County of Kaua‘i
Water Use & Development Plan Update

Līhu‘e, Kaua‘i
August 29, 2023

Department of Water
County of Kaua‘i

Fukunaga & Associates, Inc.
Presentation Outline

- Background – Hawai‘i Water Plan
- WUDP Objective
- Key Tasks and Findings
- Timeline/Next Steps
Background - Legislative Mandate

- 1987 – Hawai‘i Water Code (HRS Chapter 174C)
- Protect Hawai‘i’s surface & ground water resources
- Established the Commission on Water Resource Management (CWRM)
- Developed the Hawai‘i Water Plan – “a long range planning guide for CWRM”
Hawai‘i Water Plan

Protection Policies
- Water Resource Protection Plan
  - CWRM
- Water Quality Plan
  - DOH

State Needs
- State Water Projects Plan
  - DLNR
- Agricultural Water Use and Development Plan
  - DOA

County-Wide Demands
- County Water Use and Development Plans

Land Use Consistency
County WUDP Objective

... to set forth the allocation of water to land use through the development of policies & strategies to guide the County in its planning, management and development of water resources to meet projected demands.
Key Goals

- Preserve integrity of the island’s water resources
- Direct water resources to the needs of the County
- Guide the management of the island’s water resources
- Integrate sustainable water resources into the formulation and development of land use policies by the County
AQUIFER SYSTEM AREA (ASYA) CHAPTER
ASYA Chapter

Sections:

- **System Area Profile**
- **Types of Water Resources**
- **Existing Water Use**
- **Projected Future Water Use**
- **Resource and Management Recommendations**
System Area Profile

- General background, including
  - Population and population projections
  - Land use (General Plan, Zoning)
  - Estimated community densities

<table>
<thead>
<tr>
<th>Table 2-2 Estimated Residential Community Densities</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASYA</td>
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<tr>
<td>-------</td>
</tr>
<tr>
<td>Kōloa</td>
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<td>Hanamā'ulu</td>
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<td>Wailua</td>
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<td>Anahola</td>
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<td>Kekāha</td>
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<td>Waimea</td>
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<td>Makaweli</td>
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<tr>
<td>Hanapēpē</td>
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</table>

<table>
<thead>
<tr>
<th>Table 2-3 Estimated Resort Densities</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASYA</td>
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<tr>
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<tr>
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<td>Hanapepe</td>
</tr>
</tbody>
</table>
ASYA Chapter

Sections:

- System Area Profile
- Types of Water Resources
- Existing Water Use
- Projected Future Water Use
- Resource and Management Recommendations
Types of Water Resources

- Ground Water
- Surface Water
- Rainwater Catchment
- Recycled Water
Existing Water Resources

- Ground Water
  - Sustainable Yield
  - Production Wells

Sustainable yield is the maximum rate at which water may be withdrawn from a water source without impairing the utility or quality of the water source, as determined by CWRM.
Water Resource Management

- Surface Water
  - Streams
  - Irrigation Systems
  - Diversions
  - Interim Instream Flow Standards
Types of Water Resources

- Rainwater Catchment
- Recycled Water
ASYA Chapter

Sections:

- System Area Profile
- Types of Water Resources
- Existing Water Use
- Projected Future Water Use
- Resource and Management Recommendations
Existing Water Uses

Table 20102-6: Existing Water Use by Category – Hanamā‘ulu ASYA

<table>
<thead>
<tr>
<th>CWRM Category</th>
<th>Groundwater (mgd)</th>
<th>Other Sources (mgd)</th>
<th>Total (mgd)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic</td>
<td>0.00</td>
<td></td>
<td>0.00</td>
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<tr>
<td>Industrial</td>
<td>0.003</td>
<td></td>
<td>0.00</td>
</tr>
<tr>
<td>Irrigation</td>
<td>0.24</td>
<td>1.35(^1)</td>
<td>1.59</td>
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<tr>
<td>Agriculture</td>
<td>0.00</td>
<td>TBD(^2)</td>
<td>0.00</td>
</tr>
<tr>
<td>Military</td>
<td></td>
<td></td>
<td>0.00</td>
</tr>
<tr>
<td>Municipal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DOW System</td>
<td>1.03</td>
<td>1.80(^3)</td>
<td>2.83</td>
</tr>
<tr>
<td>Private Public WS</td>
<td>0.00</td>
<td></td>
<td>0.00</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1.27</strong></td>
<td><strong>2.18</strong></td>
<td><strong>4.42</strong></td>
</tr>
</tbody>
</table>

\(^1\) Recycled Water  
\(^2\) Surface Water – TBD from AWUDP  
\(^3\) Surface Water – Estimated

Figure 20102-7: Existing Water Use by Category – Hanamā‘ulu ASYA

*Values to be determined by other components of the Hawai‘i Water Plan.*
20102 Hanamāʻulu – Existing Water Use by Category

**Diagam: 20102 Hanamāʻulu – Existing Water Use by Category**

- **Potable**
  - **Municipal:** DOW (SW) = 1.80, DOW (GW) = 1.03

- **Non-Potable**
  - **Irrigation:** SW = TBD
  - **Military:** RW = 1.35
  - **Agriculture:** GW = 0.24
  - **Agriculture:** GW = 0.00

*Values to be determined by other components of the Hawai‘i Water Plan*
ASYA Chapter

Sections:

- System Area Profile
- Types of Water Resources
- Existing Water Use
- Projected Future Water Use
- Resource and Management Recommendations

Assess land use plans and policies and future projected water demands
Projected Future Water Use

- Based on Full Build-Out Water Demands
  - Reviewed existing land use plans and policies
  - Conservative approach – assumes ALL land area developed to its theoretical maximum extent
  - Based on existing water system standards and allowable density
  - Focused on domestic, commercial and industrial demands and groundwater source availability
<table>
<thead>
<tr>
<th>SUSTAINABLE YIELD (WRPP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENERAL PLAN FULL BUILD-OUT SCENARIO</td>
</tr>
<tr>
<td>ZONING FULL BUILD-OUT SCENARIO</td>
</tr>
</tbody>
</table>

Less sensitive area
20102 Hanamāʻulu – Water Demand Projections and Full Build-Out

Note: Total existing demand includes municipal, domestic, industrial, military, and irrigation water uses. It does not include agriculture water use. For future agricultural water use analysis, please see Section 20102-4.1.1 County of Kauaʻi Important Agricultural Lands Study.
## Projected Future Water Use

### Projected Agricultural Water Use

<table>
<thead>
<tr>
<th>20102 Hanamāʻulu – Irrigation of Agricultural Lands</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface Water Supply*</td>
<td>6.87 mgd</td>
</tr>
<tr>
<td>Agricultural Lands with score ≥ 28 in the Important Agricultural Lands study</td>
<td>11,520 acres</td>
</tr>
<tr>
<td>% IAL that can be irrigated @ 3,400 gal/ac/day</td>
<td>18%</td>
</tr>
</tbody>
</table>

*Declared surface water use from diversions
 Sections:

- System Area Profile
- Existing Water Resources
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Resource and Management Recommendations

- **Water Resource Availability**
  - Full Build-Out vs. SY
  - 20-Year Population Projection vs. SY

- **Water Resource Management**
  - Conventional Water Resource Measures
  - Water Conservation
  - Alternative Water Resource Measures
  - Development Density Control
Resource Planning Objectives

- Public Trust Doctrine – waters of the State are held for the benefit of all citizens of the State
- Quality of water source should be matched to the quality of water required. Utilize the highest quality of water for the most valuable end use
- Promote water conservation – water is a most precious resource and shall be used wisely
- Meet future demands at a reasonable cost
Recommended Alternatives

- Alternative Water Resources
- Conservation
- Ground Water
- Surface Water
- Demand-Side Management
NEXT STEPS
Summary

- KWUDP is a living document that integrates information from the other 4 components of the Hawaii Water Plan
- Based on the best available information
Opportunity to Focus Future Efforts

- Coordination of data needs from the other 4 components of the Hawaii Water Plan
- Coordination of land planning policies with infrastructure & resource availability
Next Steps

- May 2023 Stakeholder meeting
- August 2023 Public Meetings
- Summer/Fall 2023 Brief CWRM

- Pre-Final WUDP Update
- Present Pre-Final WUDP Update to Kauai BWS
- Present Pre-Final WUDP Update to CWRM for adoption
Email comments to wrp@kauaiwater.org
Subject line: KWUDP
http://kauaiwater.org/kwudp.asp

Mount Waiʻaleʻale