Resiliency and Recovery Program

MWPAAC General Meeting
May 23, 2018
Project Objective

Develop a comprehensive strategy for preparing King County Wastewater Treatment Division’s (WTD) conveyance and treatment facilities for the impacts of a major earthquake, flooding or natural hazard events.
Project Team

Prime Consultant – HDR Engineering Inc.
- Advanced Industrial Automation Corp
- Aqualyze, Inc.
- Ballantyne Consulting, LLC
- Griffin, Hill & Associates, LLC
- Planning and Management Services, Inc.
- PRR, Inc.
- Reid Middleton
- Shannon & Wilson, Inc.

MWPAAC Taskforce
- Alderwood Water and Wastewater District
- City of Redmond
- City of Seattle
Seismic Scenarios

- **Cascadia Subduction Zone, Magnitude 9.0**
  - Primary focus as the most likely scenario

- **Seattle Fault, Magnitude 7.2**
  - Very strong ground motion along Interstate-90 corridor
  - Surface fault rupture can result change in sewer grade

- **South Whidbey Island Fault, Magnitude 7.4**
  - Very strong ground motion near Brightwater
  - Surface fault rupture/change in sewer grade
Natural Hazards Scenarios

Flooding and Tsunami:
- 100-Year Recurrence Interval Flooding
- 500-Year Recurrence Interval Flooding
- Mechanical Failure-Induced Flooding
- Tsunami inundation associated with the Seattle Fault Scenario

Landslides Caused by Earthquakes

Extreme Weather:
- Tornadoes
- Damaging Winds
- Large Hail Events
Prioritization of Mitigation Strategies

Criticality Factors
- Life Safety
- Public Health
- Consequent Damage
- Environmental

Risk
- Consequence of Failure: Expected System Performance
- Probability of Failure: Vulnerability to Hazard

Team Validation

Equity and Social Justice
Schedule

- **Begin Facility Desktop Data Collection**
  - January 2017

- **Begin Facility Condition Assessments**
  - March 2017

- **Recovery Strategy Development**
  - June 2017

- **Draft Resiliency and Recovery Report**
  - September 2017

- **Review Draft-Final Resiliency Report**
  - December 2017

- **Review Draft-Final Recovery Reports**
  - February 2018

- **Deliver Final Resiliency and Recovery Plan to Executive**
  - May 2018
Completed Since October 2017 Briefing

October 2017
- Developed conceptual solutions for problems identified
- Developed pre-class 5 Cost Estimates for preliminary solutions

November 2017
- Refined Capital Projects List

December 2017
- Draft Resiliency Recommendations Report WTD Management Review

January 2018
- Draft Recovery Recommendations Report WTD Management Review

May 2018
- Deliver Final Resiliency and Recovery Reports to Executive
Resiliency Mitigation Concepts

- 17 Seismic Structural
- 10 Seismic Liquefaction
- 1 Landslide
- 8 Flooding
- 5 Programmatic Improvement Projects
- 11 Recommendations for Further Study
Capital Investments

- Near- and long-term capital investments
- Recommendations for further study will potentially turn into capital projects
- WTD’s proposed six-year Capital Improvement Program:
  - Two capital projects estimated at approximately $22 million
  - Remaining CIP projects estimated at approximately $128 million
Recovery Recommendations

- Strategies are designed to drive timely, efficient and safe system recovery
Recovery Recommendations

- Preparedness and Recovery Strategies:
  - WTD Continuity of Operations Plan
  - Designated Emergency Management Program Coordinator
  - Employee Training + Capacity Development
  - Contracting + Procurement
  - System-wide Information + Documentation
  - Financial Risk Management
  - Emergency Recovery Working Group
Program Next Steps

- Identify synergies in six-year capital improvement projects
- Systemwide Comprehensive Plan efforts will inform financial analysis and implementation timeframe
- Ongoing coordination and briefings with WTD management and regional stakeholders [i.e. WAWARN: Utilities Helping Utilities, communication strategies, response/recovery efforts]
Program Implementation

- Leadership support
- Resiliency & Recovery program manager
- Capital improvement portfolio integration: Resiliency & Recovery sub-portfolio
- Designated resiliency mitigation funding
Thank You

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