



## LRWWU's Approach to Asset Management of its Critical Facilities

NEWEA Annual Conference  
January 23, 2018

# Presenters

**Brian Shea, PE**  
Senior Principal, Stantec

**Michael Stuer**  
Engineering Manager

# Agenda

1. Existing System
2. Assessment Scoping
3. Rating Criteria Development
4. Cost Estimate
5. Scope Refinement
6. Key Takeaway Points



# Existing System

- 32 MGD Wastewater Treatment Plant
- Serves Lowell and 4 Surrounding Towns
- 200 Miles of Sanitary Sewers
  - 6-inch to 10-foot diameter
- 50 Miles of Storm Drains
- Pump Stations
- Metering Stations
- Diversion Structures



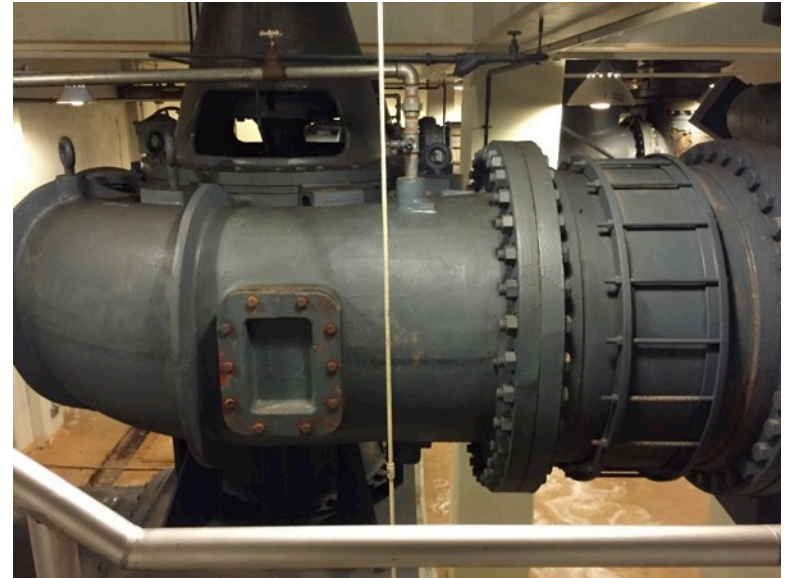
# LRWWU Master Planning



- Permitting and Planning:
  - Wastewater and Stormwater Integrated Planning Process
- West Street Flood Pumping Facility
- Duck Island WWTF Improvements
- Combined Sewer System Improvements
  - Local Sewer Surcharging
  - Green Infrastructure
- Remote Station Upgrades

## Remote Station Assessment Scoping

- **CSO Diversion Stations**
  - Seven Stations Evaluated
- **Sewage Pumping Stations**
  - Thirteen Stations Evaluated
- **Town Metering Stations**
  - Utilized to Meter Flows from Member Communities
  - Excluded from Evaluations



## Systems Evaluated

- Architectural
- Structural
- Mechanical Process
- Mechanical HVAC
- Plumbing
- Electrical
- Instrumentation



# Rating Criteria Development

- Process to Develop Criteria
- Frequent Meetings
- Team Approach
  - Management team
  - Operations team
  - Engineer team
- Review of Past Studies and Evaluations





## Rating Criteria

<b>Condition</b>	<b>+</b>	<b>Criticality</b>	<b>=</b>	<b>Priority</b>
<b>1 – Good</b>		<b>1 – Long Term</b>		<b>2 – Low</b>
<b>2 – Fair</b>		<b>2 – Short Term</b>		<b>4 – Medium</b>
<b>3 – Poor</b>		<b>3 – Immediate</b>		<b>6 – High</b>

- Priority scores could also include 3 or 5;
  - 5 = High Priority
  - 3 = Medium Priority

## Preliminary Costs for Recommended Improvements

- Workshops
- Planning Level Cost Estimates Developed
- \$8M Construction Contract Targeted
- Priority Items Agreed, Final Design Commenced

## Final Design Cost Estimate



- Construction Division of Stantec Utilized to Develop Design Cost Estimate
- Design Cost Estimate Compared with Planning Level Estimate
- Design Cost Estimate Utilized to Further Refine Priority Improvements to Keep within \$8M Construction Contract
- Project Bid
- Three Low Bidders Ranged from \$8.014M to \$8.110M

## Refined Project

- Overall Program Cost Escalation Impacts
- Assessment Report and Cost Estimate Utilized to Refine Scope
- Project Re-Packaged and Re-Bid
- New Target Contract Cost = \$6.0M



## Key Takeaway Points

- Meetings
  - Frequency
  - Meeting Attendees – Operations Team Input Invaluable During Process
- Collaborative Effort to Develop Rating Criteria
- Operations Staff Involved During Field Investigations
- “Use Friendly” Rating System
- Capital Planning Is As Much Art As It Is Science
- First Significant Investment In These Stations In The Past 20 Year Period
- Minimal Re-investment Influenced Assessment Project
- Numerous Facilities – Logistical Problem



# Questions

