Presentation Outline

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

- 1987 – Hawaiʻi Water Code (HRS Chapter 174C)
- Protect Hawaiʻi’s surface & ground water resources
- Established the Commission on Water Resource Management (CWRM)
- Developed the Hawaiʻi 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 Water Projects Plan
DLNR

State Needs

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
Sustainable Yield

Instream Flow Standard
CWRM Ground Water Hydrologic Units & Sustainable Yield

HANALEI
95 MGD/202

TOTAL = 328 MGD
GROUND WATER HYDROLOGIC UNITS
Sustainable Yield/Aquifer Code

WAIMEA
95 MGD/203

LIHUE
138 MGD/201

KEKAHA
10 MGD/20301

NAPALI
20 MGD/20204

HANALEI
35 MGD/20202

KALAHEO
KILAUEA
10 MGD/20105

KAUAI
ANAHOLA
21 MGD/20104

WAIMEA
37 MGD/20302

WAINIHA
24 MGD/20203

WAILUA
51 MGD/20103

WAIMEA
KOLEA
26 MGD/20303

HANAPEPE
22 MGD/20304

HANAMAULU
27 MGD/20102

HANALEI BAY
KILAUEA BAY
MOLOA BAY
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><strong>ASYA</strong></td>
</tr>
<tr>
<td>Kōloa</td>
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<tr>
<td>Hanamā'ulu</td>
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<td>Wailua</td>
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<td>Anahola</td>
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<td>Kalihiwai</td>
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<td>Hanalei</td>
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<td>Wainiha</td>
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<tr>
<td>Nāpali</td>
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<tr>
<td>Kekaha</td>
</tr>
<tr>
<td>Waimea</td>
</tr>
<tr>
<td>Makaweli</td>
</tr>
<tr>
<td>Hanapēpē</td>
</tr>
</tbody>
</table>

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

Sections:

- System Area Profile
- Types of Water Resources
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- 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
Waimea Watershed Agreement

- Agreement between DHHL, KIUC, and ADC (Kekaha Agriculture Association)
- IIFS were amended; flow in the streams has the highest priority
- Any diversion of water must be justified with no more water taken than is needed for beneficial uses, such as agriculture and renewable energy
Types of Water Resources

- Rainwater Catchment
- Recycled Water
ASYA Chapter

Sections:

- System Area Profile
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## Existing Water Uses

### Table 201301-6: Existing Water Use by Category – Kekaha ASYA

<table>
<thead>
<tr>
<th>CWRM Category</th>
<th>Ground Water (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>
</tr>
<tr>
<td>Industrial</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Irrigation</td>
<td>0.00</td>
<td>0.18&lt;sup&gt;1&lt;/sup&gt;</td>
<td>0.18</td>
</tr>
<tr>
<td>Agriculture</td>
<td>0.03</td>
<td>TBD&lt;sup&gt;2&lt;/sup&gt;</td>
<td>0.03</td>
</tr>
<tr>
<td>Military</td>
<td>0.22</td>
<td></td>
<td>0.22</td>
</tr>
<tr>
<td>Municipal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DOW System</td>
<td>1.17</td>
<td></td>
<td>1.17</td>
</tr>
<tr>
<td>State System</td>
<td>0.01</td>
<td></td>
<td>0.01</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>1.43</strong></td>
<td><strong>0.18</strong></td>
<td><strong>1.61</strong></td>
</tr>
</tbody>
</table>

<sup>1</sup> Recycled Water  
<sup>2</sup> Surface Water – TBD from AWUDP

### Figure 20301-7: Existing Water Use by Category – Kekaha ASYA

*Values to be determined by other components of the Hawai‘i Water Plan*
20301 Kekaha – Existing Water Use by Category

Potable

Non-Potable

Water Use (mgd)

Municipal

Domestic

Industrial

CWRM Water Use Category

PPWS = 0.00

State WS = 0.01

DOW = 1.17

Military

Irrigation

Agriculture

SW = TBD*

RW = 0.18

GW = 0.00

SW = TBD*

GW = 0.03

*Values to be determined by other components of the Hawai‘i Water Plan
20302 Waimea – Existing Water Use by Category

*Values to be determined by other components of the Hawai‘i Water Plan
20303 Makaweli – Existing Water Use by Category

*Values to be determined by other components of the Hawai‘i Water Plan
20304 Hanapēpē – Existing Water Use by Category

*Values to be determined by other components of the Hawaiʻi Water Plan
Sections:

- System Area Profile
- Types of Water Resources
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- 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
SUSTAINABILITY OF LAND USE POLICIES

SUSTAINABLE YIELD (WRPP)

DEMAND/SUSTAINABLE YIELD (MGD)

GENERAL PLAN FULL BUILD-OUT SCENARIO

ZONING FULL BUILD-OUT SCENARIO

Less sensitive area
20301 Kekaha – Water Demand Projections and Full Build-Out

SY = 10

General Plan Full Build-Out Scenario = 4.28
Zoning Full Build-Out Scenario = 1.72
Total Existing Demand = 1.58

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 20301-4.1.1 County of Kaua‘i Important Agricultural Lands Study.
20302 Waimea – 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 20302-4.1.1 County of Kaua‘i Important Agricultural Lands Study.
20303 Makaweli – 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 20303-4.1.1 County of Kaua’i Important Agricultural Lands Study.
20304 Hanapēpē – 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 20304-4.1.1 County of Kaua‘i Important Agricultural Lands Study.
Projected Future Water Use

- Projected Agricultural Water Use

<table>
<thead>
<tr>
<th>20304 Hanapēpē – Irrigation of Agricultural Lands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface Water Supply*</td>
</tr>
<tr>
<td>Agricultural Lands with score ≥ 28 in the Important Agricultural Lands study</td>
</tr>
<tr>
<td>% IAL that can be irrigated @ 3,400 gal/ac/day</td>
</tr>
</tbody>
</table>

*Declared surface water use from diversions
Total declared flow originally associated with KODIS and KEDIS. However, as a result of a 2017 mediation agreement, the interim IFS were amended such that the flow in the stream has the highest priority with diversions only as needed for other uses with the interim IFS numbers being the minimum stream flow to be provided.

<table>
<thead>
<tr>
<th>20301 Kekaha – Irrigation of Agricultural Lands</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface Water Supply*</td>
<td>51.86 mgd</td>
</tr>
<tr>
<td>Agricultural Lands</td>
<td>7,555 acres</td>
</tr>
<tr>
<td>with score ≥ 28 in the Important Agricultural Lands study</td>
<td></td>
</tr>
<tr>
<td>% IAL that can be irrigated @ 3,400 gal/ac/day</td>
<td>202%</td>
</tr>
</tbody>
</table>

*Total declared flow originally associated with KODIS and KEDIS. However, as a result of a 2017 mediation agreement, the interim IFS were amended such that the flow in the stream has the highest priority with diversions only as needed for other uses with the interim IFS numbers being the minimum stream flow to be provided.
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<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td><strong>20302 Waimea – Irrigation of Agricultural Lands</strong></td>
<td></td>
</tr>
<tr>
<td>Surface Water Supply*</td>
<td>0.28 mgd</td>
</tr>
<tr>
<td>Agricultural Lands</td>
<td></td>
</tr>
<tr>
<td>with score ≥ 28 in the Important Agricultural Lands study</td>
<td>34 acres</td>
</tr>
<tr>
<td>% IAL that can be irrigated @ 3,400 gal/ac/day</td>
<td>241%</td>
</tr>
</tbody>
</table>

*Declared surface water use from diversions
### 20303 Makaweli – Irrigation of Agricultural Lands

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<table>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface Water Supply*</td>
<td>23.19 mgd</td>
</tr>
<tr>
<td>Agricultural Lands</td>
<td></td>
</tr>
<tr>
<td>with score ≥ 28 in the Important Agricultural Lands study</td>
<td>7,620 acres</td>
</tr>
<tr>
<td>% IAL that can be irrigated @ 3,400 gal/ac/day</td>
<td>90%</td>
</tr>
</tbody>
</table>

*Declared surface water use from diversions*
ASYA Chapter

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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

- 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 Wai‘ale‘ale