CITY OF ESCONDIDO
POTABLE REUSE PROGRAM
SCOTT LYNCH, P.E.
PRESENTATION OUTLINE

• Background
• Planning Process
• Building a Program
BACKGROUND
ABOUT ESCONDIDO

Water Service Stats
- 22 sq. miles
- 26,000 connections
- Serving 146,000 people
• Setting the Stage
  • 2006 & 2009 Outfall Assessments
  • 2009 IPR Concepts
  • Water shortages and rates affecting agricultural customers

• Escondido’s Potable Reuse Program
  • 2012 Program Manager selected
  • Task 1: Program Feasibility & Financial Assessment
  • Future: Implement Program
OBJECTIVES

EVWTP
Water Supply

Stakeholders
Invest in Local Water & Promote Rate Stability

HARRF
Resource Recovery

Disposal
KEY FACILITIES

EVWTP 75 mgd

HARRF 18 mgd

Outfall
PROJECT DRIVER - OUTFALL
THE PLANNING PROCESS
DEVELOPING CONCEPTS AND COSTS

**Basis & Flow Allocation Modeling**
- How much wastewater do we have?
- How much do we need to offload?
- How much new water do we create?

**Concepts**
- What facilities do we need to build?
- What are the individual facility costs?

**Cost Model**
- What are the compiled facility costs + financing?
- What are the major considerations?

**Project Refinement**
- What refinements can be made to optimize costs?
- What is the action plan for the proposed program?
PLANNING PROCESS
SYSTEMS AND KEY QUESTIONS

Wastewater

Where do we have recoverable resources?

Water

Where do we need supplies?

Recycled Water

What assets do we have?
What markets exist?
FLOW ALLOCATION MODEL PROCESS

**Inputs**
- NPR Database
- Wastewater Flows & Storms

**Flow Tables**
- WASTE STREAMS - SOLIDS
- HARRF TERTIARY INFLOW
- HARRF TERTIARY EFFLUENT
- TERTIARY GOING TO NPR (AND POND)
- WASTE STREAMS - TERTIARY
- HARRF DISPOSAL

**Results**
- Outfall Results
- System Flows
BUILDING A SUCCESSFUL PROGRAM
NPR/AG APPROACH
NPR/AG OPPORTUNITIES

NPR Extension & Ag Membrane Plant

Proposed Brine Pipeline

Existing NPR

HARRF

Draft Work Product
ASSESSING NPR/AG RESULTS

NPR/Ag Concept

Results

- New Use
- Pond

Flow (MGD)

- Average
- Winter
- Storm
- Storm with Pond
- Land Outfall Cap Gravity
- Ocean Outfall Cap Contracted

City of San Diego

Draft Work Product
BUILDING A SUCCESSFUL PROGRAM
POTABLE REUSE
POTABLE REUSE OPPORTUNITIES

EVWTP

Ag Membrane Plant

AWPF?
Decentralized (AMP) or Centralized (HARRF)

HARRF
# OPTIMIZING THE SOLUTION

<table>
<thead>
<tr>
<th>Centralized</th>
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## MBR

- **Conventional**
- **MBR**
- **Hybrid**

![Diagram of MBR systems](image_url)
## OPTIMIZING THE SOLUTION

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### Conventional

![Conventional Diagram](image1)

### MBR

![MBR Diagram](image2)

### Hybrid

![Hybrid Diagram](image3)
PULLING THE PIECES TOGETHER
PROGRAM RESULTS

Outfall okay deferral met

Draft Work Product
BUILDING A SUCCESSFUL PROGRAM PRO FORMA
DIVERSITIES WATER PORTFOLIO
Generates revenue for the City
Helps stabilize rates
THE JOURNEY AHEAD HAS TWO PATHS...

Option 1 Outfall Expansion
- $ Costs *all at once*
- **No** Revenue
- **No** Water Security
- **No** Rate Benefits

Option 2 Reuse Expansion
- $ Costs Spread Over Decades
- Generates Revenue
- Provides Water Security
- Provides Rate Benefits
1. Which approach is better financially?
2. What are the affordability impacts?
ACKNOWLEDGEMENTS

• Acknowledgements
  • City of Escondido
  • Black & Veatch
  • Brown and Caldwell
  • Dr. Michael Welch
  • Dr. Shane Snyder
THANK YOU!

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Together

BLACK & VEATCH