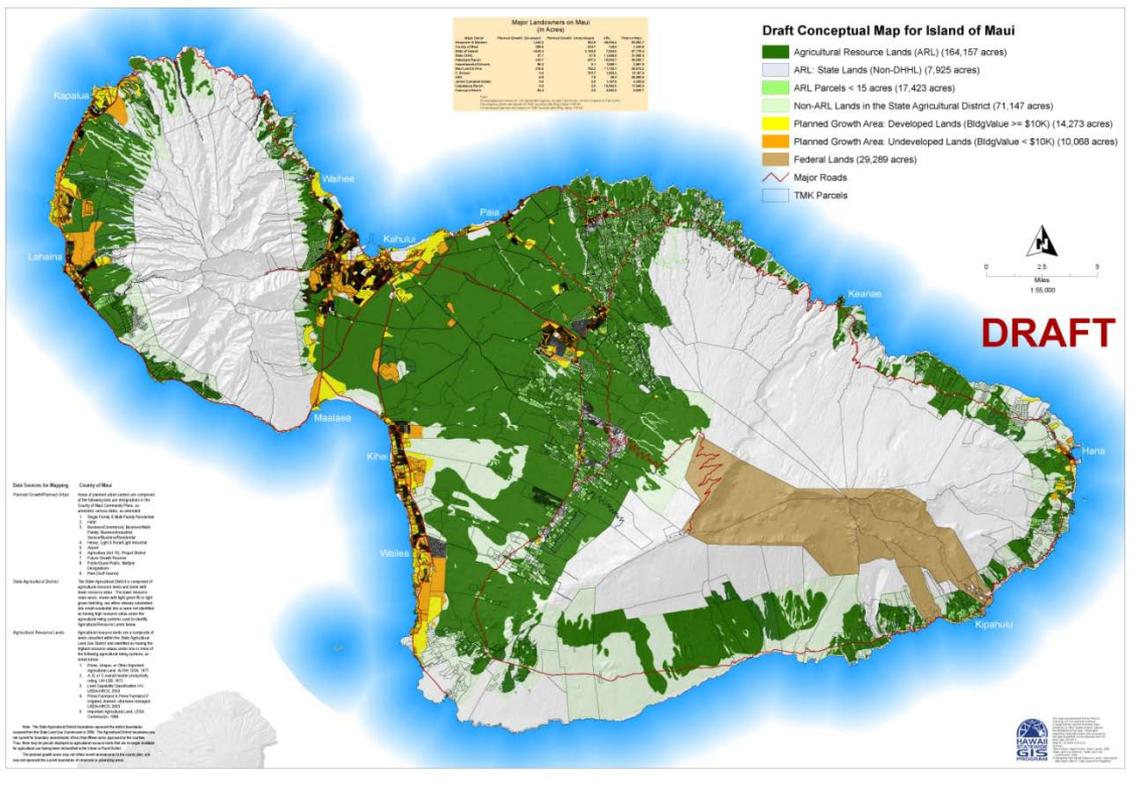
## Major Landowners on Lanai (In Acres)

Major Owner	Planned Growth: Developed	Planned Growth: Undeveloped	ARL	Total on Lanai
Castle & Cooke	1,337.6	442.1	25,820.1	89,244.3
State of Hawaii	494.1	0.0	0.0	512.7
County of Maui	51.8	111.1	3.1	171.9
State DHHL	0.0	47.2	0.0	47.2

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Total Lanai ARL Acres: 25,835

# Agricultural Resource Lands Mapping: Island of Maui



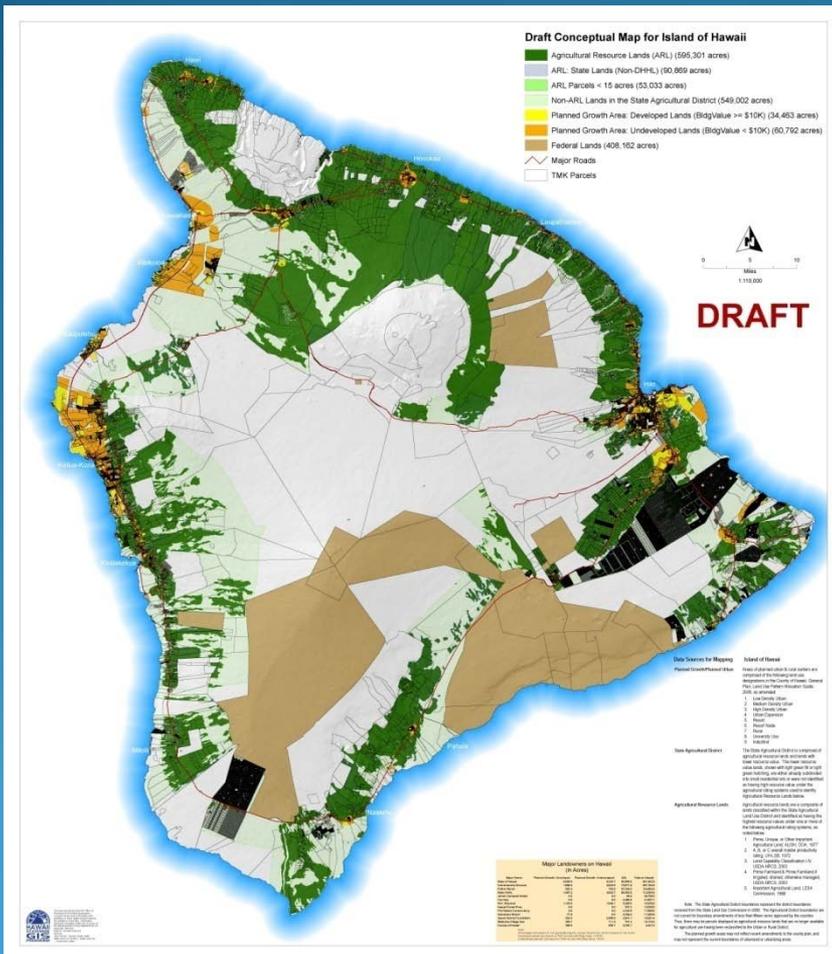
Total Maui ARL Acres: 164,157

Major Owner	Planned Growth: Developed	Planned Growth: Undeveloped	ARL	Total on Maui
Alexander & Baldwin	1,442.2	362.9	46,534.4	93,602.7
County of Maui	306.5	223.7	743.5	7,240.6
State of Hawaii	1,643.4	2,140.8	7,924.8	97,176.4
State DHHL	37.1	87.5	11,989.9	31,800.3
Halekalea Ranch	232.7	437.2	18,642.7	30,536.1
Kamehameha Schools	95.4	5.1	1,059.1	2,561.9
Maui Land & Pine	316.8	700.2	11,102.7	26,613.2
C. Brewer	0.0	763.7	1,903.2	13,167.9
USA	9.9	7.9	80.3	29,290.0
James Campbell Estate	0.0	0.0	1,157.5	4,253.9
Ulupalukua Ranch	0.0	0.0	10,362.5	17,940.0
Kaonoulu Ranch	64.4	0.0	4,552.8	8,526.7

Note:  
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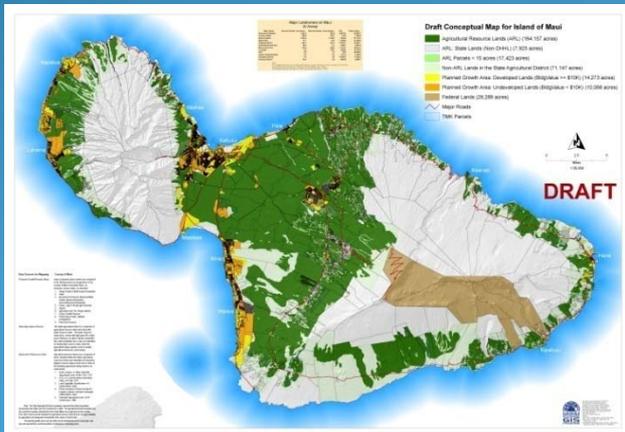
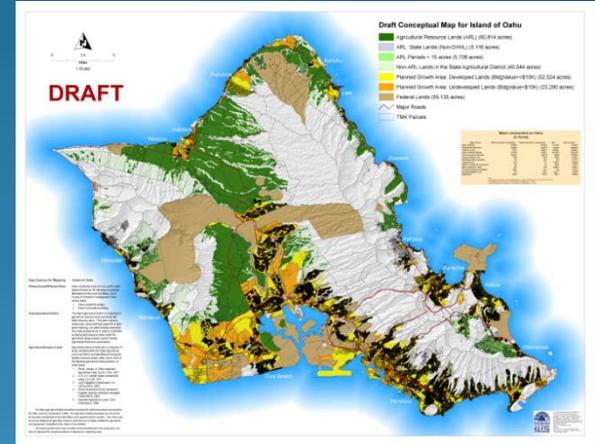
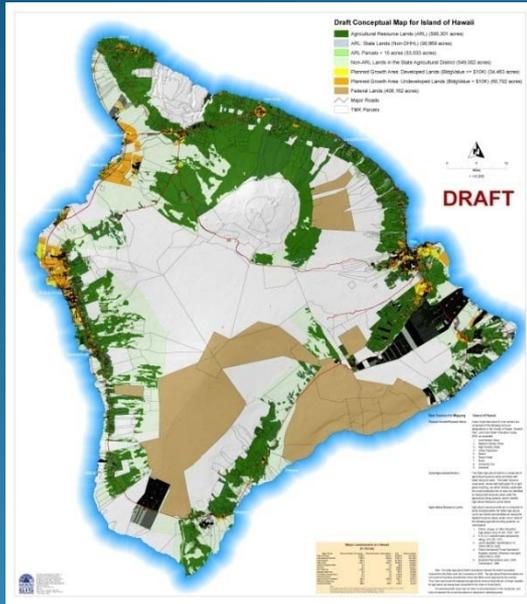
# Agricultural Resource Lands Mapping: Island of Hawaii

Total Island of Hawaii ARL Acres: 595,301



# Agricultural Resource Lands Mapping: Examples...

## Examples...



# Agricultural Resource Lands in Hawaii

MAHALO!

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