Wastewater Metering System Replacement
Contract 6739

June 28, 2017
Wastewater Meters are a Key Element of MWRA’s Cost Allocation Methodology for the costs of the regional sewer system

About 38% of operating and debt service costs for capital projects are allocated based on community average and maximum month flows

Last full metering system upgrade was in 2004

189 Revenue Meters are In Service; 212 Total Meters
• The Regional WW collection system was not originally designed to be metered
• Goal was to cost-effectively meter at least 85 percent of every community’s flow
• And to confidently estimate any unmetered flow
• Directly meter where possible
• Use subtraction where needed
• Estimate flow in unmetered areas based on ratio with a metered area
• Combine all the tributary areas within a community to calculate total flow
- Flow within a tributary area to a single suitable point for metering
- No adjustments needed
• Flow from one community flows through another community

• Can be tributary to community or MWRA pipe

• Flow = Meter B – Meter A
Unmetered Areas

- Some areas cannot easily or cost effectively be metered
  - a large number of small community connections to MWRA
  - downstream of suitable meter location
  - inter-municipal service areas

- Flow estimated based on flow measurements and a calculated flow ratio with a nearby metered subarea

- Flow = (flow from meter subarea) \times flow ratio
Major Tasks of the Upgrade Project

- Update flows from unmetered areas
- Assess current meter sites
- Review mix of metered and unmetered areas – increase metered if cost effective
- Assess state of the art in meter technology
- Assess communication and data management technology
- Work with MWRA staff to recommend metering system
- Specify and assist in procurement
- Oversee purchase and installation
- Document/develop SOPs
## Contract Summary

<table>
<thead>
<tr>
<th>PROPOSER</th>
<th>PROPOSED CONTRACT COST</th>
<th>LEVEL of EFFORT</th>
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</thead>
<tbody>
<tr>
<td>RJN Group</td>
<td>$3,870,189.15*</td>
<td>19,062 hours</td>
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<tr>
<td>Arcadis US</td>
<td>$4,494,654.03</td>
<td>19,084 hours</td>
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<tr>
<td>Engineer’s Estimate</td>
<td>$5,125,361.00</td>
<td>23,748 hours</td>
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<table>
<thead>
<tr>
<th>PROPOSER</th>
<th>TOTAL POINTS</th>
<th>ORDER OF PREFERENCE/TOTAL SCORE</th>
<th>FINAL RANKING</th>
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<tbody>
<tr>
<td>RJN Group</td>
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<tr>
<td>Arcadis US</td>
<td>332.5</td>
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<td>2</td>
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</tbody>
</table>
Overall Project Schedule - Preliminary

• Preliminary Field Investigations: Fall 2017

• Temporary Metering in unmetered areas: 12 months beginning Winter 2017/18

• Technology Assessment: Fall 2017 – Winter 2018/19

• Recommendations: Spring 2019

• Procurement of new meters: Summer 2019

• Installation: 12 months beginning Fall 2019

• Warrantee period- 12 months
NIH Redundancy Pipeline
Section 110 - Stoneham
Contract 7067

June 28, 2017
NIH Section 110  Project Location

- **Contract 7066: ($1,921,952)**
  - 2,400 linear feet of 36-inch pipeline
  - Completed May 2015.

- **Contract 7471: ($11,071,797)**
  - 8,800 linear feet of 36-inch pipeline
  - NTP January 2016
  - Substantial Completion December 2017

- **Contract 7478: ($17,817,999)**
  - 7,800 linear feet of 48-inch pipeline
  - 2,600 linear feet of 16 and 12-inch pipeline
  - Substantial Completion September 2018

- **Contract 7067: This Award**
  - 14,000 linear feet of 48-inch pipeline
  - Substantial Completion November 2020
Contract 7066 - Reading

Completed May 2015
Contract 7471 - Reading

Completion date: December 2017
Contract 7471 - Reading
Contract 7471 - Reading
Governor’s High Five Award
Completion date: September 2018
Contract 7478 Stoneham/Wakefield
Contract 7067 - Stoneham

- 14,000 linear feet of 48-inch pipeline in Stoneham

- Substantial Completion November 2020
Contract 7067 - Stoneham

- Bids Opened June 8, 2017
- Five Bids Received

<table>
<thead>
<tr>
<th>Bidder</th>
<th>Bid Price</th>
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<tbody>
<tr>
<td>Albanese D&amp;S Inc.</td>
<td>$22,737,000</td>
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<tr>
<td>P. Gioioso &amp; Sons, Inc.</td>
<td>$23,471,000</td>
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<tr>
<td>Engineer’s Estimate</td>
<td>$24,500,000</td>
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<td>Baltazar Contractors Inc.</td>
<td>$24,899,999</td>
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<td>RJV Construction Corp.</td>
<td>$25,385,000</td>
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<tr>
<td>Revoli Construction, Inc.</td>
<td>$29,956,917</td>
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Massachusetts Water Resources Authority

MWRA In-House Work

June 28, 2017
Closed Circuit Television Inspection
Pipe Transporters – Small/Large Pipe
Sonar System – Siphon Inspections
Manhole Frame and Cover Replacement
Manhole Structure Rehabilitation
Bypass Pumping
Section 20 Leak Repair, Cast Iron Pipe
Section 20 Leak Repair

Re-Caulked Joint

Bell Joint Clamp in Place
Welding New Caps Over Plugs, Steel Pipe
Crew Setting Valve and Pipe
Replacing 24” Valve
Remove Existing; Installing New
Final Bolt Tightening; Rolling Out Hot Asphalt
Blow Off Retrofits (Cross Connection Elimination)
Section 80, Needham
Welding Anode Wires to Pipe
Deer Island Rip Rap Project, Placing Stone
Mobile Pump Unit Deployment for Valve Replacement
Water Main Leak and Break Repairs, Assisting Marlborough