Colorado River Work Group Update - Regional Conveyance System Study

Imported Water Committee
March 12, 2020

Gary Croucher
Colorado River Work Group Chair
Agenda

- Background

- Study Update
  - Partnerships Opportunities
  - Technical Analysis
  - Financial Analysis
  - Economic Analysis

- Schedule
Background

What is driving this study?

How was the scope developed?

What has been analyzed so far?

What to expect going forward?
What is Driving the Study?

- Ratepayer protection is at the core
- Water Authority has a technical, financial, and legal due diligence obligation to look at all transportation options for the region’s primary water supply
- Long-term regional planning requires a comprehensive analysis and thorough dialogue
- Study will directly shape future resource mix of the region
What is Driving the Study?

- Based on recent history, independent QSA supplies remain more reliable than an imported water resource mix that is tied to other sources
  - State Water Project allocations
  - Regulatory droughts
  - Junior priority Colorado River water
- Against this backdrop the Regional Conveyance System Study is appropriately **equal parts supply and transportation**
How Was the Scope Developed?

- Initial scope framed by the 2017 Board decision to extend the Exchange Agreement with MWD by 10 years to 2047
- Considerable discussion regarding 5-year notice provision
- Board desired a more thorough dive into operational, technical, and legal questions tied to “alternative conveyance”
How Was the Scope Developed?

- Unanswered **technical** questions required further exploration after Exchange Agreement extension
  - Could the Water Authority reconfigure its aqueduct system to move water from south to north?
  - Is blending high TDS Colorado River water in San Vicente Reservoir a good idea?
  - How does Pure Water San Diego play into the project?
  - Does capacity exist in the All-American Canal?
  - How would the farming community be impacted?
  - Is the project affordable?
How Was the Scope Developed?

- Board allocated $3.9M in the FY 20/21 CIP
- Desired a phased approach to the study with offramps
- Cost effective delivery of QSA supplies a core concern
- Technical analysis to help inform economic analysis
  - **Refine and update** various components of prior studies related to treatment, risk, and environmental analysis
  - **Study new components** including a northern alignment, system integration, and multi-use concepts
How Was the Scope Developed?

- The Colorado River Work Group was established to serve as a sounding board for the process

  - Conversations evolved from a technical single-use pipeline discussion to a multi-use regional facility
  - Partnership development became a focus
  - Measures to reduce costs became a key driver

- Member Agency Managers provided input that helped further refine the scope

  - Independent financial analysis was sought
  - Movement of economic analysis to Phase A
  - Analysis of Water Fix costs to reflect a “single tunnel”
  - Movement of blending/treatment/brine management analysis to Phase A
## Summary of Final Scope

<table>
<thead>
<tr>
<th>Phase A</th>
<th>Phase B</th>
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<td><strong>New</strong></td>
<td><strong>Phase B</strong></td>
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| • Northern alignment  
• System integration  
• Multi-use, partnerships & funding | • Partnership structures  
• Project delivery methods  
• Property Acquisition |
| **Refine/Update** | **Refine/Update** |
| • Demand forecast  
• Treatment, blending & brine disposal  
• Permit & environmental requirements  
• Risk analysis  
• All-In cost & economic analysis  
• Initial screening of alternatives | • Demand forecast  
• Multi-use, partnerships & funding  
• Conveyance alignment & tunneling  
• Site layouts  
• Geotechnical desktop study  
• Risk analysis  
• All-In cost & economic analysis  
• Final screening of alternatives |
| **Cost:** $1,300,000  
**Completion:** 12 Months  
**Offramp:** Go/No-Go to Phase B | **Cost:** $590,000  
**Completion:** 12 Months  
**Offramp:** Go/No-Go to next step |
Status as of March 2020

- Phase A work on track for completion by June
- Preliminary technical and financial analysis results complete
- Independent review of financials in progress
- Several partnership opportunities identified
- Outreach to Board, Member Agencies, and the public planned as we head into the summer
Partnership Opportunities
Potential Multi-Use Along Each Route
Partnerships Included in Baseline Analysis

- Imperial Valley Operational Storage
- North County Operational Storage
- Brine Management
Potential Binational Turnout
Partnerships to be Studied Further

Potential Groundwater Storage in Borrego Springs

Habitat Creation at the Salton Sea
Partnerships to be Studied Further

Geothermal/Renewable Energy Integration

Operational Flexibility for Farming
## Partnerships to be Studied Further

| Public Private Partnerships | Similar to Carlsbad desalination for pumped hydro, wind, solar and treatment |
| Water Authority Member Agencies | Storage, reservoir integration and supply |
| Non-governmental Organizations, State and federal government | Collaboration on habitat, air quality, and the Salton Sea |
Technical Analysis
Technical Analysis Overview

- Technical analyses supported “all-in” cost estimate

- Technical analysis identified partnership opportunities

- Partnerships further explored in Phase B
Key Accomplishments Since November

- Power Supply Analysis
- Capital and O&M Costs
- Environmental Overview
- Financial & Economic Model
All Focused Workshops Complete

- Partnerships
- RCS Operations
- Aqueduct Integration
- Treatment, Blending, Brine Management
- Power Supply
- Financial & Economic Analysis (2)
- Screening Analysis
Risk Analysis Process

- Identify
  - Technical
  - Non-technical

- Analyze
  - Qualitative - Phase A
  - Quantitative - Phase B

- Address
  - Avoidance
  - Mitigation
  - Acceptance
Key Takeaways

Several Partnership Opportunities Along Each Route

Limited New Facilities Needed for WA Aqueduct Integration

Capacity Considerations for AAC Integration

Blending No Longer Viable - Treatment Required

Steep Topography Favors Tunneling
Integration with Aqueduct System
Integration with Aqueduct System

New Storage Tank
New Pipeline
New Pump Station

Twin Oaks WTP
New Storage Reservoir
San Vicente Pump Station
Integration with Canal System
Integration with Canal System

New Shared Storage (near Fox Glove Check Structure)
Treatment in Imperial Valley

Previously Assumed Blending

San Vicente Reservoir
Treatment in Imperial Valley

Brine Management

New Treatment Plant
3 potential locations

Brine Management Pipeline
Tunneling Addresses Steep Topography
Tunneling Addresses Steep Topography
Next Steps

- Finalize Screening Process
- Compile Phase A Report
- Prepare Executive Summary
  - Similar to 2013 Master Plan Update
  - Complete early June
Financial Analysis
Financial and Economic Analysis - Approach

Phase A
1. B&V Cost Estimate and Timing
2. Staff Economic Analysis
3. Independent Financial Analysis
4. Compare to Alternatives

Phase B (If authorized)
4. Analyze Rate Integration
5. Develop Funding Strategies
What’s Changed Since 2017

- Alternative 3A added to study
- Treatment: Blending is no longer an option
- In-County Operational Needs:
  - New Storage Reservoir in North County (3A)
  - New Storage Tank in North County (3A, 5A & 5C)
  - New Pipeline and Pump Station (5A & 5C)
- All-American Canal Capacity Constraints
  - Option 1 - Parallel conveyance
  - Option 2 - Operational storage
## Inputs to Economic Analysis

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Economic Analysis
Economic Analysis Overview

- RCS provides positive economic returns

- RCS is cost-competitive with MWD scenarios
  - Potentially Billions in Net Present Value Savings

- RCS would maintain Supply Portfolio Resiliency & Reliability
Key Economic Analysis Assumptions

- Operational by January 1, 2045
- 2112 Time Horizon to align with 110-year Canal Lining Agreement
- Conservative Capital and O&M baseline
- No partnership funding (i.e. P3, grants, etc.) included in baseline - sensitivity analysis in Phase B
- IID Transfer and Canal Lining supply cost status quo
Components of Economic Analysis

- **Supply:**
  - Water Transfer
  - Canal Lining
  - MWD
  - Local Supplies

- **Transportation:**
  - MWD Exchange Rate
  - Regional Conveyance System
Water Supply Portfolio Mix

- Shifted portfolio mix away from MWD reliance
- Increased reliability and resilience
- Without Exchange Agreement extension or RCS, supply mix would revert back toward MWD reliance
- QSA supplies have higher priority status
MWD Historical Rate Increases

20-Year Transportation Rate (SA + SP + WSR)

Avg Increase 4.5%

20-Year Tier 1 Full Service

Avg Increase 5.1%
Water Supply & Conveyance Alternatives

MWD Reliance
- MWD Supplies
- Canal Lining

Regional Conveyance System
- Regional Conveyance System
- SDCWA-IID Water Transfer
- Canal Lining

Local Supply QSA Replacement
- MWD Transportation
- New Local Supplies
- Canal Lining
MWD Reliance Ranges from $36B - $63B

Net Present Value of 277,700 AF (2045-2112)

- **MWD High**: $62.58 billions
  - Transportation: $35.64 billions
  - Supply: $26.94 billions
- **MWD Baseline**: $50.81 billions
  - Transportation: $35.64 billions
  - Supply: $15.17 billions
- **MWD Low**: $35.64 billions
  - Transportation: $35.64 billions
  - Supply: $0 billions

Does not include NPV for additional planned projects (Water Fix, Regional Recycled Water Program, PERS Prefunding)
RCS Alternatives Range from $29B - $31B

Net Present Value of 277,700 AF (2045-2112)

RCS 5A

$30.54

RCS 3A

$29.18

Assumes status quo of MWD rates and charges and does not reflect potential fixed cost shift
RCS is Cost-Competitive, Resilient & Reliable

Net Present Value of 277,700 AF (2045-2112)

- Local Supply Alt: $46.28
- MWD Reliance: $50.81
  - Low: $36
  - High: $63
- RCS 5A: $30.54
- RCS 3A: $29.18

Billions

Transportation
Supply
NPV Sensitivity Analysis

Net Present Value of 277,700 AF (2045-2112)

- Local Supply Alt
- MWD Reliance
- RCS 5A
- RCS 3A

Billions

$0 $20 $40 $60 $80

Transportation
Supply
Future Savings to Dampen Construction Impacts

Annual Cost Difference Between MWD Baseline & RCS 3A

- $1.00
- $0.00
- $1.00
- $2.00
- $3.00
- $4.00
- $5.00
- $6.00
- $7.00
- $8.00

Billions

CY 2050 RCS Cost Crossover
CY 2062 RCS Project Break-Even

Phase B to further define rate integration and mitigation strategies
Phase B to Identify Funding Strategies

- Concentrate on mitigating short term rate impacts
  - Grants | State/Federal Funding | Partnerships | P3s

- Develop rate strategies to provide initial program development funding

- Work with financial advisors to develop Plan of Finance
Key Take-Aways

- RCS is cost-competitive
- RCS provides billions in NPV savings
- RCS maintains resiliency and reliability
- Phase B would identify potential funding strategies to increase savings
Schedule
**Phase A Schedule**

1. **March 9**
   - CRWG Meeting

2. **March 12**
   - Special IWC Workshop

3. **April 9**
   - Special MAM Meeting

4. **April**
   - Independent Review

5. **Tentative April/May**
   - CRWG Meeting

6. **May 14**
   - Special IWC Workshop

7. **Tentative May/June**
   - Special MAM Meeting

8. **June 25**
   - Regular IWC Meeting (Action)

**Financial/economic results**

**Offramp - Go/No-Go to Phase B**

- Independent review results
- Screening results