

# 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

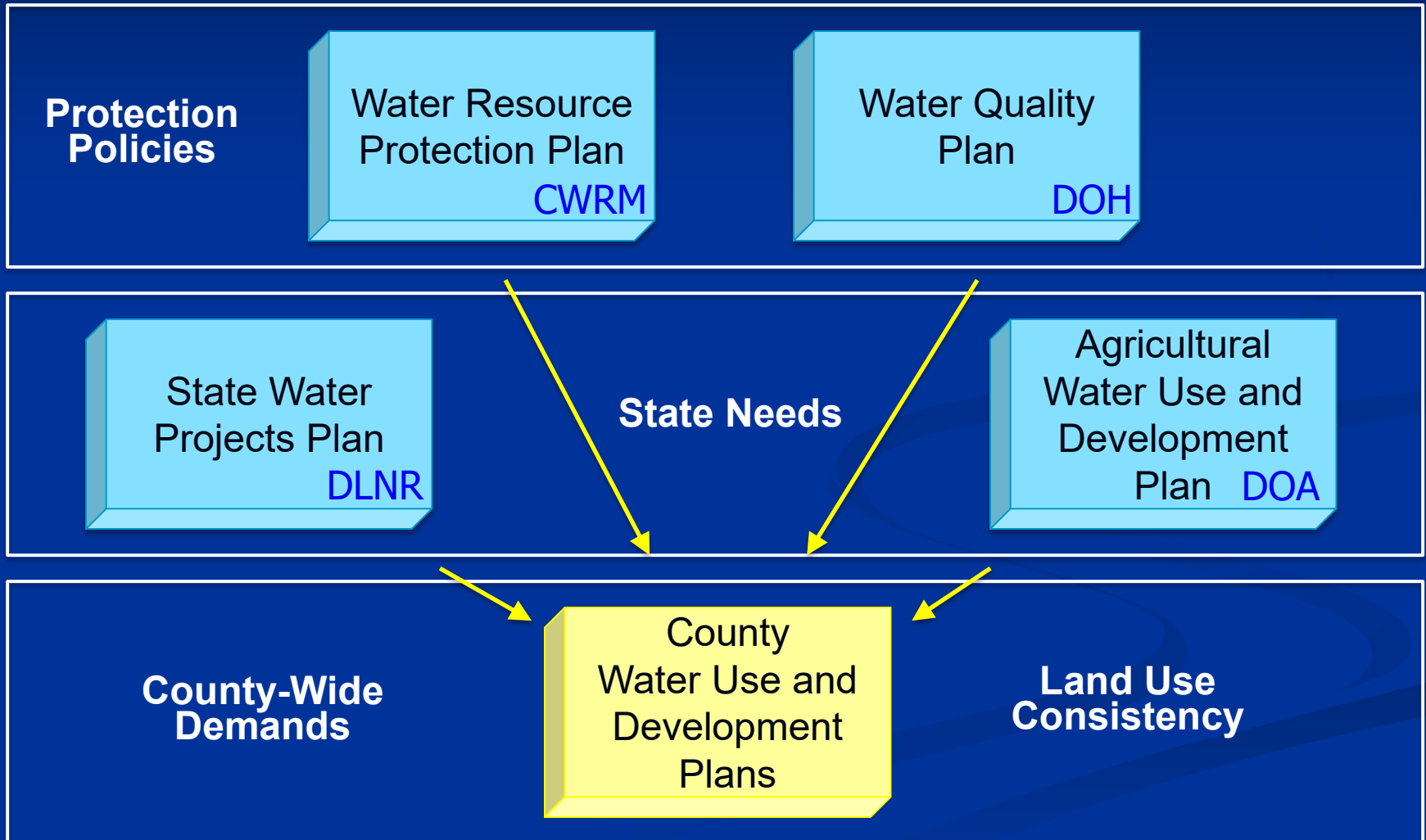
- Background – Hawai‘i Water Plan
- WUDP Objective
- Key Tasks and Findings
- Timeline/Next Steps

# 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



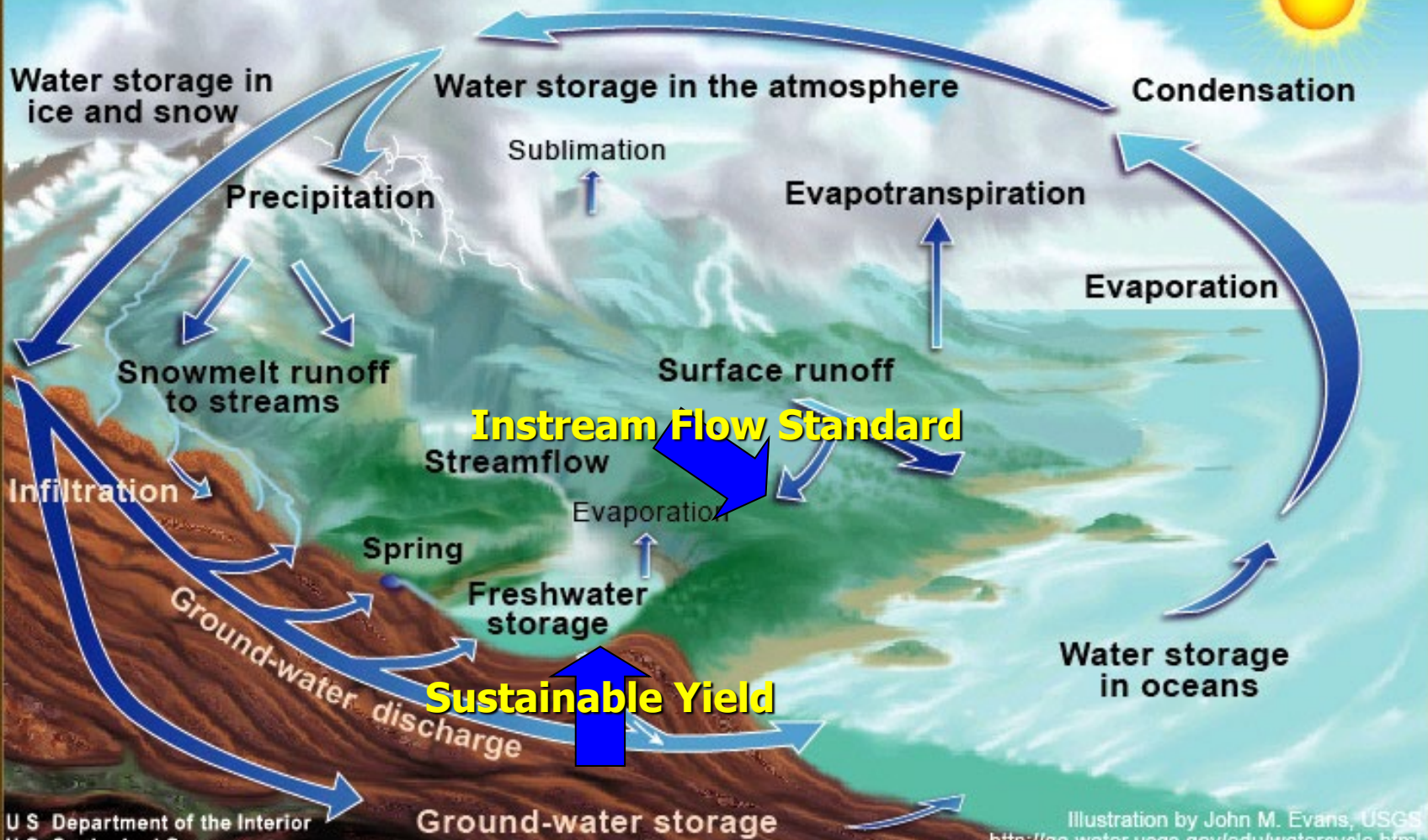
# County WUDP Objective

*. . . 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

# The Water Cycle



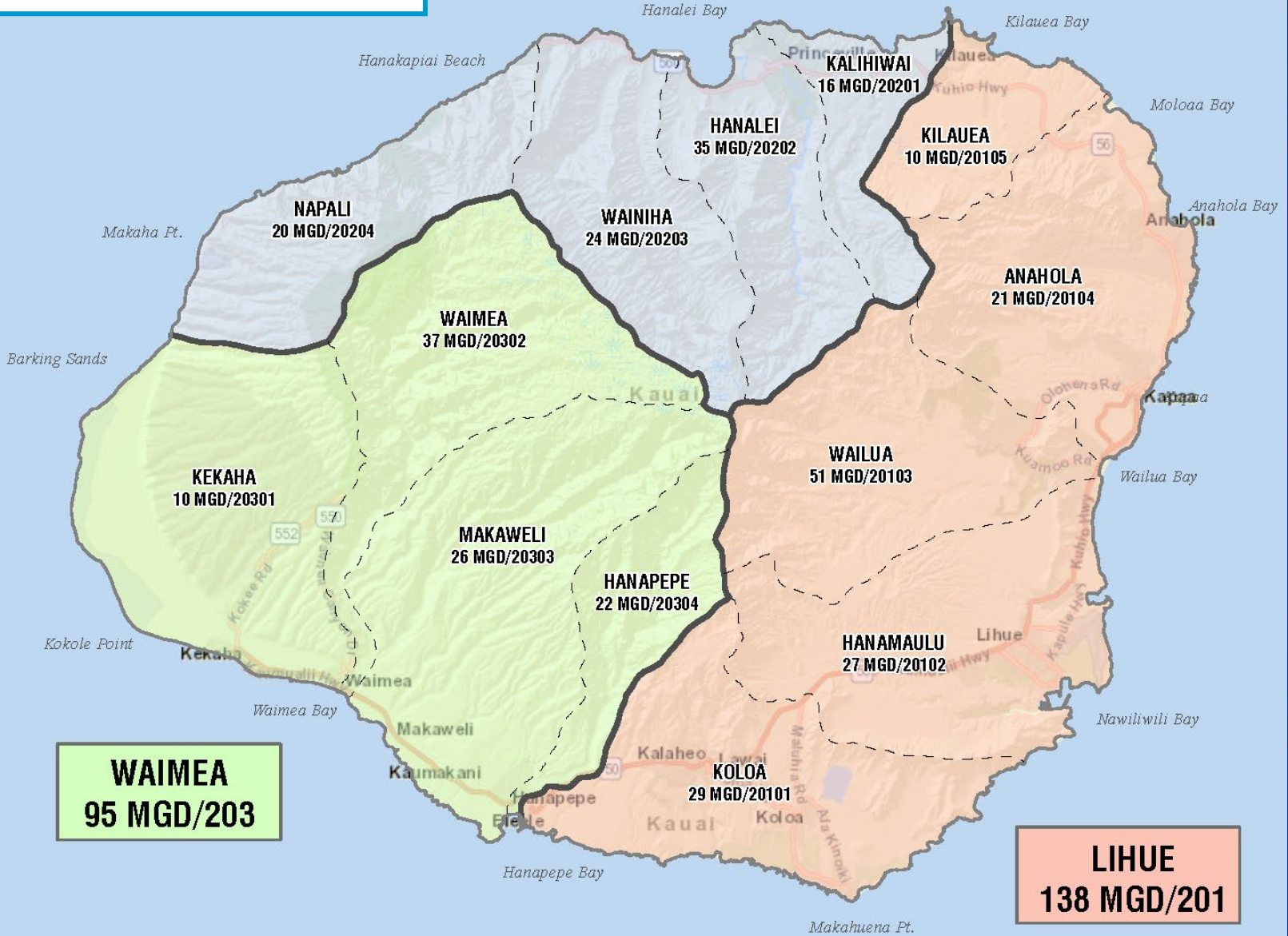
# CWRM Ground Water Hydrologic Units & Sustainable Yield

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

**HANAIEI**  
95 MGD/202

**WAIMEA**  
95 MGD/203

**LIHUE**  
138 MGD/201





# **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 2-2 Estimated Residential Community Densities**

ASYA	ASYA Code	Density (Unit/Acre)
Kōloa	20101	5.40
Hanamā'ulu	20102	7.41
Wailua	20103	3.08
Anahola	20104	4.83
Kīlauea	20105	5.42
Kalihiwai	20201	6.84
Hanalei	20202	5.92
Wainiha	20203	2.49
Nāpali	20204	N/A
Kekaha	20301	4.66
Waimea	20302	3.24
Makaweli	20303	5.74
Hanapēpē	20304	3.58

**Table 2-3 Estimated Resort Densities**

ASYA	ASYA Code	Density (Unit/Acre)
Kōloa	20101	13.72
Hanamā'ulu	20102	18.97
Wailua	20103	N/A
Anahola	20104	20.00
Kīlauea	20105	N/A
Kalihiwai	20201	7.46
Hanalei	20202	12.37
Wainiha	20203	8.00
Nāpali	20204	N/A
Kekaha	20301	4.00
Waimea	20302	N/A
Makaweli	20303	1.00
Hanapēpē	20304	N/A

# ASYA Chapter

Sections:

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

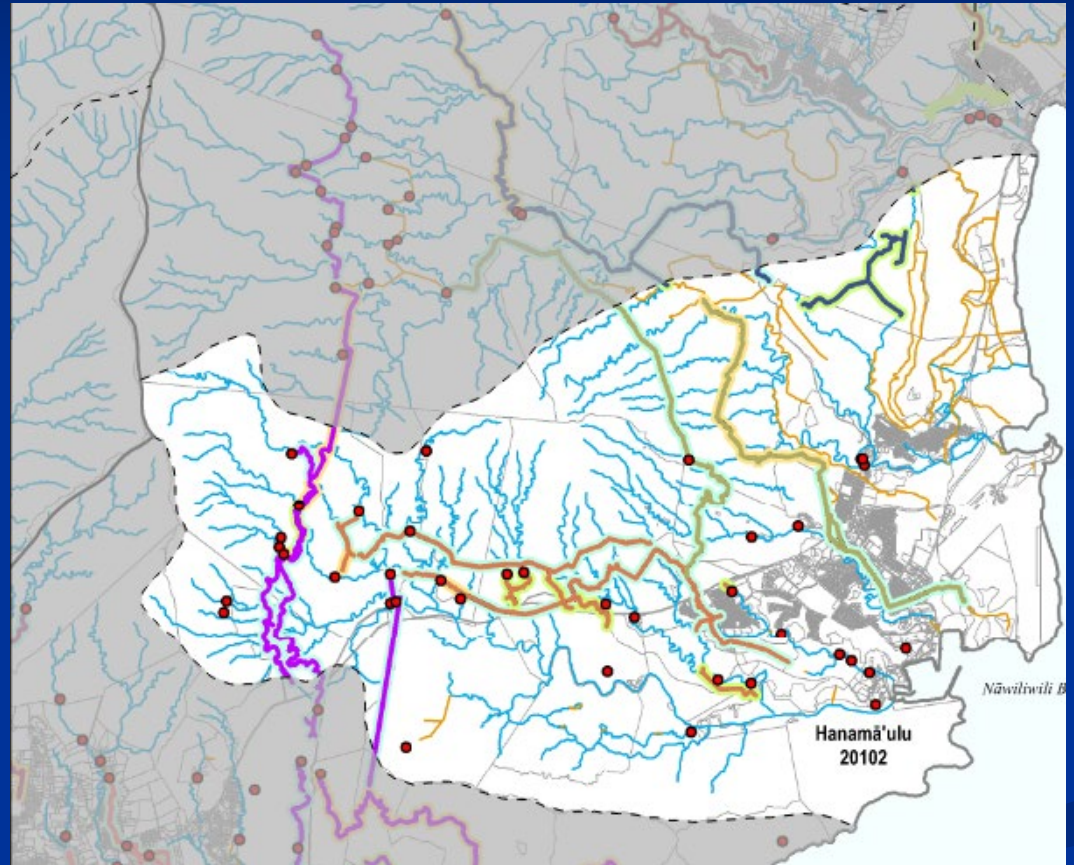
# Types of Water Resources

- Ground Water
- Surface Water
- Rainwater Catchment
- Recycled Water



# 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

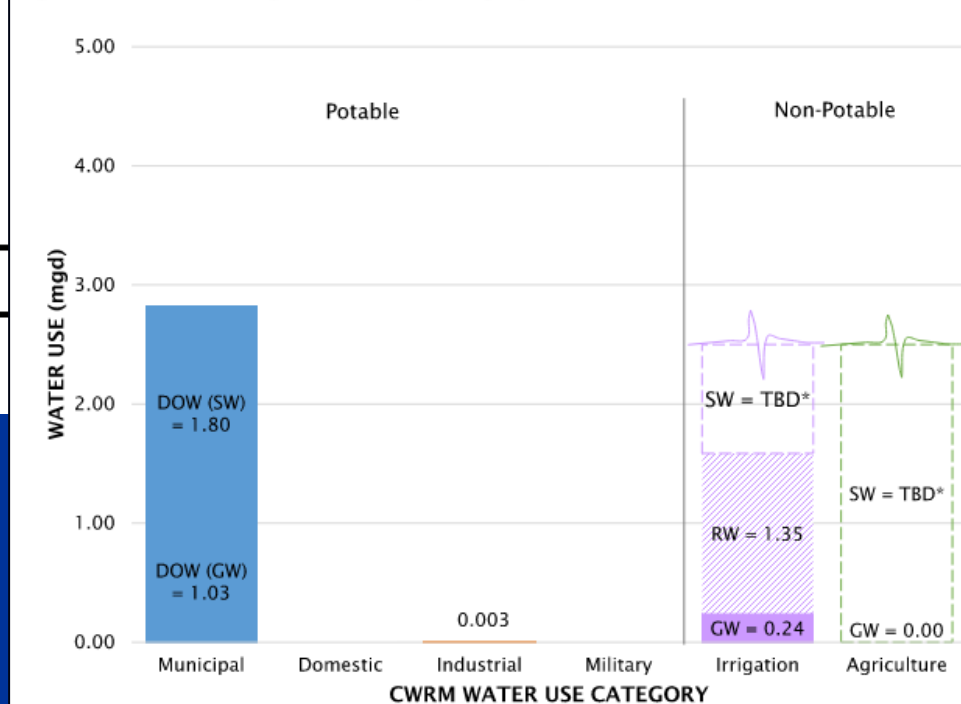
CWRM Category	Groundwater (mgd)	Other Sources (mgd)	Total (mgd)
Domestic	0.00		0.00
Industrial	0.003		0.00
Irrigation	0.24	1.35 <sup>1</sup>	1.59
Agriculture	0.00	TBD <sup>2</sup>	0.00
Military			0.00
Municipal			
DOW System	1.03	1.80 <sup>3</sup>	2.83
Private Public WS	0.00		0.00
<b>TOTAL</b>	<b>1.27</b>	<b>2.18</b>	<b>4.42</b>

<sup>1</sup> Recycled Water

<sup>2</sup> Surface Water - TBD from AWUDP

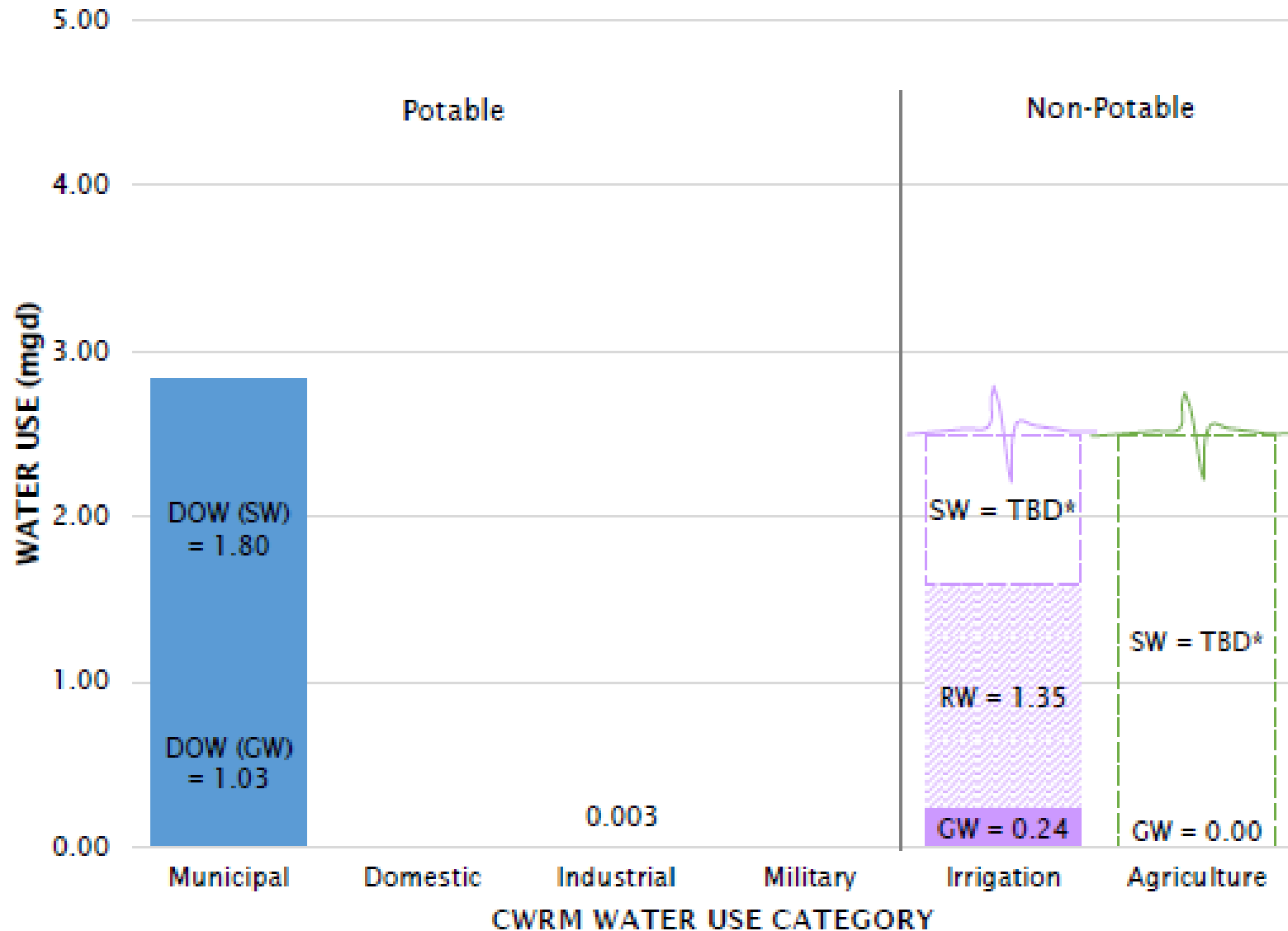
<sup>3</sup> Surface Water - Estimated

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 Hanamā‘ulu – Existing Water Use by Category



\*Values to be determined by other components of the Hawai'i Water Plan

# ASYA Chapter

Sections:

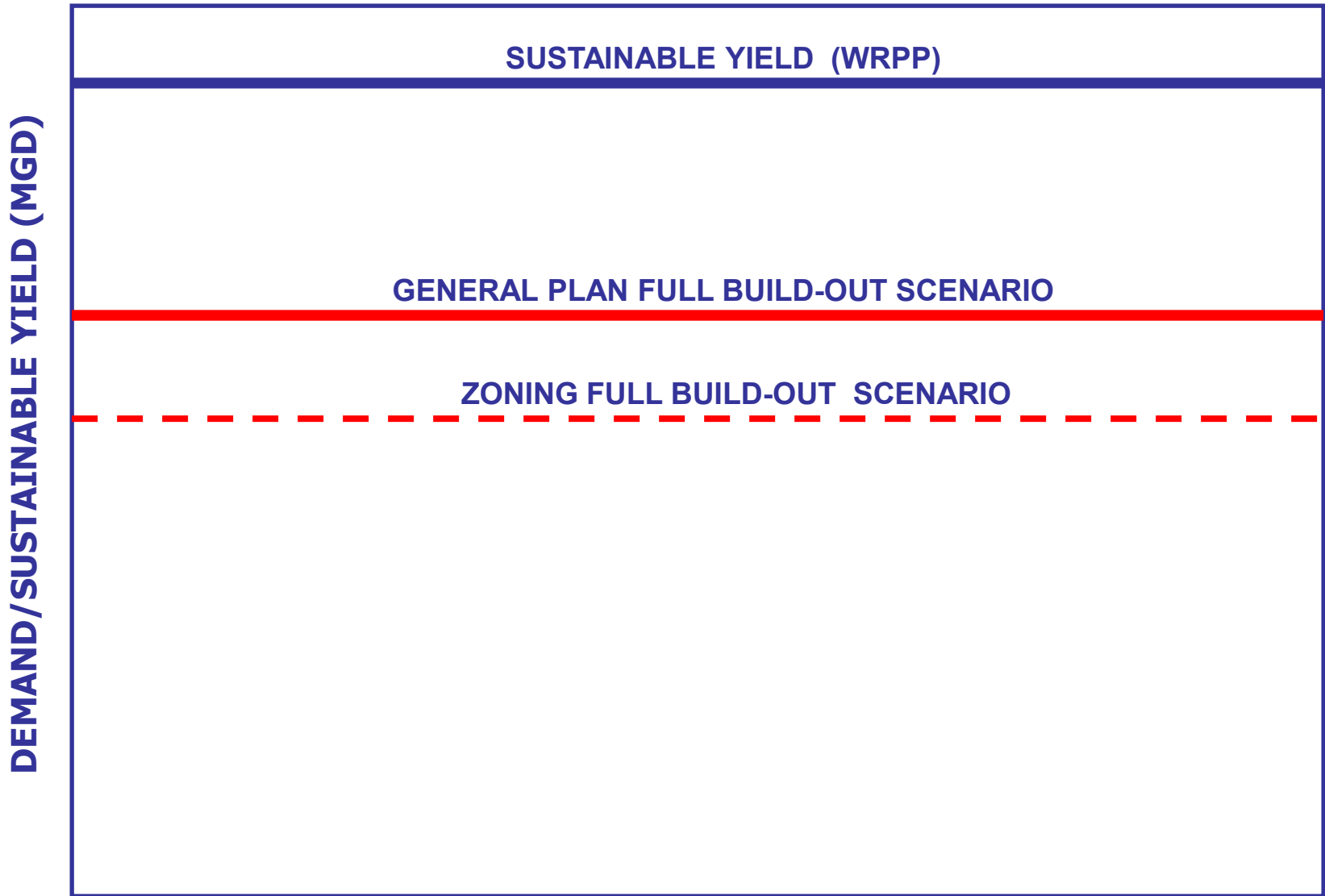
- System Area Profile
- Types of Water Resources
- Existing Water Use
- Projected Future Water Use
- Resource and Management Recommendations

Assess land use plans and policies and future projected water demands

# Projected Future Water Use

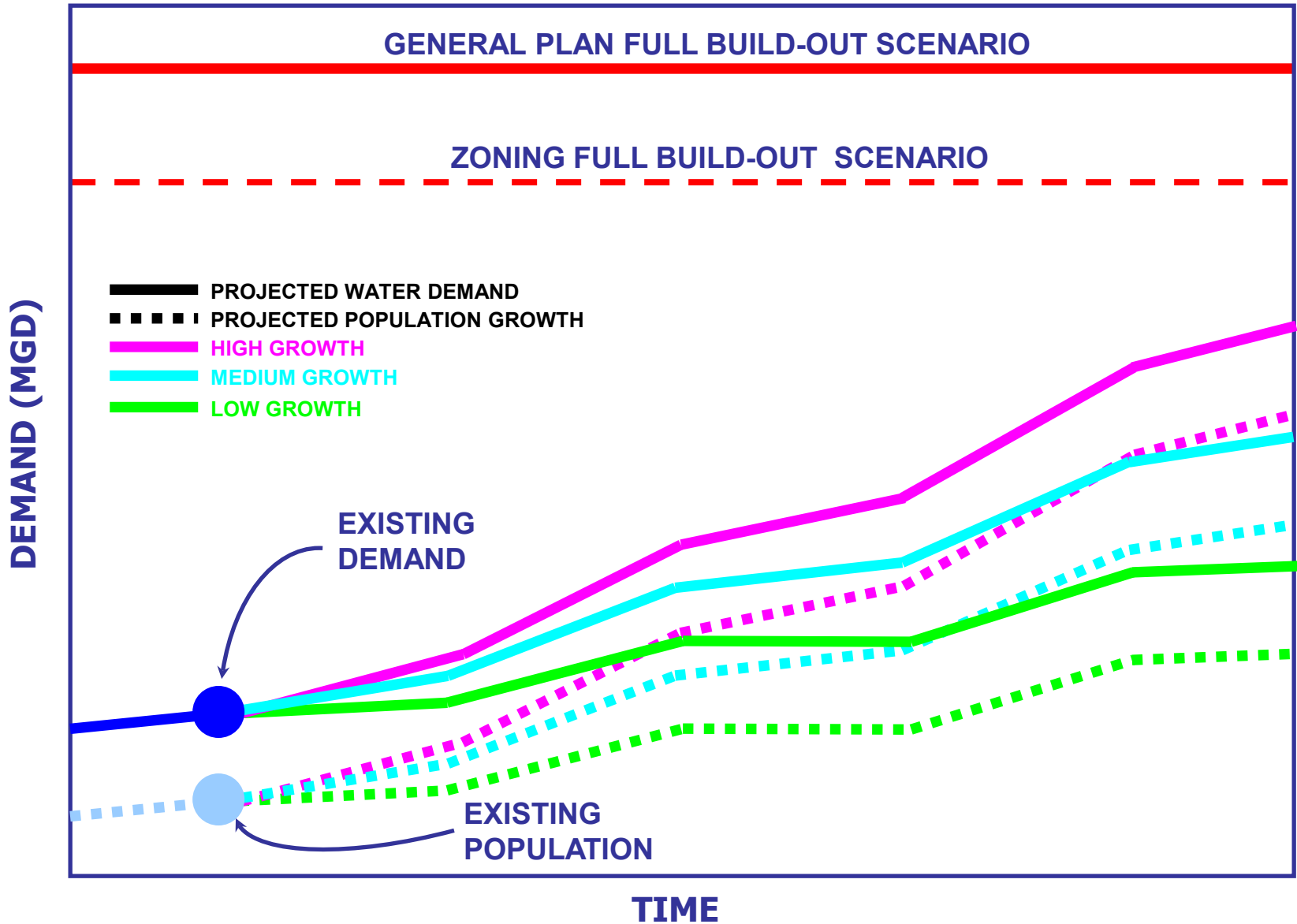
- Based on Full Build-Out Water Demands
  - Reviewed existing land use plans and policies
  - Conservative approach – assumes ALL land area developed to its theoretical maximum extent
  - Based on existing water system standards and allowable density
  - Focused on domestic, commercial and industrial demands and groundwater source availability

# SUSTAINABILITY OF LAND USE POLICIES

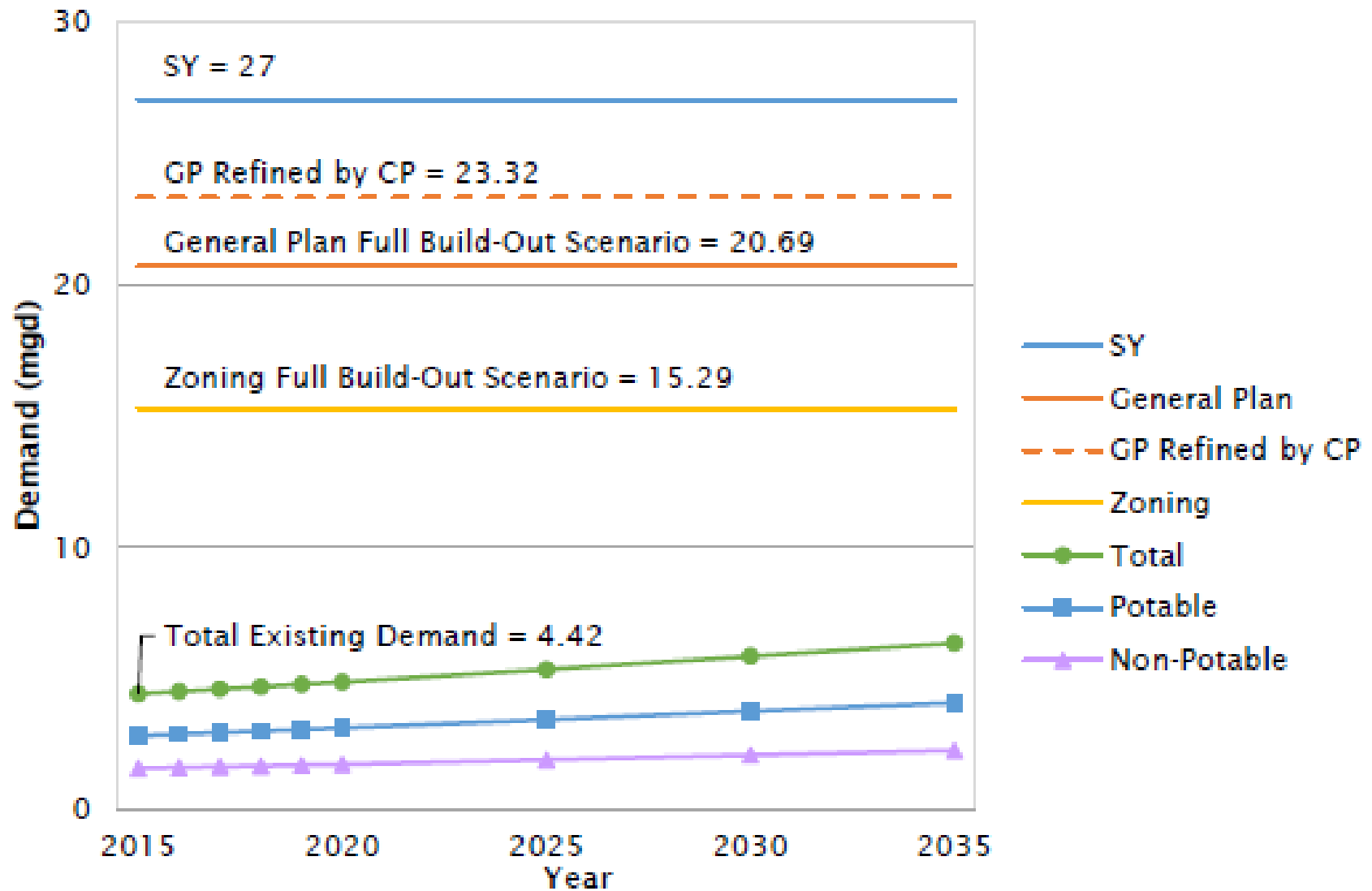


Less sensitive area

# PROJECTED DEMAND



## 20102 Hanamā'ulu – 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 Kaua'i Important Agricultural Lands Study.



# Projected Future Water Use

- Projected Agricultural Water Use

<b>20102 Hanamā`ulu – Irrigation of Agricultural Lands</b>	
Surface Water Supply*	6.87 mgd
Agricultural Lands with score $\geq$ 28 in the Important Agricultural Lands study	11,520 acres
% IAL that can be irrigated @ 3,400 gal/ac/day	18%

\*Declared surface water use from diversions

# ASYA Chapter

Sections:

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

# 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](mailto:wrp@kauaiwater.org)  
Subject line: KWUDP**

**<http://kauaiwater.org/kwudp.asp>**

**Mount Wai'ale'ale**