CITY COUNCIL UPDATE
POTABLE WATER REUSE PROGRAM

City of Escondido
Utilities Department
April 2, 2014
ACKNOWLEDGEMENTS

Utilities
• Dennis Sperino
• Craig Whittemore

Black & Veatch
• David Cover
• Kevin Davis
• James Strayer

Brown and Caldwell
• Victor Occiano
• Seval Sen

Many others from all three organizations……
Background

Options

Preferred Option

Financial Evaluation

Timing of Key Elements

Council Comment and Feedback
BACKGROUND

CHALLENGES THAT LED TO PROGRAM DEVELOPMENT
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• Flow Capacity Limitation of Existing Outfall
  • Conveys treated wastewater from Hale Avenue Resource Recovery Facility (HARRF) to the ocean
  • Nearing capacity
  • Aging and will require replacement if water is not redirected via reuse
Imported Water Dependence

- Water scarcity / drought
- Local water system
  - Beneficial but limited

More water reuse would decrease reliance on imported water and mitigate outfall capacity limitation

Reference: Anthony Artusa
NOAA/NWS/NCEP/CPC, January 28, 2014
CHALLENGES THAT LED TO PROGRAM DEVELOPMENT

- Treatment Capacity of existing HARRF facility
  - Limited BOD removal
    - Already beginning to impact business community
    - Impacts will spread as capacity becomes more scarce
  - Recycled water (RW) capacity is limited
CHALLENGES THAT LED TO PROGRAM DEVELOPMENT (CONT.)

Limited RW Distribution

- Limited existing recycled water system for irrigation and other non-potable uses (NPR)

Expansion of RW treatment and distribution would:

- Generate revenue
- Reduce ocean discharge
  - Mitigate outfall capacity
- Benefit local economy
OPTIONS
OPTION 1
Construct a new, larger outfall – No reuse program
• Continues sending water to the ocean via outfall
• No increase to recycled water portfolio
• Total CIP cost = $403 million
• No opportunity for phasing and no revenue generated
• Difficult and extremely costly to permit; high soft costs
OPTION 2

Expand Recycled Water System and Develop Potable Reuse

• Total CIP cost = $285 million
  • Additional $21 million after 2030 (outfall lining)
• Large CIP cost, but...
  • Generates revenue (> $20 million annually in 2030)
  • Reduces imported water cost (Water Fund benefit)
  • Lower environmental and regulatory risk
• Creates new, reliable, drought-proof water supply
• Stabilizes rates – less reliance on imported water
• Improved water quality (less salt)
PREFERRED OPTION
PREFERRED OPTION - OPTION 2

Why?
- Solves outfall capacity issue
- Diversifies Recycled Water Portfolio
- Reduces imported water cost
- Generates revenue
- Helps stabilize rates
FINANCIAL EVALUATION
COMPARISON OF ESTIMATED COSTS AND REVENUES

Option 1: Outfall Expansion
Construction Cost Estimate - $403 M
Revenue - $0
Cash Flow always negative
More immediate (cannot be phased)
→ Funded via borrowing

Option 2: Reuse System Expansion
Construction Cost Estimate - $285 M
Revenue – $24 M annually in 2030
Cash flow eventually positive
Phased over next 20 years
→ Funded via rates and borrowing
   Eligible for low interest SRF
   Eligible for grants
COMPARISON OF ESTIMATED COSTS AND REVENUES (CONT.)
THE JOURNEY AHEAD HAS TWO PATHS FORWARD.....

**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
Timeline of Capital Expenditures – Replace Outfall
Timeline of Capital Expenditures – Reuse Program
Timeline of Capital Expenditures
TIMING OF KEY ELEMENTS
TIMING OF KEY ELEMENTS – OPTION 2

- Total CIP cost = $285 M *(Full project list in the agenda staff report document)*
  - RW distribution expansion
    - (Initial phases – 2015 = $26 M; Final phases – 2017 = $14 M)
  - AWT Pilot (2015 – $21 M)
  - HARRF treatment capacity expansion
    - (Initial phase – 2018 = $18 M; Final phases – 2023 to 2028 = $103 M)
  - Full-scale AWT and Distribution
    - (Initial phase – 2023 = $63 M; Final phases – 2028 = $40 M)

- Lining existing outfall (post-2030)
STAFF RECOMMENDATIONS AND REQUESTS

• RECOMMENDATIONS
  • Continue RW distribution expansion already underway
    • 24” RW main, brine line extension, tank, distribution
  • Prepare remaining RW distribution projects for Council
    • Including MF/RO (desalting) and AWT pilot project
  • Prepare details re: financing options
    • Short term: rates (future rate hearing), SRF loans, grants
    • Long term: SRF loans, bonds, grants

• REQUESTS
  • Provide guidance and direction on recommendations
  • Receive and file the report
QUESTIONS?
TECHNICAL COMPONENTS
Advanced Oxidization Microfiltration & Ultrafiltration

Reverse Osmosis

UV / Advanced Oxidation

Detention Time in Reservoir

Treatment at Drinking Water Plant

Drinking Water Supply

Multi-Barrier Water Purification Steps

Water Purification Process

Microfiltration & Ultrafiltration

Reverse Osmosis

Advanced Oxidization

Ref: City of San Diego AWPF Demonstration Project, 2012
FAIL-SAFE COMPONENTS TO PROTECT PUBLIC HEALTH

- Multiple Barriers
- Robust Operational & Water Quality Monitoring
- Diversion of Off-Spec Water
- Alternate Supply Sources

SAFE AND RELIABLE POTABLE WATER SUPPLY