

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.....



CITY COUNCIL UPDATE MEETING AGENDA

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

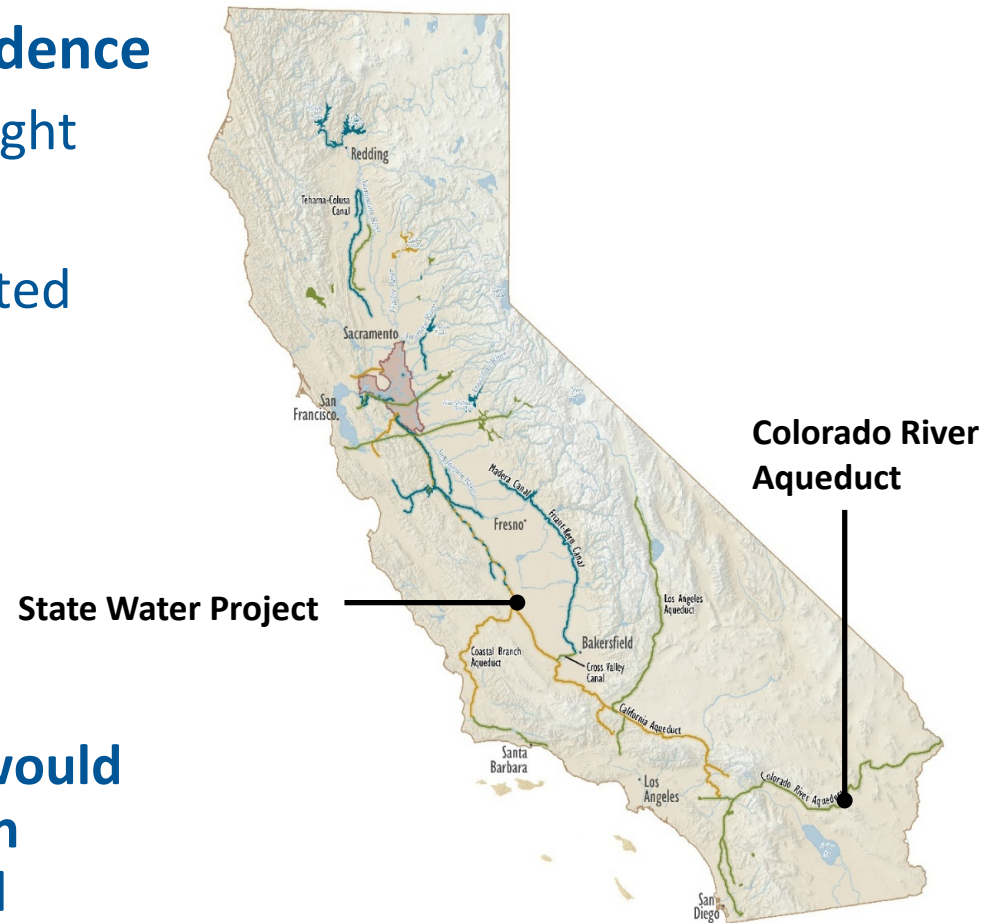


CHALLENGES THAT LED TO PROGRAM DEVELOPMENT (CONT.)

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

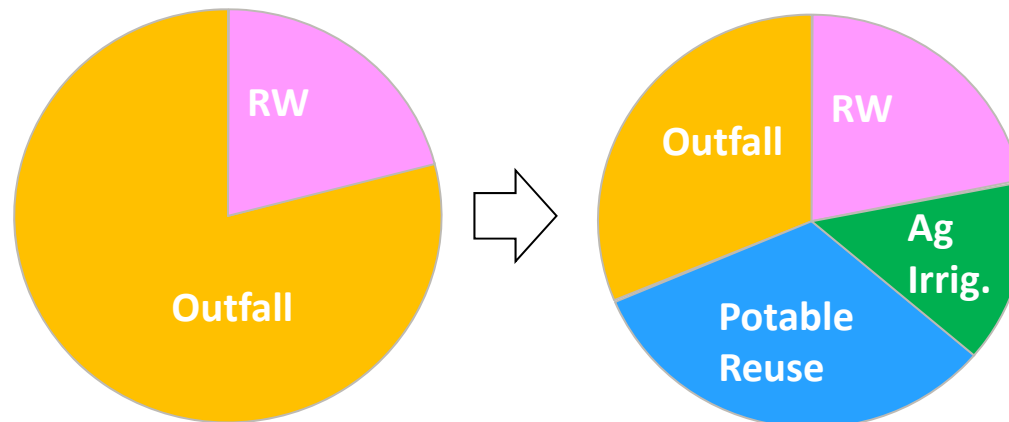
- Continues sending water to the ocean via outfall
- No increase to recycled water portfolio
- Total CIP cost = \$403 million
- No opportunity for phasing and no revenue generated
- Difficult and extremely costly to permit; high soft costs



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)

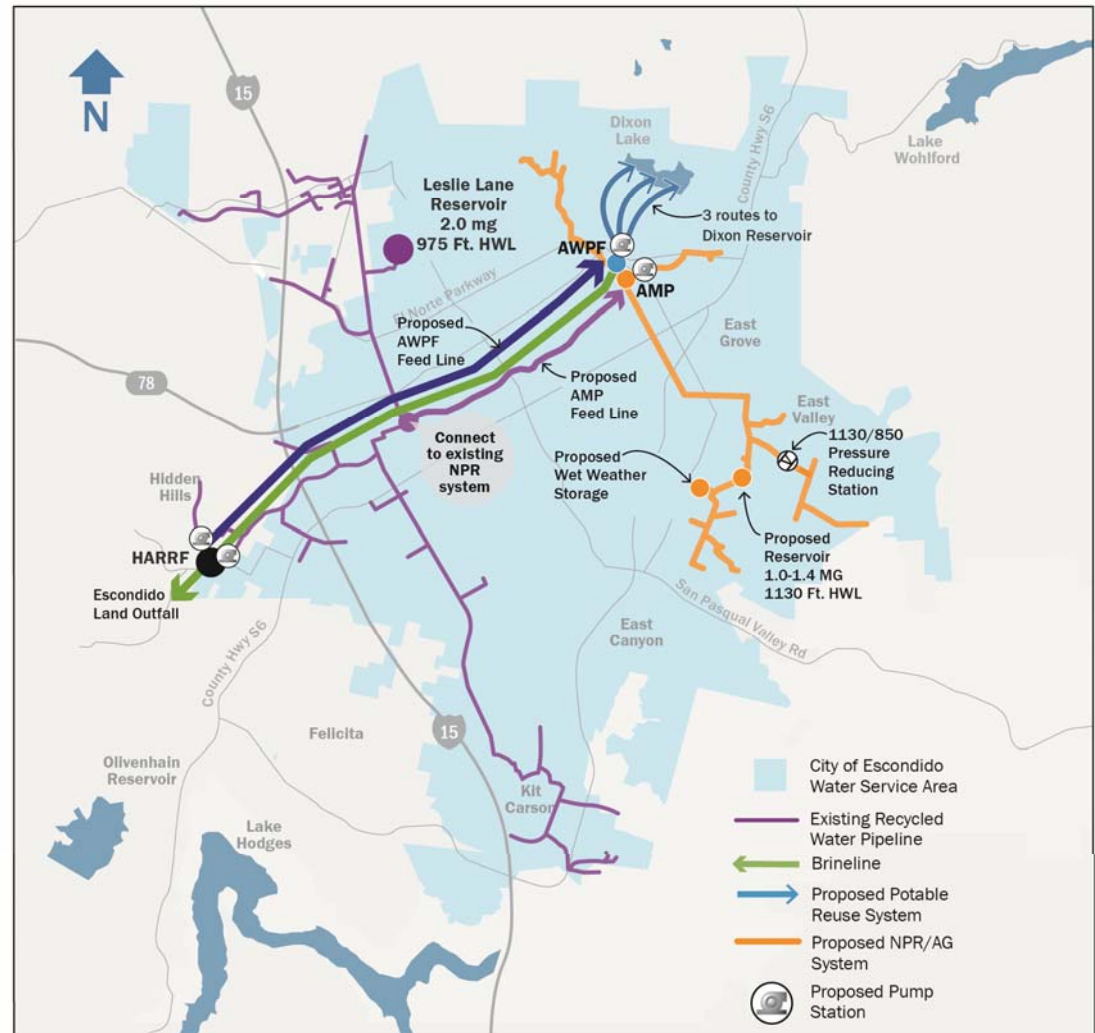


PREFERRED OPTION

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

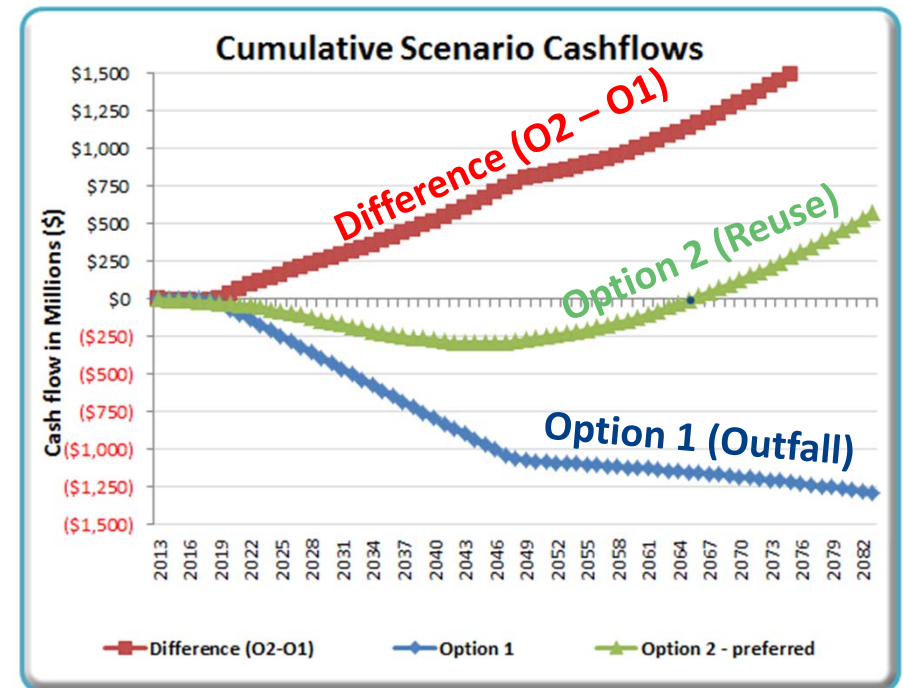
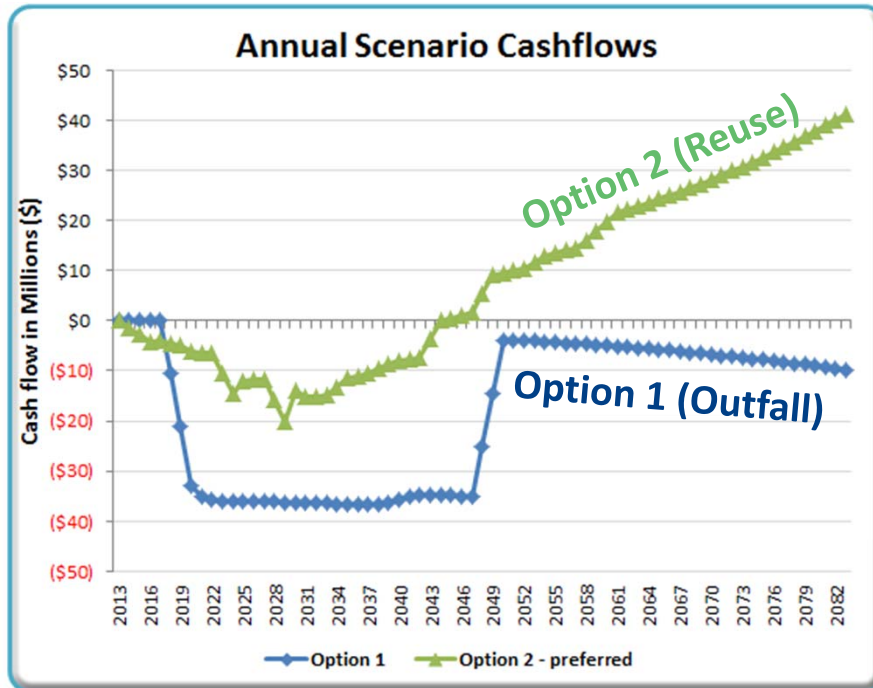
Phased over next 20 years

→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

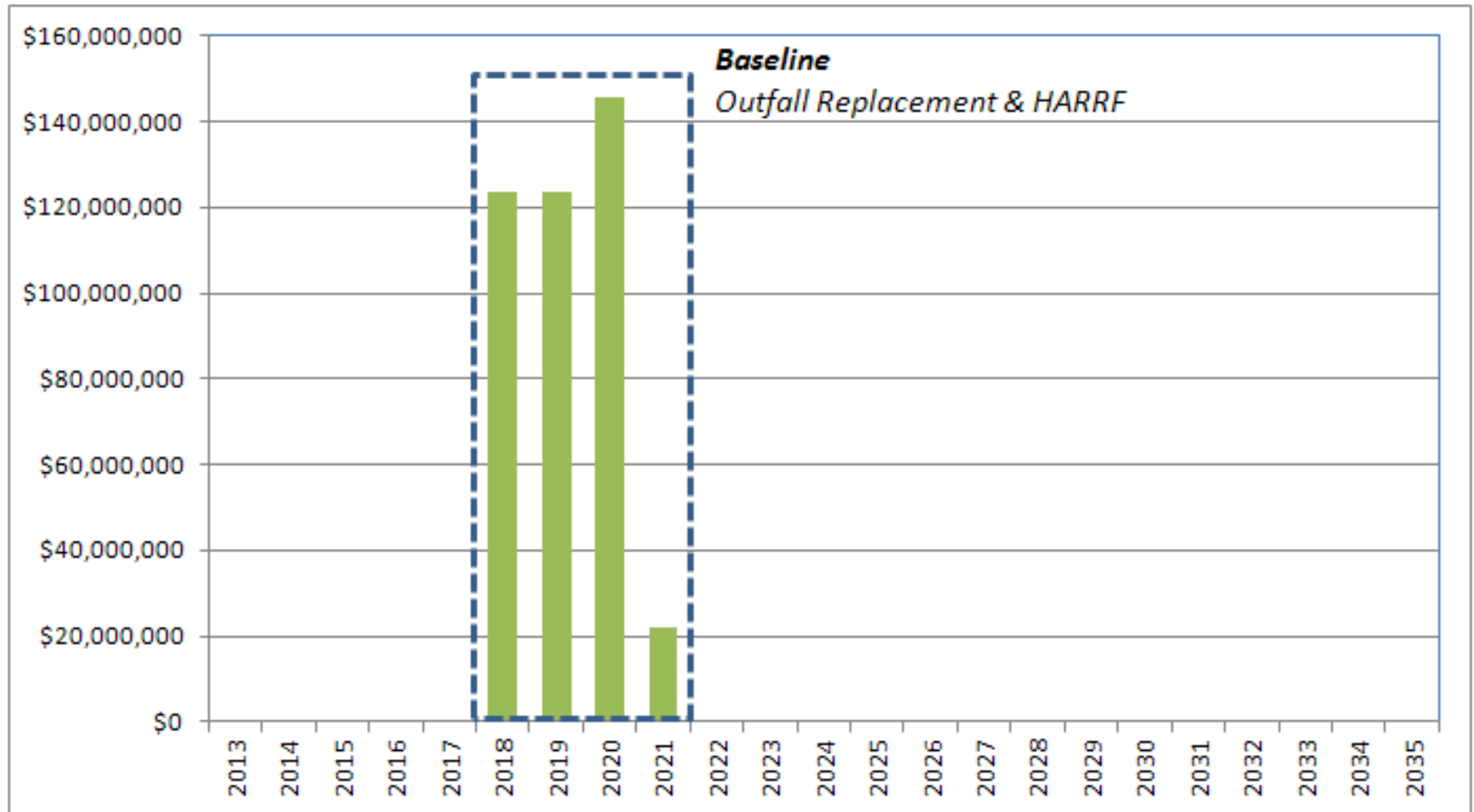
- \$ Costs *all at once*
- **No** Revenue
- **No** Water Security
- **No** Rate Benefits



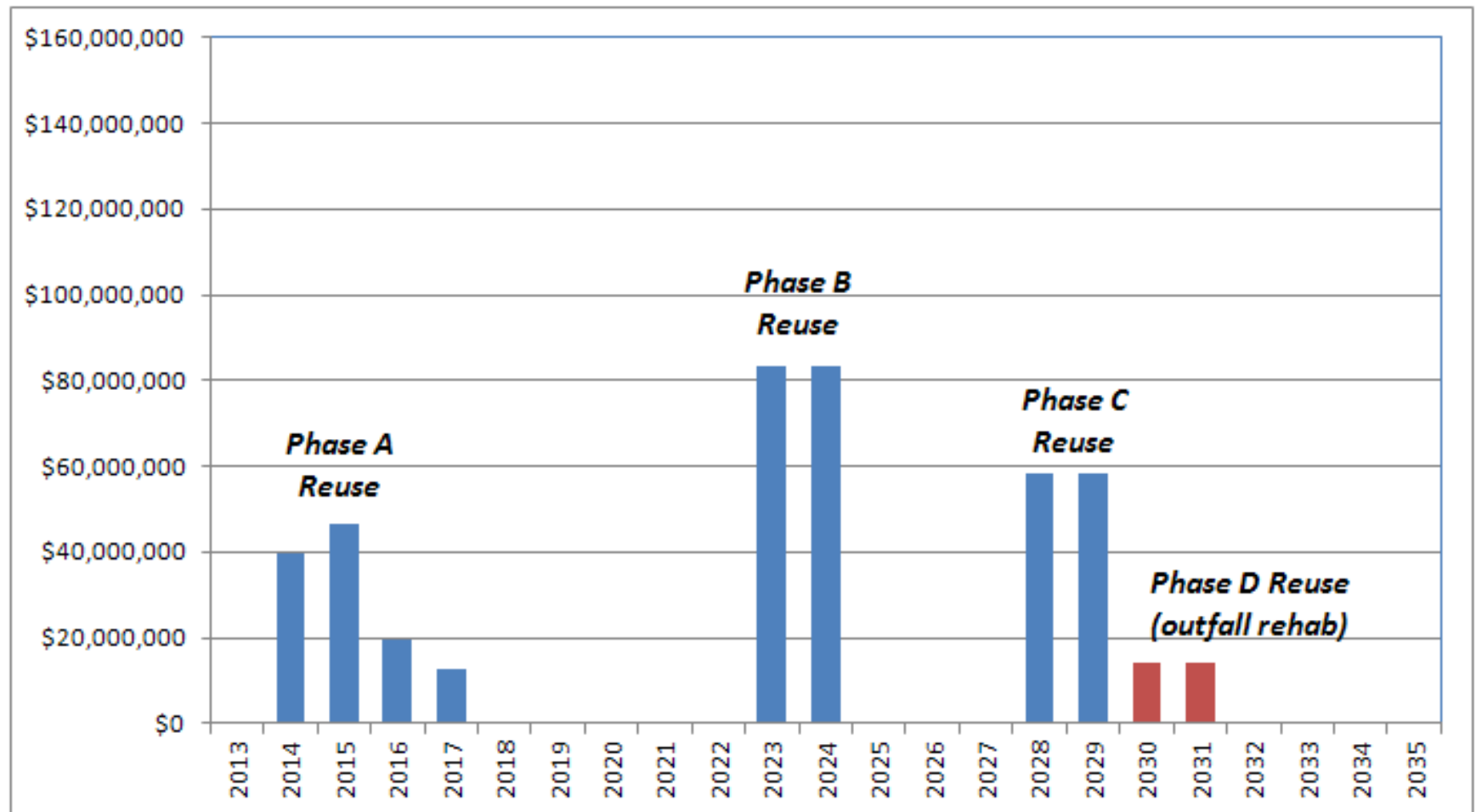
Option 2 Reuse Expansion

- \$ Costs Spread Over Decades
- Generates Revenue
- Provides Water Security
- Provides Rate Benefits

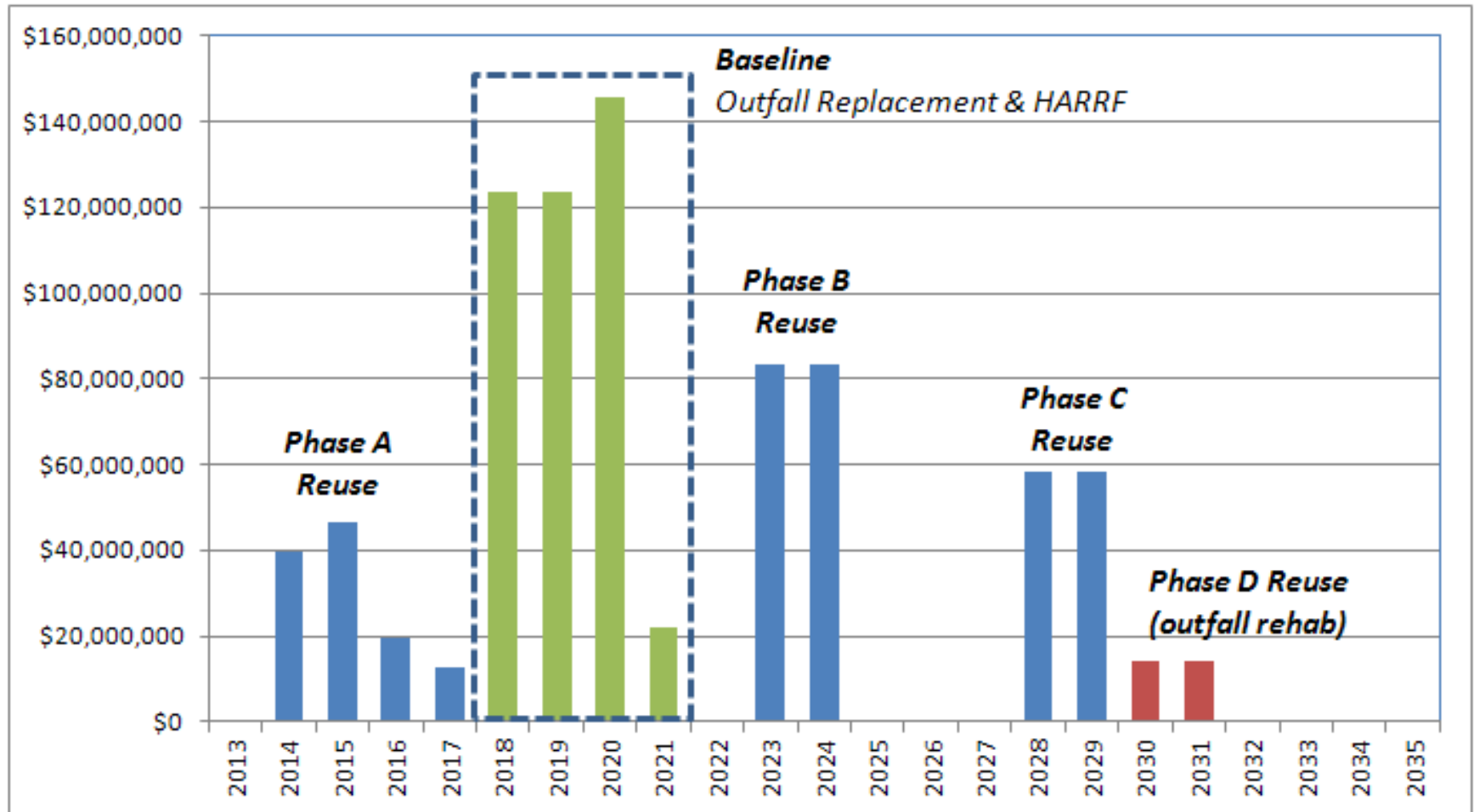
Timeline of Capital Expenditures – Replace Outfall



Timeline of Capital Expenditures – Reuse Program



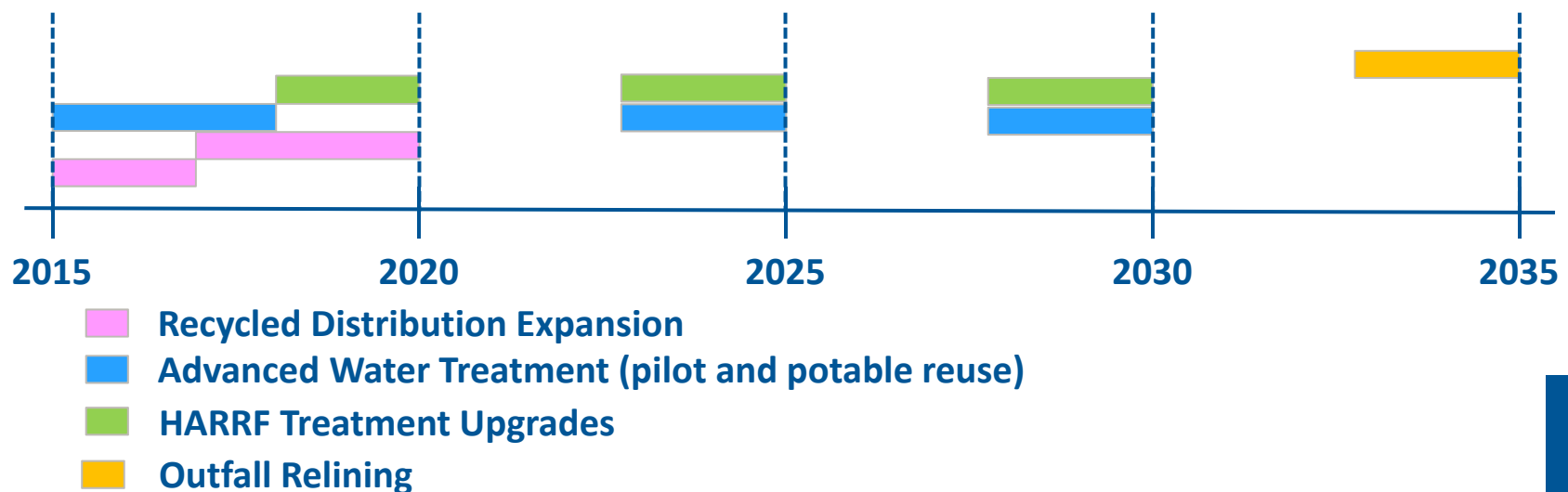
Timeline of Capital Expenditures



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**

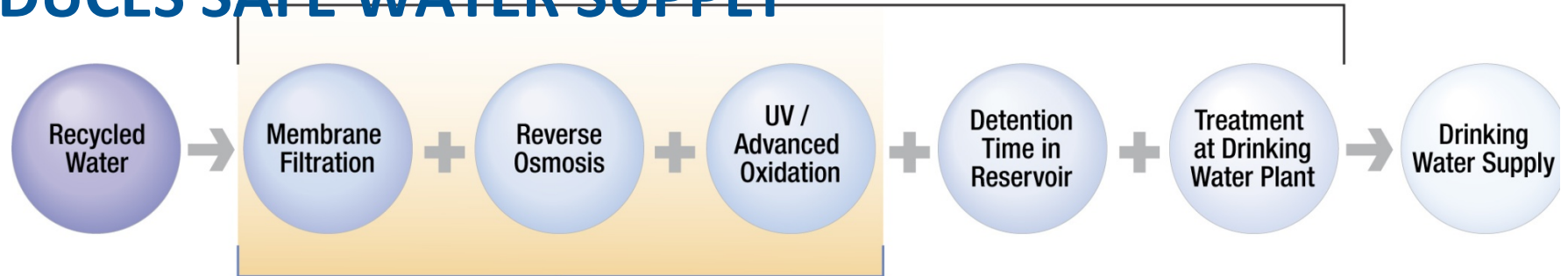
- Provide guidance and direction on recommendations
- Receive and file the report

QUESTIONS?

TECHNICAL COMPONENTS

ADVANCED WATER PURIFICATION TECHNOLOGY PRODUCES SAFE WATER SUPPLY

Multi-Barrier Water Purification Steps



Water Purification Process

Microfiltration & Ultrafiltration



Reverse Osmosis



Advanced Oxidization



Ref: City of San Diego AWP 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

