

# Environmental Management Commission Briefing

## **Wastewater Facilities and Cesspool Conversion Plans**

County of Hawaii, Department of Environmental  
Management

October 30, 2024



# Objectives

- Provide an overview of the components of the Wastewater Facilities and the Cesspool Conversion Plans.
- Summarize public outreach efforts completed to date and feedback received.
- Present an update of cesspool conversion planning activities.

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# Discussion Topics

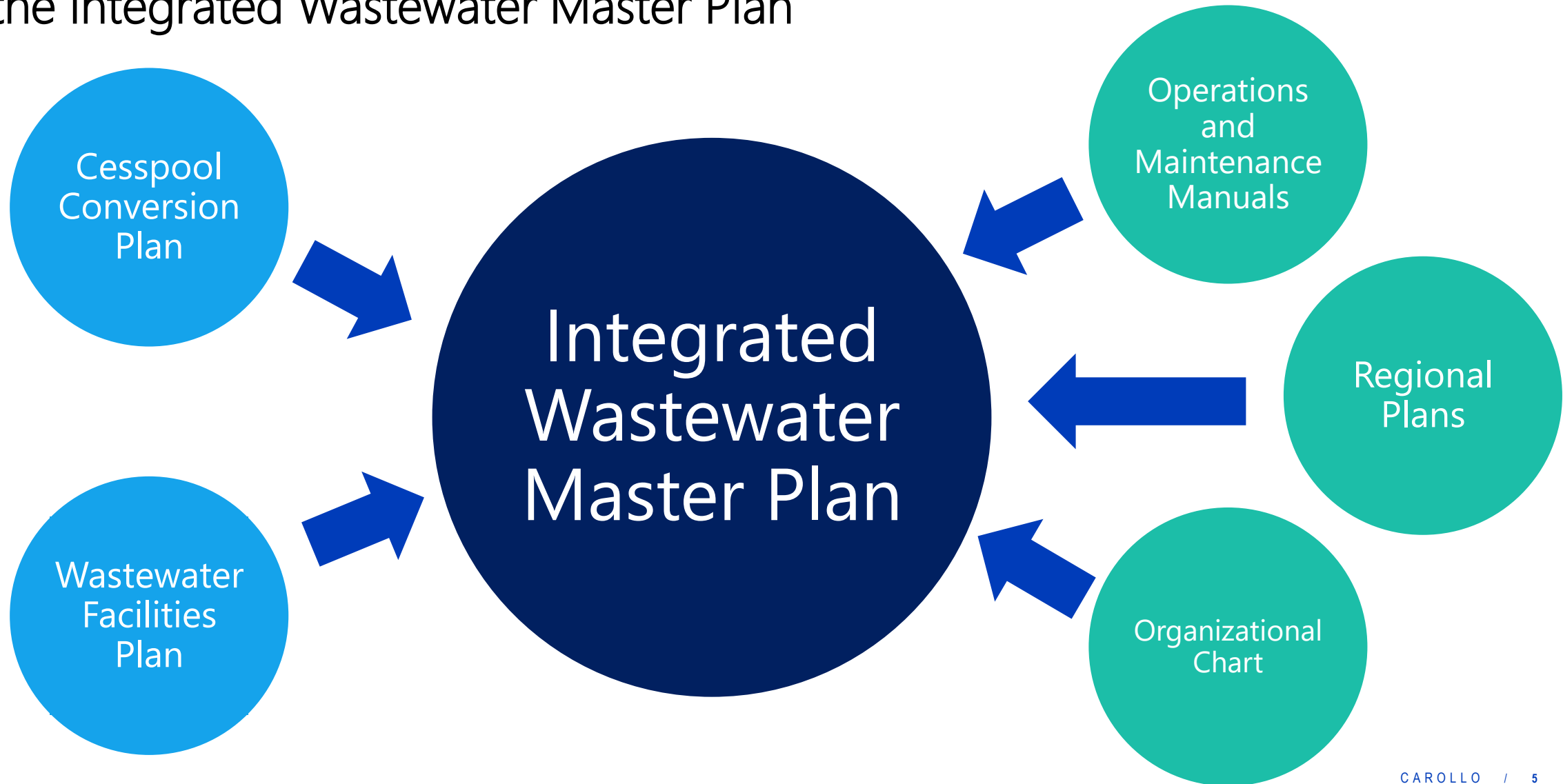
- Wastewater Facilities and Cesspool Conversion Plan Overview
- Public Outreach Completed to Date
- Cesspool Conversion Plan Status Update
  - » Conversion categories
  - » Criteria for draft sewer extension projects
  - » Criteria for potential decentralized projects
  - » Summary of potential cesspool conversions by method
- Anticipated Schedule

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# Wastewater Facilities and Cesspool Conversion Plan Overview

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# The Wastewater Facilities and Cesspool Conversion Plans are Key Elements of the Integrated Wastewater Master Plan



# Wastewater Facilities Plan

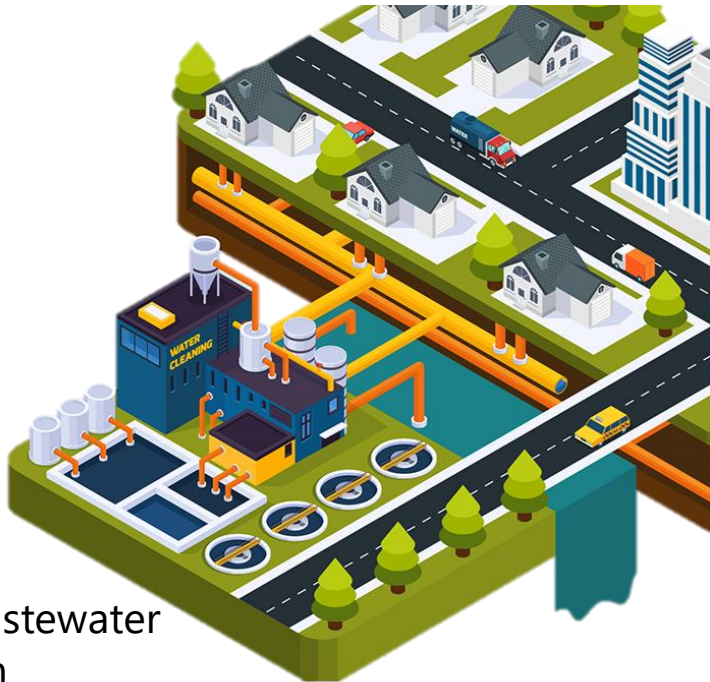
- Incorporates recommendations for extending sewer service areas
- Identification of wastewater treatment plant (WWTP) and sewage pump station (SPS) improvements to address:
  - » Condition deficiencies
  - » Capacity for cesspool conversions
  - » Potential future regulations
- Development of a wastewater capital improvement plan (CIP)
  - » Existing CIP
  - » New capital projects

Existing Hilo Sewer Service Area

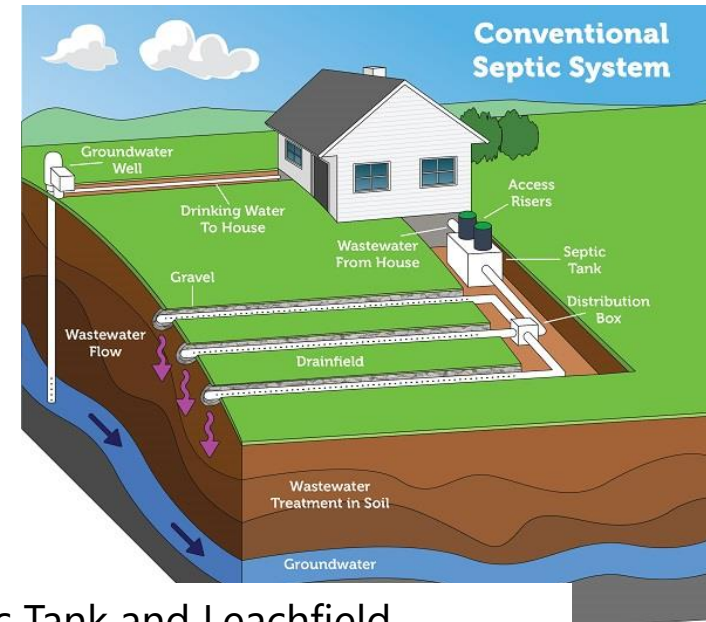


# Cesspool Conversion Plan

- Findings and recommendations for:
  - » Extension of existing County sewer service areas
  - » Potential new decentralized system (with a new “package” WWTP or connection to existing non-County WWTP)
  - » Conversions to upgraded individual wastewater systems (IWS)



Decentralized Wastewater Treatment System



Septic Tank and Leachfield

Please note: Septic systems vary. Diagram is not to scale.

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Public Outreach Completed to Date

# Attendance and Participation

| Date      | Region | Location                           | Sign Ins <sup>1</sup> | Comment Cards <sup>2</sup> | Survey Responses <sup>3</sup> |
|-----------|--------|------------------------------------|-----------------------|----------------------------|-------------------------------|
| 2/13/2024 | West   | Old Kona Airport Pavilion          | 56                    | 9                          | 19                            |
| 2/15/2024 | East   | Aunty Sally Kaleohano's Lu'au Hale | 100                   | 11                         | 43                            |
| 2/27/2024 | South  | Naalehu Community Center           | 8                     | 1                          | 1                             |
| 2/28/2024 | North  | Kohala Intergenerational Center    | 24                    | 7                          | 13                            |

## Notes:

<sup>1</sup> Some groups of 2 or more signed in under one name.

<sup>2</sup> For general comments.

<sup>3</sup> In response to following questions:

- Which community do you live in?
- What are your top 3 concerns about cesspool conversions?
- Is there anything else you would like to learn regarding cesspool conversions?



## Common Questions/Comments

- Costs
  - Concern about the **costs of cesspool conversions** and requests for funding support
  - Concern for the **risk of paying twice**: present conversion to upgraded IWS and future sewer connection



## Common Questions/Comments (cont'd)

- IWS
  - Requests for **more information** on **conversion technologies**
  - Concern that the **effluent quality from septic tanks is not significantly improved over cesspools**
  - Concerns about **site constraints** (e.g., space) and restoration for onsite conversions
  - Concern about adequacy of **workforce availability**
  - General requests for homeowner resources (e.g., **where to find contractors, engineers, how to maintain IWSs**)
  - Questions on regulations related to composting toilets and gray water for **residential reuse**



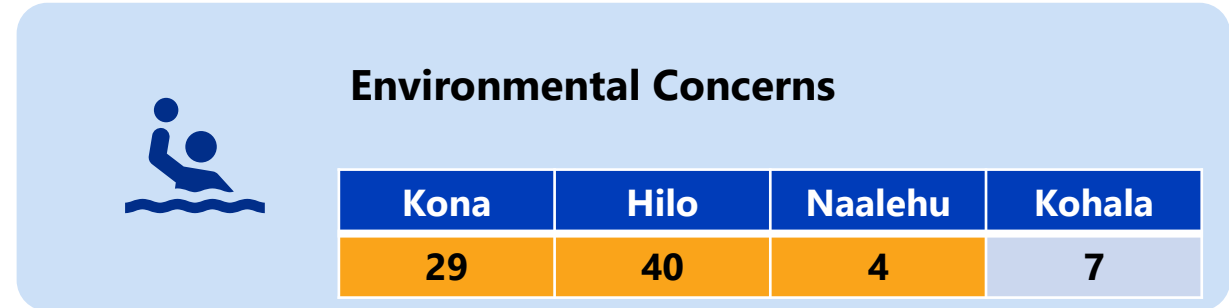
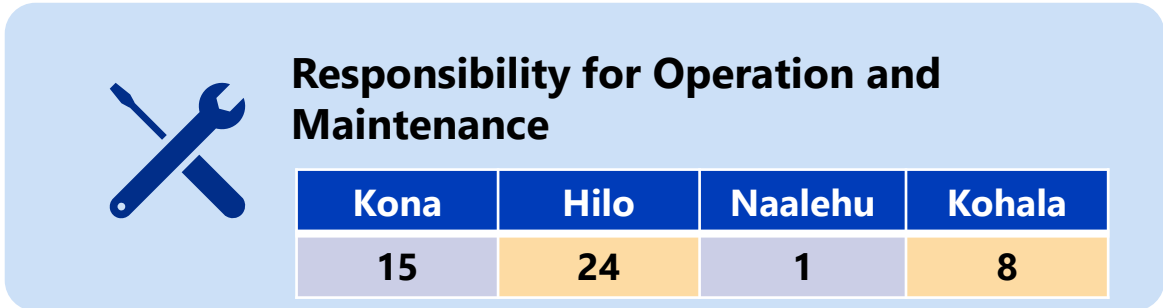
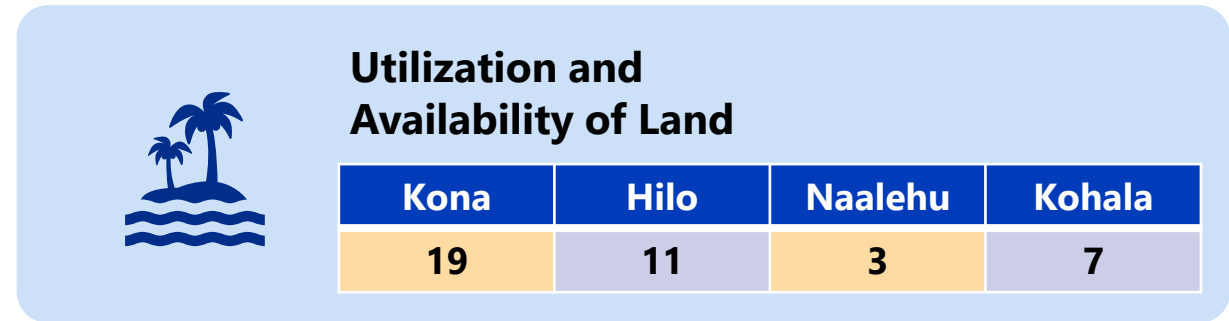
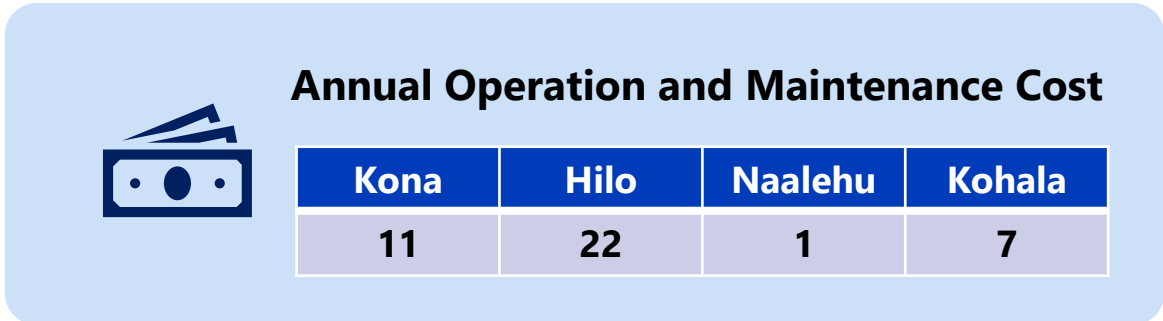
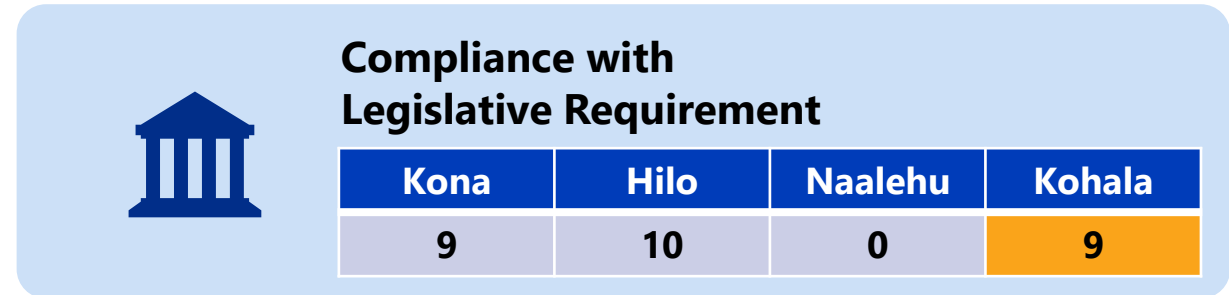
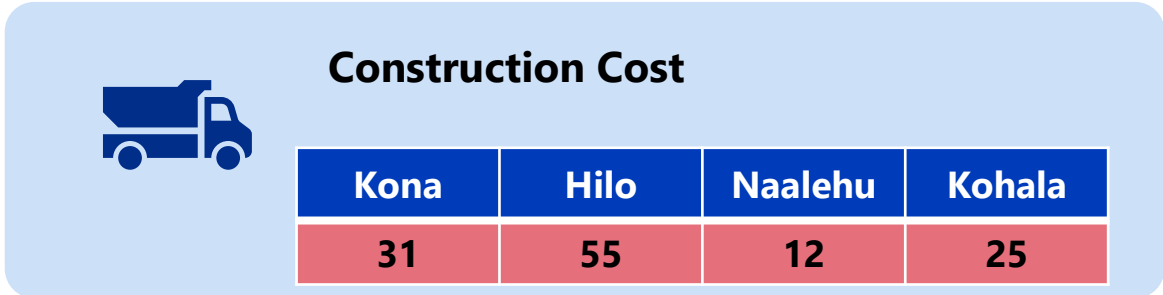
## Common Questions/Comments (cont'd)

- Centralized/decentralized options
  - Questions if there are **recycled water opportunities**
  - Questions on the possibility of **connecting to decentralized/non-County WWTPs**
  - Questions on the County's **timeframe and plans for sewerage**
  - Provide more **public information and education** on the improved water quality



# Tally: Which aspects of cesspool conversion are most important to you and your community?

- Boxes were used to represent each aspect of cesspool conversion
- Participants were given three tickets to vote by placing a ticket in their preferred boxes.

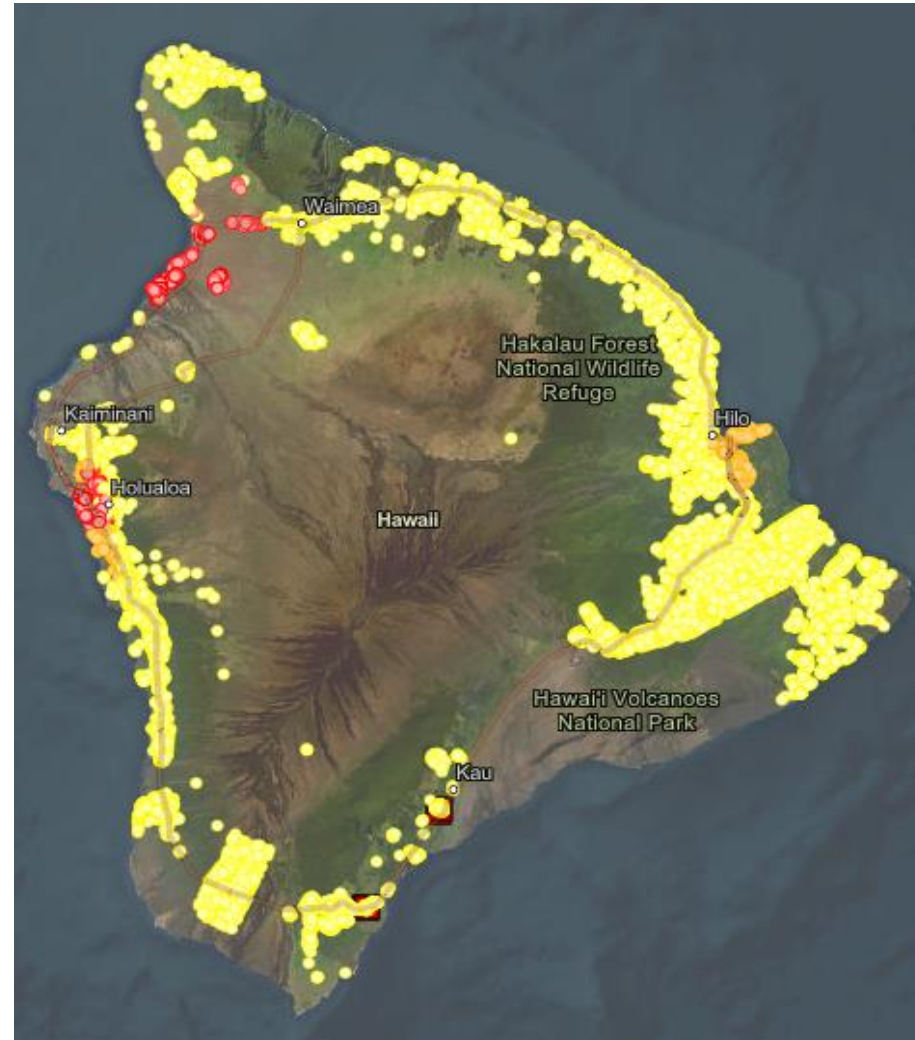


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## Cesspool Conversion Plan Status Update

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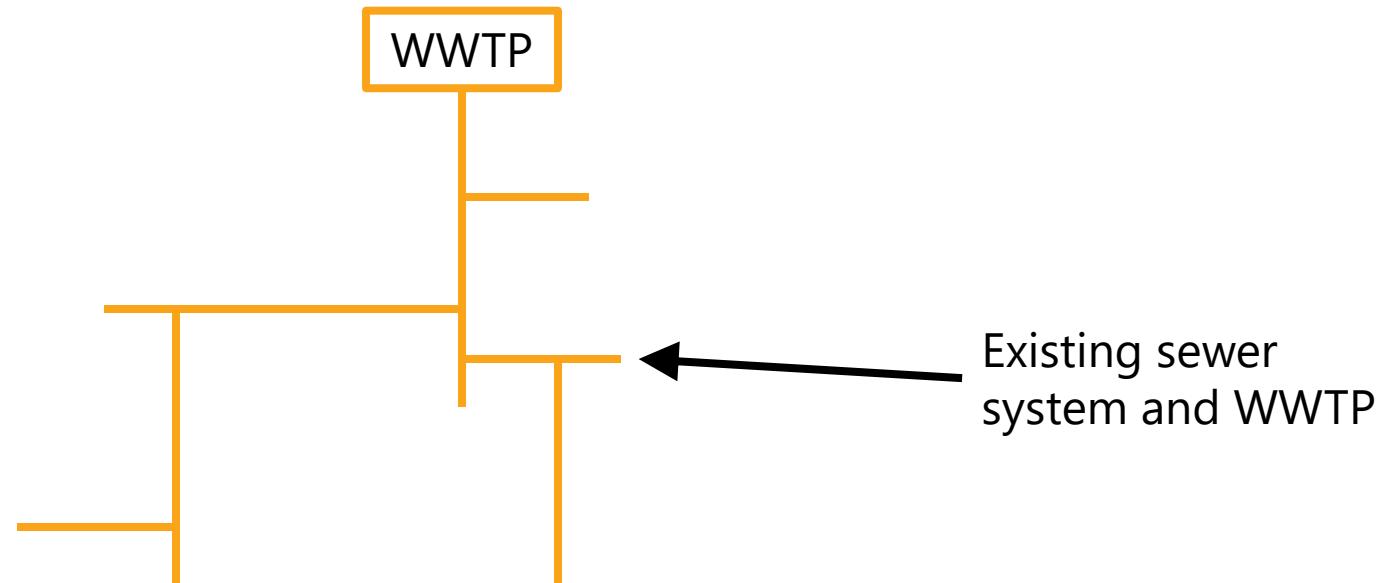
# The Cesspool Conversion Plan will Identify Potential Methods for Conversion for the County's ~48,600 Cesspools



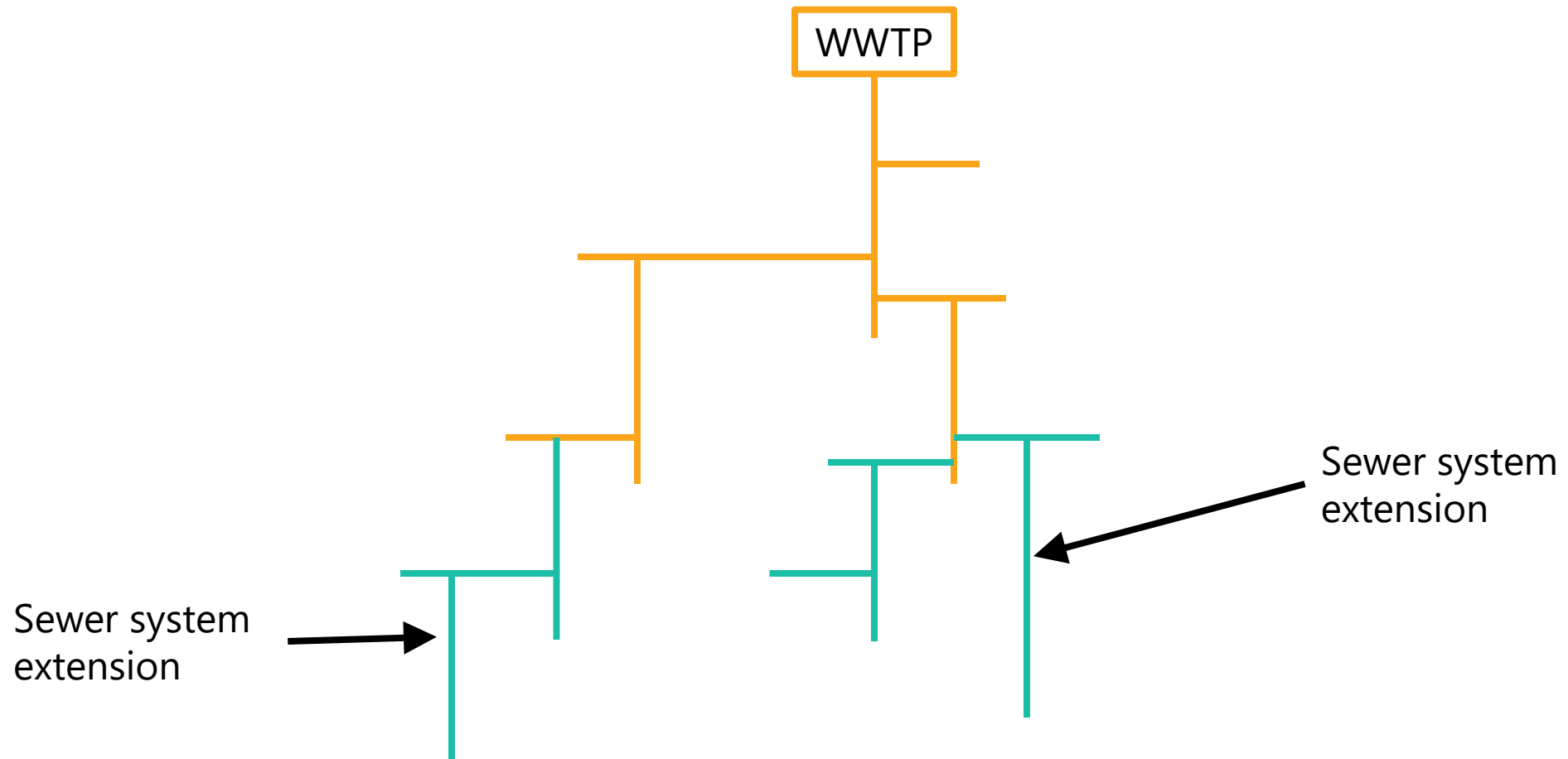
# Cesspool Conversion Categories for Existing Service Areas

- Sphere 1
  - » Within the initial sewer extension service area boundary.
  - » Must connect to the sewer system and treatment plant.
  - » Increased flows are within existing collection system and treatment plant capacities.
- Sphere 2
  - » Outside the initial sewer extension service area boundary.
  - » May connect to the sewer system and treatment plant but may require system expansion.
  - » Decentralized sewer system potential.
  - » IWS potential.
- Sphere 3
  - » Outside the initial extension sewer service area boundary.
  - » IWS is the primary potential conversion method.

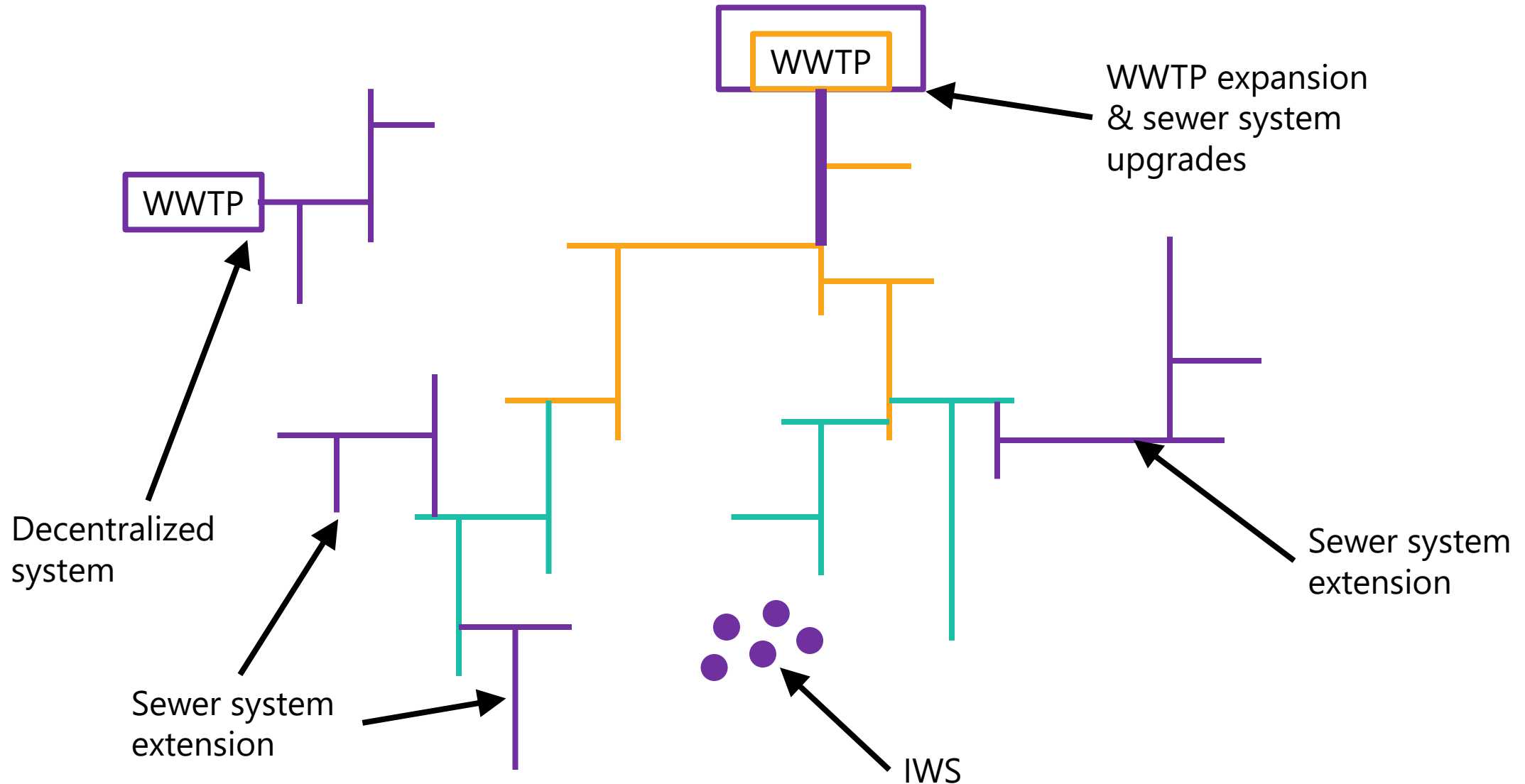
# Conceptual Cesspool Conversion Categories – Existing



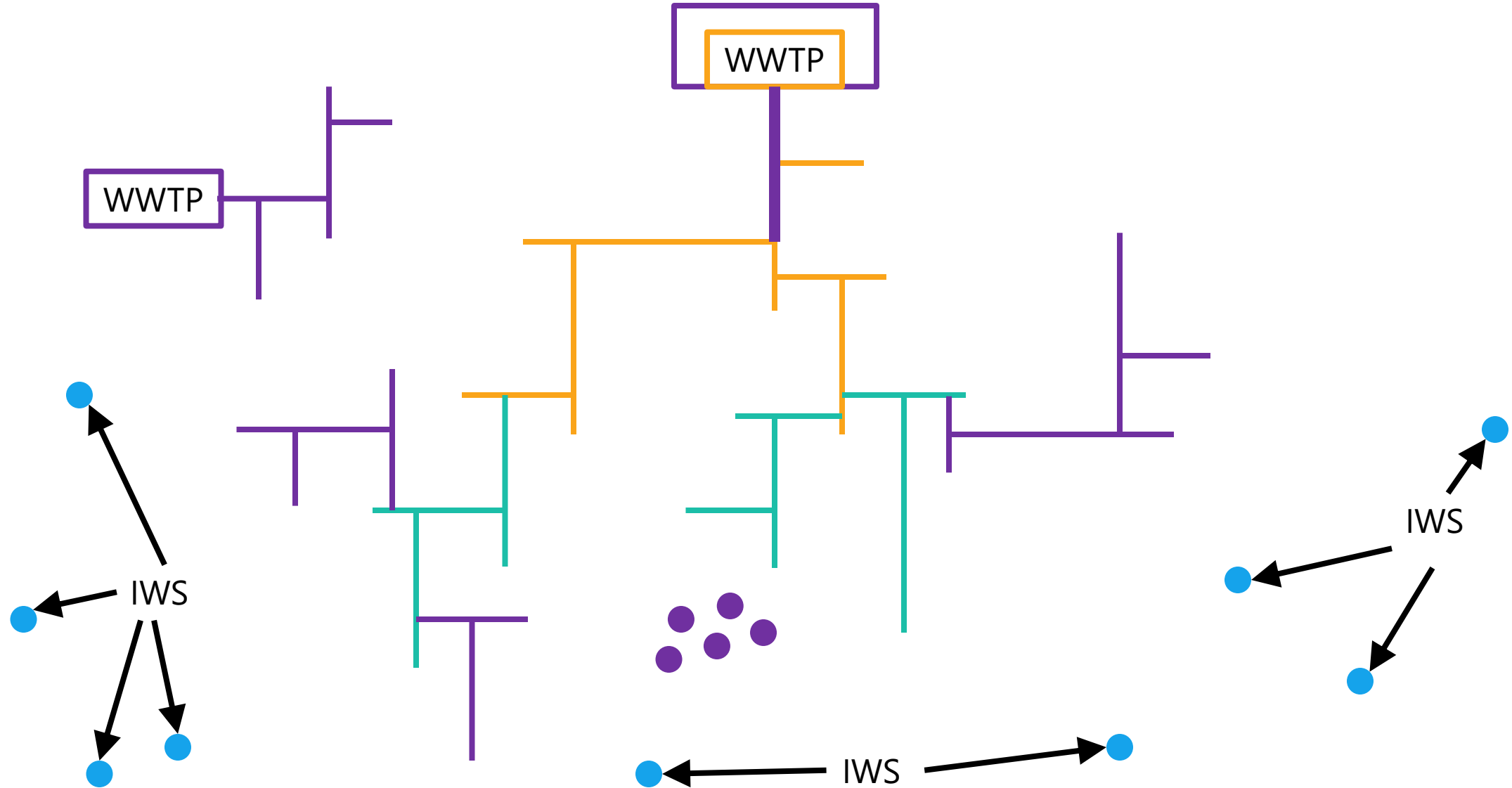
# Conceptual Cesspool Conversion Categories – Sphere 1



# Conceptual Cesspool Conversion Categories – Sphere 2



# Conceptual Cesspool Conversion Categories – Sphere 3








# Criteria for Selection of Potential Sphere 1 Sewer Conversion Priority Areas/Projects

- Selection Criteria
  - » Prior EPA grant commitments (Hilo service area)
  - » Lot size
  - » Proximity to an existing sewer
  - » Available WWTP capacity
  - » Department of Health (DOH) cesspool priority
  - » Cesspool density
  - » Logical neighborhood boundaries and contiguous areas
  - » Affordable housing
  - » DHHL and federal entities
  - » Commercial and Industrial entities high pollutants and under the pretreatment AOC
  - » Residential homes and small businesses

# Hilo Example - Existing








**Legend**

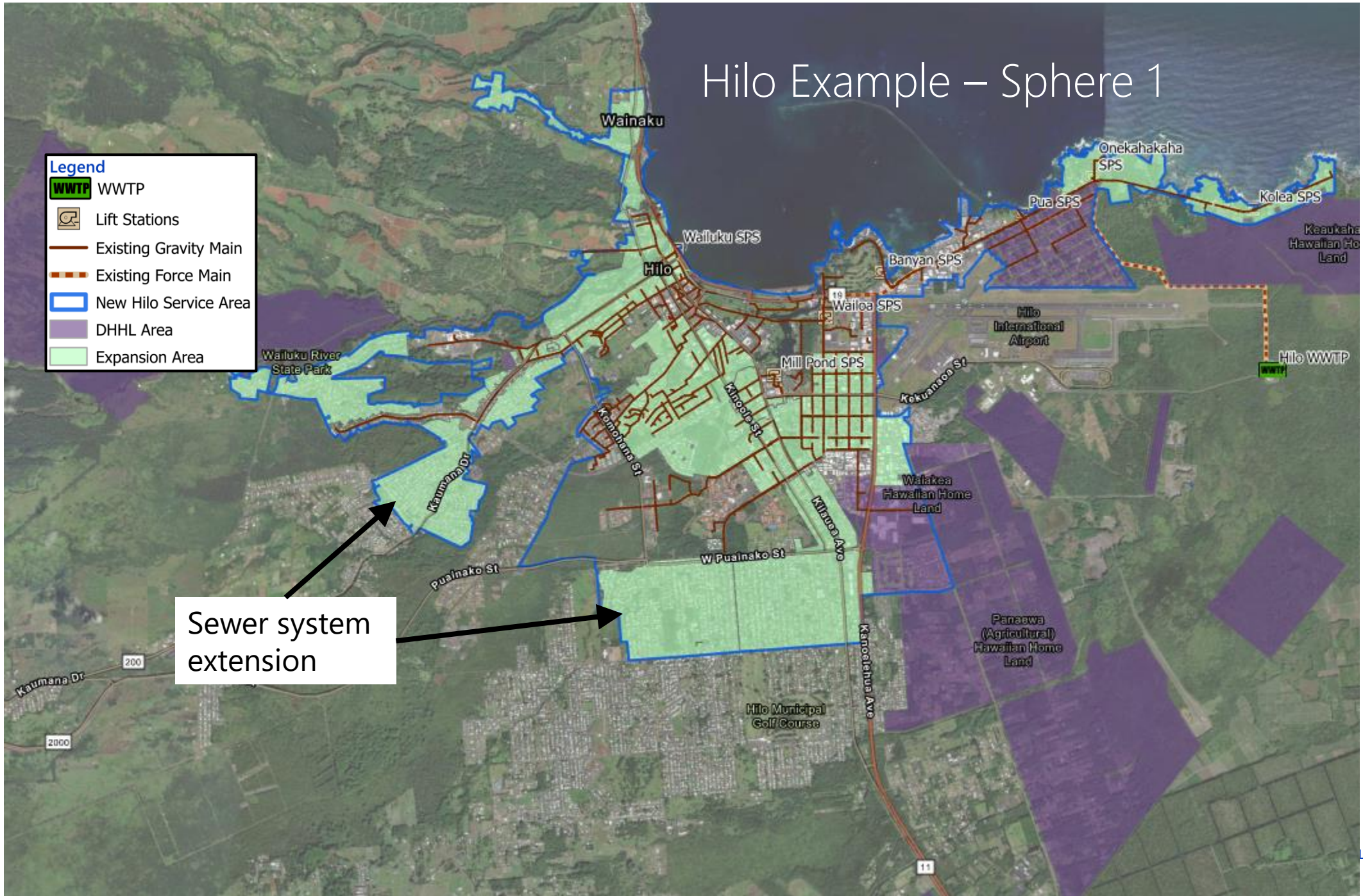
-  WWTP
-  Lift Stations
-  Existing Gravity Main
-  Existing Force Main
-  New Hilo Service Area



# Hilo Example – Sphere 1

**Legend**

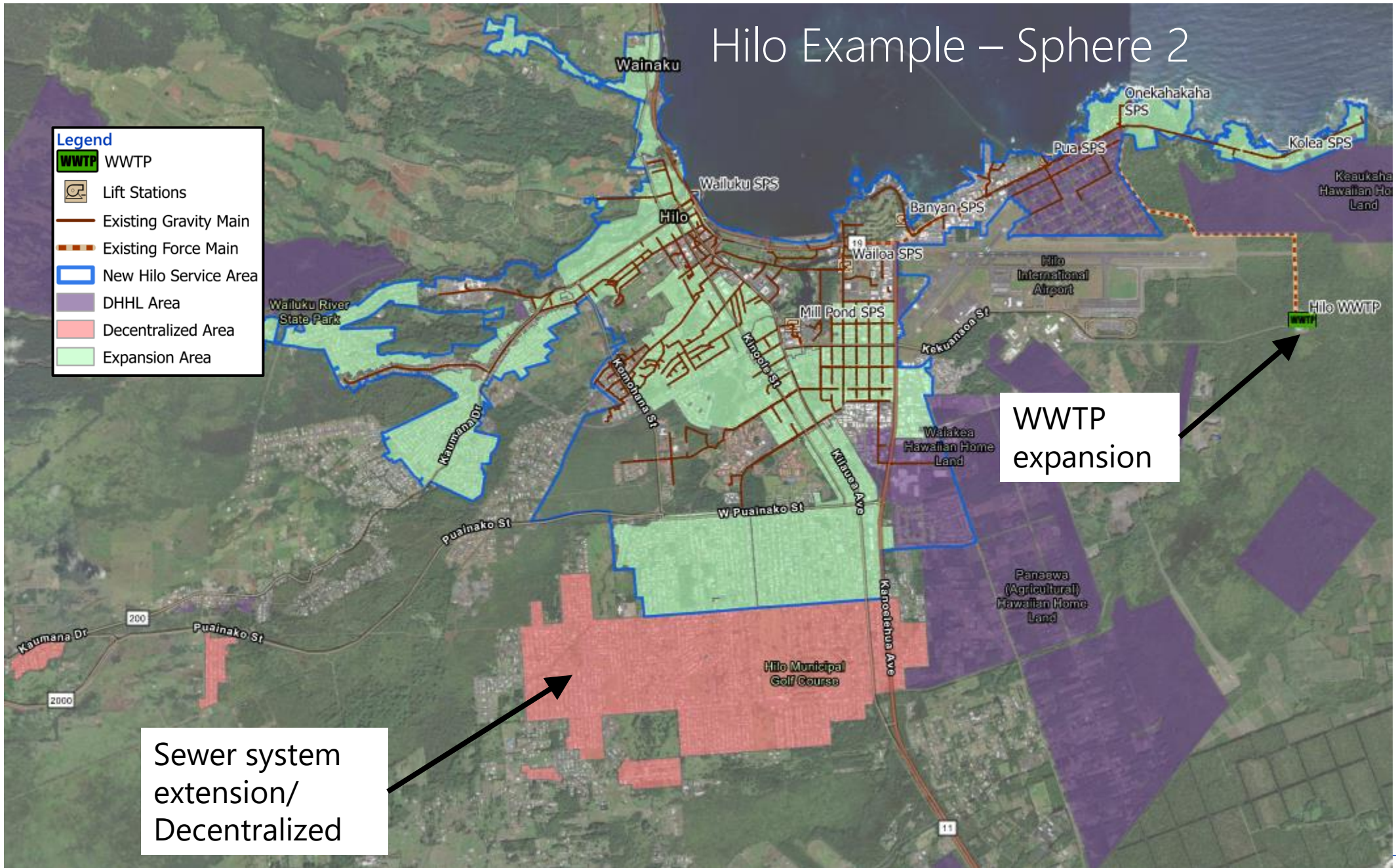
-  WWTP
-  Lift Stations
-  Existing Gravity Main
-  Existing Force Main
-  New Hilo Service Area
-  DHHL Area
-  Expansion Area



Sewer system extension



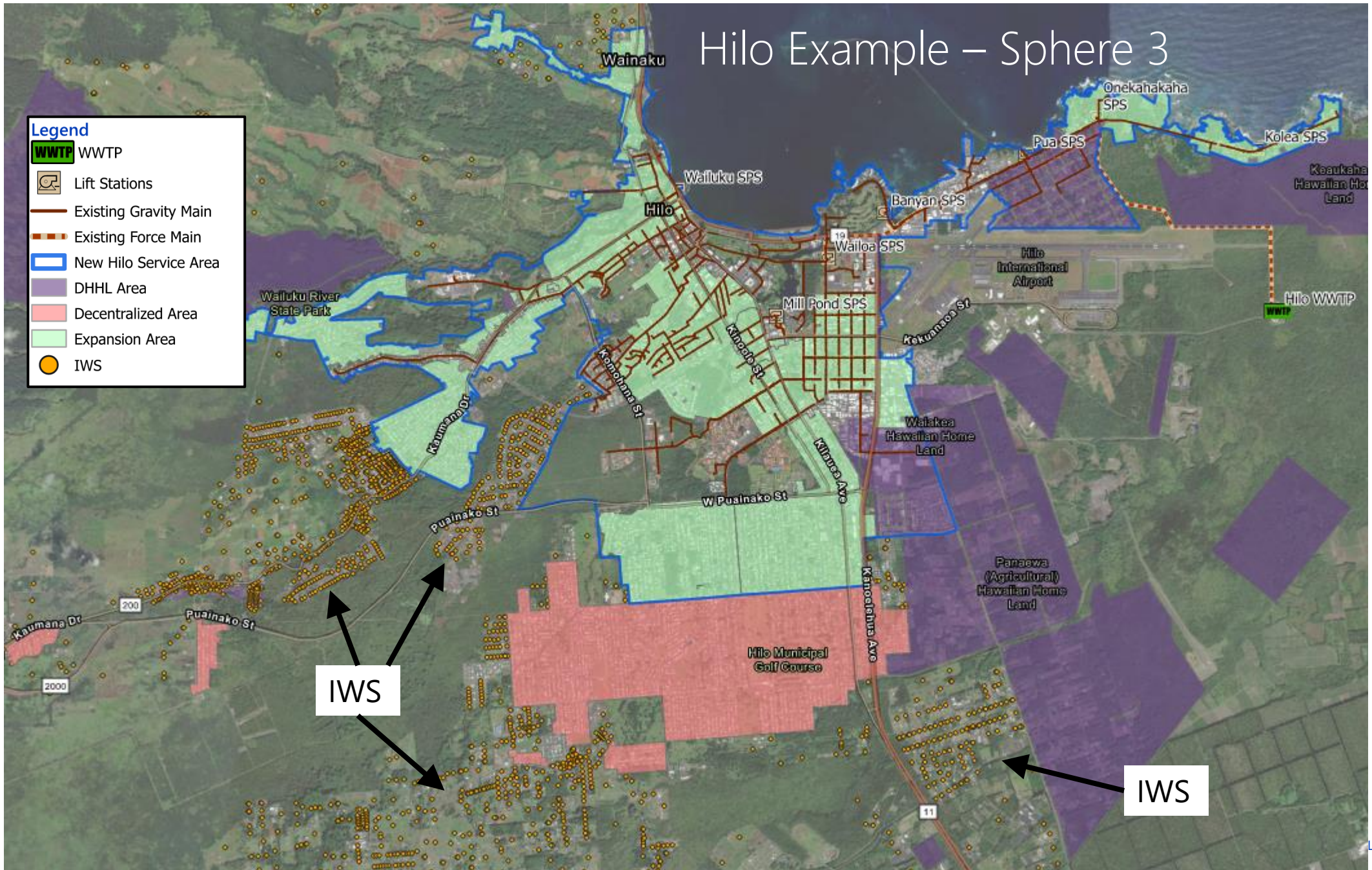
# Hilo Example – Sphere 2



Sewer system extension/  
Decentralized

WWTP  
expansion

# Hilo Example – Sphere 3



# Draft Sphere 1 Sewer Extension Project Summary

| Service Area | No. of Projects | No. of Cesspools |
|--------------|-----------------|------------------|
| Hilo         | 14              | 4,320            |
| Kealakehe    | 10              | 3,343            |
| Honokaa      | 5               | 326              |
| Papaikou     | 5               | 235              |
| Kulaimano    | 3               | 31               |
| Kapehu       | 0               | 0                |
| Pahala       | 1               | 300              |
| Naalehu      | 1               | 94               |
| <b>Total</b> | <b>39</b>       | <b>8,649</b>     |

# Criteria for Selection of Potential New Decentralized Systems

- Identified areas with 50 cesspools within a 1/8 mile radius
  - » 66 areas, 17,390 cesspools
- Removed areas within proposed extension of existing service area boundaries
- Reviewed each potential area; grouped if within 2 miles
  - » Cost of package WWTP vs. 2 miles of pipe
- Added the Puako community
- Resulted in 26 potential decentralized opportunities



# Potential Decentralized Project Opportunities

| Location        | No. of Cesspools |
|-----------------|------------------|
| Puna            | 123              |
| Puna            | 230              |
| Puna            | 88               |
| Puna            | 190              |
| Hilo            | 3,079            |
| Hilo            | 156              |
| Hilo            | 92               |
| Honomu          | 135              |
| Laupahoehoe     | 86               |
| Paauilo         | 136              |
| Honokaa/Paauhau | 126              |
| Honokaa         | 335              |
| Hawi            | 181              |
| Hawi            | 180              |

| Location                         | No. of Cesspools |
|----------------------------------|------------------|
| Waimea                           | 822              |
| Waimea                           | 445              |
| Waikoloa Village                 | 371              |
| Kealekehe                        | 1,609            |
| South of Kealekehe/Honalo        | 273              |
| South of Kealekehe/Kealakekua    | 56               |
| South of Kealekehe/Captain Cook  | 191              |
| South Captain Cook/Pebbles Beach | 127              |
| Ninole Cove                      | 76               |
| Puako                            | 196              |
| Hawi                             | 281              |
| Hawi                             | 196              |
| <b>TOTAL</b>                     | <b>9,723</b>     |

# Preliminary Summary of Potential Cesspool Conversions by Method

| <b>Cesspool Conversion Method</b>   | <b>No. of Projects</b> | <b>No. of Cesspools</b> | <b>Percent of Total</b> |
|---|------------------------|-------------------------|-------------------------|
| <b>County-Led Sewer Extension to Existing County WWTP</b>                                     | <b>39</b>              | <b>8,649</b>            | <b>17.8%</b>            |
| <b>Potential Community-Led New Decentralized System/Extension to Existing Non-County WWTP</b> | <b>26</b>              | <b>9,723</b>            | <b>20.0%</b>            |
| <b>Property Owner-Led IWS</b>   |                        | <b>30,224</b>           | <b>62.2%</b>            |
| <b>Total</b>  |                        | <b>48,596</b>           | <b>100%</b>             |

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## Anticipated Schedule

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## Anticipated Schedule (pending County Management confirmation)

- Draft Cesspool Conversion Plan – Q2, 2025
- Draft Facilities Plan – Q3, 2025
- Draft Integrated Wastewater Management Plan – Q3, 2025

Mahalo! 🙌