



Engineering, Operations, & Technology Committee

Risk Management in Capital Project Planning and Delivery

Item 6c

March 10, 2025

Item 6c
Risk Management in
Capital Project
Planning and
Delivery

Subject

Risk Management in Capital Project Planning and Delivery

Purpose

Provide an update on Metropolitan's approach to managing risk associated with capital projects

Next Steps

Continue enhancing Metropolitan's risk management approach

Risk Management - Project Level

Overview

- Projects initiated largely to reduce operational risks
- Metropolitan Engineering manages risk throughout the project delivery cycle through:
 - Rigorous planning and design
 - Continuous reviews
 - Effective construction management

**Risk
Management**
– Planning
Phase

Rigorous Facility Studies/Evaluations

- Infrastructure Resilience
 - Drought
 - Earthquake
 - Wildfire
 - Flood
 - Climate change
- Infrastructure Reliability
 - Condition assessment
 - System vulnerability assessment
 - System flexibility assessment
- CAMP4W

Capital Project Risk Management – Design Phase

Risk Management Tools and Processes

- Value Engineering – Project analysis routinely includes development of a risk register
- Constructability Review – Team process for evaluating construction docs for potential risks
 - Review of risk register
- Design Standards may exceed national standards based on lessons learned and risk avoidance/mitigation



Metropolitan
Standard Detail Book

Risk Management – Construction Phase

Construction Risks

- Safety
- Differing site conditions
- Coordination with operations
- Equipment delivery
- Shutdown/outage planning
- Managing public relations

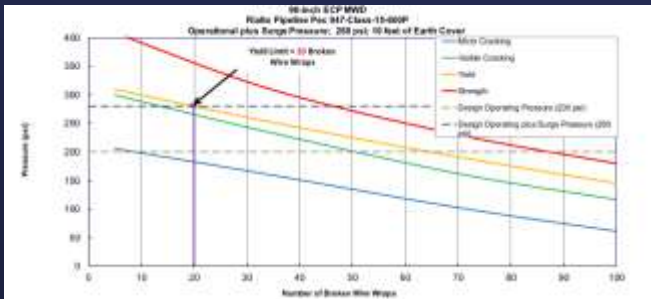


Perris Valley Pipeline
Construction

Short-term Programmatic Risk Management

- Comprehensive monitoring and inspection program includes:
 - Visual and electromagnetic inspections
 - Monitoring and addressing local stray currents
 - Identify distressed segments
 - New data - elevated risk caused reprioritization of repair of the Allen-McColloch Pipeline

Risk Management Example PCCP Rehab. Program



Risk Curves

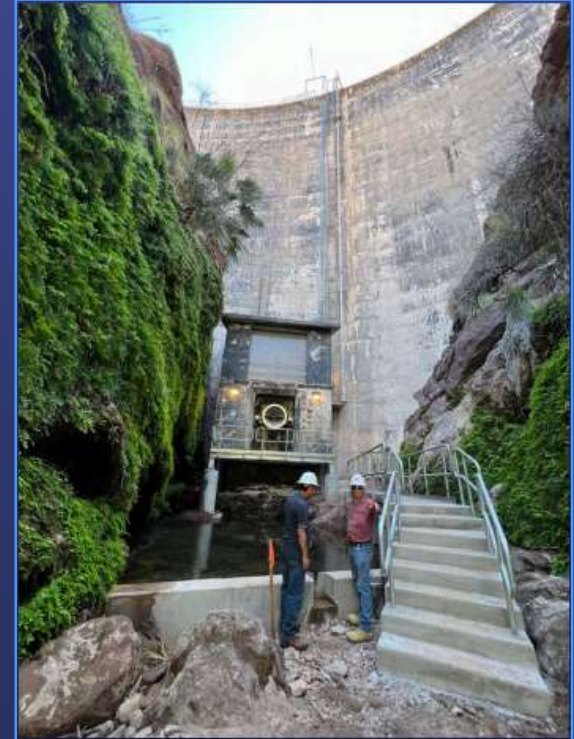


Electromagnetic Inspection

Risk
Management
Example
Gene Wash
Valve
Replacement

Construction-related Risks

- Discharge isolation device leaked and oddly configured
- Work in steep canyon with complex geology
- Unknown facility condition
- Protect facilities and allow access
- Environmentally sensitive area
- Valve had to stay continuously operational



Gene Wash
Dam Discharge Facility

Risk Management Example

Gene Wash Valve Replacement

Risks Considered and Mitigated

VE Workshop

- Rock fall from nearby slopes; address controls; safety improvements; access improvements

CR Workshop

- Revisited register
- More geologic data needed; slide gate condition may be worse than expected; isolation device installation; leakage management; equipment and access issues

Valve Test Workshop

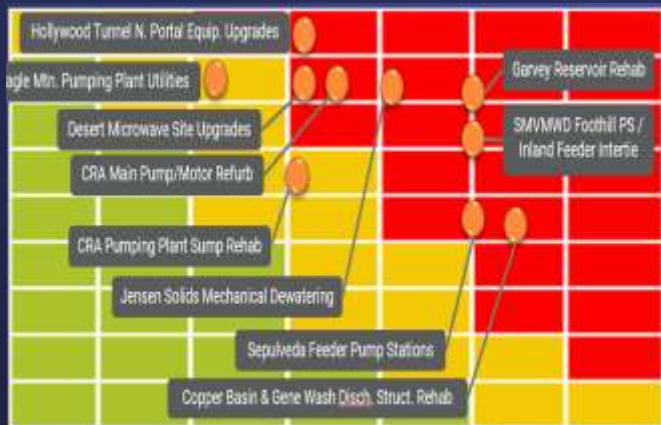
- Mechanical/electrical failure of both the new fixed cone valve and the refurbished slide gate; reservoir debris lodged in the new discharge line; dam structural damage

The image shows a screenshot of a Risk Register table. At the top, there is a 'RISK MATRIX' section with a color-coded legend: Red (High), Orange (Medium-High), Yellow (Medium), Green (Medium-Low), and Blue (Low). Below this is the main table with columns for Risk ID, Description, Category, Priority, Status, and Risk Rating. The Risk Rating column uses the color-coded legend. The table contains several rows of risk entries, with some cells highlighted in red, orange, and yellow.

Risk Register

Result: Successful construction and testing

Biennial CIP Budget Process

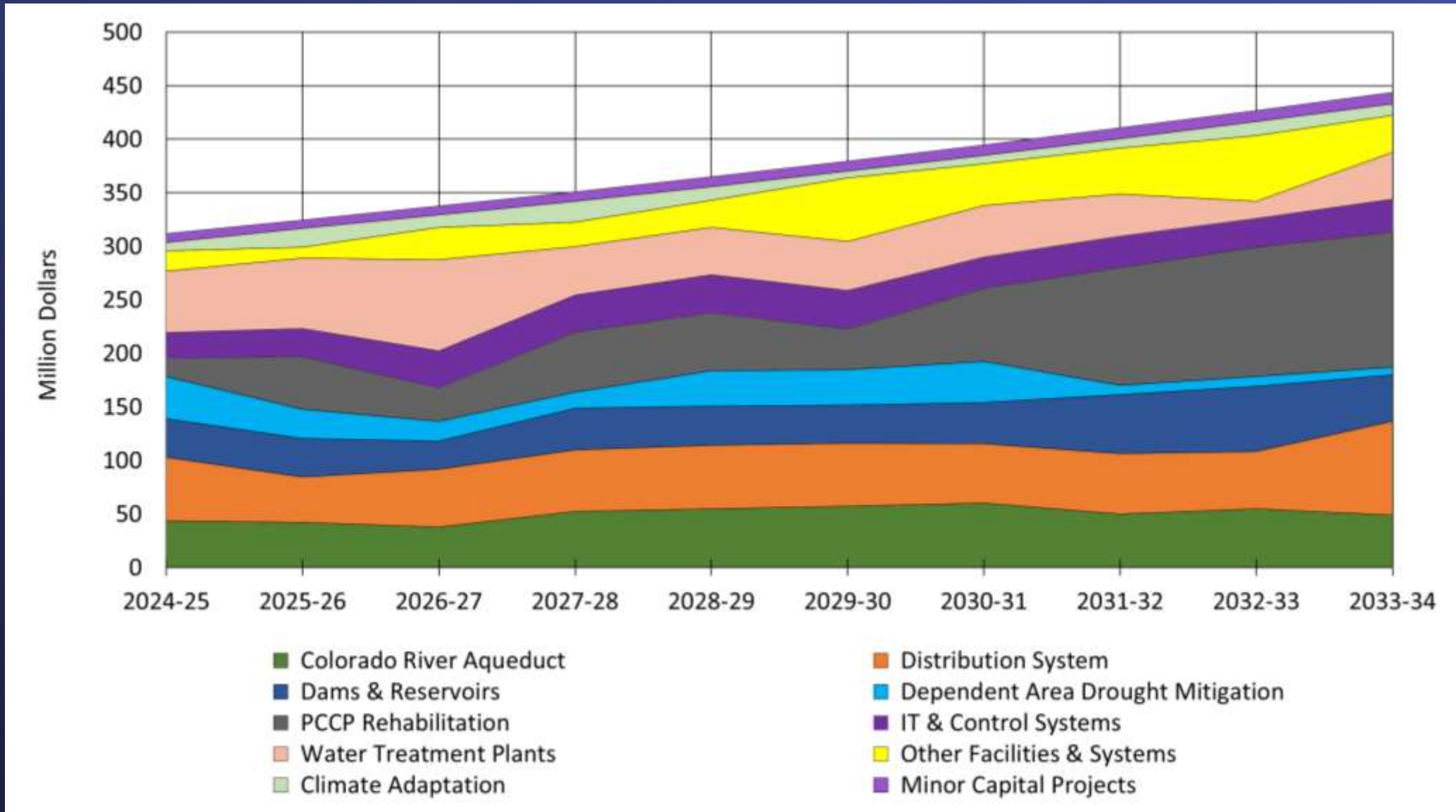


Risk Evaluation

CIP Planning – Risk Incorporation

- Next biennial CIP budget process to start this month
- Rigorous system to assess projects
 - All projects not fully funded have proposals solicited from staff and reviewed by management
 - Mostly R&R
 - All projects reviewed with risk framework
 - CIP Evaluation Committee reviews and scores
 - Risk is predominant scoring influencer

Planned CIP Expenditures by Program – Layered and Leveled



Risk Management and CIP Planning

Next Steps

- Start the CIP budget process for next biennium
- Continue developing CIP management tools and asset management information
- Continue communicating with the Board
 - Discuss CIP process & project prioritization approach
 - Financial investments to maintain reliability and reduce risk

