Downtown Area Collection System and Pumping Stations, Wastewater Treatment Facility and Effluent Disposal and Other Wastewater Related Articles

June 2020 Annual Town Meeting
Public Forum
June 15, 2020

ATM Public Forum Process/Procedures

Step 1: Open Group Chat Tab

Step 2: Use Chat Tab To Post Questions
Agenda

- Water Quality and Wastewater History
- Article 42 - Fund Additional Cost for Downtown Sewer Project Construction
- Article 13 - Fund Comprehensive Water Resources Management Plan Implementation
- Article 14 - Fund Brewster Cross Road and Locust Road Water Quality Projects
- Article 19 - Fund Replacement of Water Services in Sewer Area
- Article 20 - Fund Replacement of Canal Road Water Main
- Questions and Answers

Water Quality and Wastewater History

- Conceptual and Preliminary Design to Update the CWMP (2011) and To Reflect the Consensus Plan (2015)
- Goal: Minimize Proposed Sewered footprint to the Greatest Extent Possible
- Maximize Use of Non-traditional Technologies
Orleans’ Solution

- First Project on Cape Cod to Implement a Hybrid Approach
- Combines Traditional and Non-traditional Wastewater Treatments
  - Sewer Infrastructure in High Density Areas
  - In-situ Groundwater Treatment with Permeable Reactive Barriers (PRBs)
  - Increased Shellfish Aquaculture Operations
  - On-Site System Enhancements
  - Adaptive Management for Course Correction

Orleans’ Solution (cont.)

<table>
<thead>
<tr>
<th>Traditional Infrastructure</th>
<th>Non-Traditional Infrastructure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meetinghouse Pond Area</td>
<td>Coastal Habitat Restoration</td>
</tr>
<tr>
<td>Downtown Area</td>
<td>Aquaculture</td>
</tr>
<tr>
<td>Residual Disposal</td>
<td>Floating Constructed Wetlands</td>
</tr>
<tr>
<td>WWTF (Overland Way)</td>
<td>Permeable Reactive Barriers</td>
</tr>
<tr>
<td>Septage Receiving</td>
<td>Nitrogen Removing Biofilters</td>
</tr>
</tbody>
</table>

Reduces Project Costs from About $205 M to About $130 M
Article 42 - Fund Additional Cost for Downtown Sewer Project Construction

- Funding Requested: $12,200,000
- Project Schedule: State Revolving Fund
- Bidding Climate
- Award Considerations and Recommendations
- Financing

Project Evaluation Form (PEF) Submitted - August 2018
(Estimated Costs Based on 25% Documents)

Intended Use Plan (IUP) Issued/ATM Warrant Set – March 2019
(Estimated Costs Based on 50% Documents)

Projects Advertised - February 5, 2020

Execute Contracts By July 29, 2020

Bid Openings
Collection System – May 6, 2020
WWTF Filed Sub Bids – May 6, 2020
WWTF General Bids – May 13, 2020
Bidding Climate – Items Impacting Costs

- Prior to Covid-19 – Busy Workload / Backlog
  - Contractors / Subcontractors
  - Suppliers / Manufacturers

- During and After Covid-19
  - Raw Materials
  - Manufacturing Delays
  - Inefficiencies in Construction Operations / Activities

- Project Location – Covid-19
  - Travel
  - Per Diem

- Skilled Labor Shortage
  - Unemployment Benefits Reducing Workforce

- Development of Alternatives
  - Must Accept the Alternates In the Order Presented
  - Possibility to Increase SRF Funding Allocation

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Bidding Climate – Items Impacting Costs (cont.)

**Contract 2019-01 - Downtown Area Wastewater Treatment Facility and Effluent Disposal**

- Enhancements
  - Building Construction Materials
  - Security
  - Future Permit Limits

- Equipment Storage Facility

- Old Kings Highway Historic District Requirements

**Contract No. 2019-02 - Downtown Area Collection System and Pumping Stations**

- Regulatory – State
  - Pavement: $120,000
  - Tracer Wire: $62,000
  - Inspection: $10,000

- Enhancements / Added Items
  - 10 Added Manholes: $172,000
  - FM Flushing MH: $25,000
  - Town Roadway Paving: $198,000
  - Waterline Stops: $225,000
  - Leaching Catch Basins: $24,000
  - Electric Co. Service Fee: $25,000
  - Property Owner Requirements
Award Considerations and Recommendations

- Total Maximum Daily Load Compliance (Nitrogen Removal)
- SRF Funding at 0%
- Potential for Stimulus Funding (Shovel Ready Projects)
- Owner's Development Costs
- Impacts on Betterments
- Impacts on User Fees
- Impacts on Taxes

Award Considerations and Recommendations (cont.)

Contract No. 2019-01 - Downtown Area Wastewater Treatment Facility and Effluent Disposal
- Award to: Daniel O'Connell's & Sons, Inc.
- Base Bid at $31,141,400
- Alternatives
  - No. 1 - Equipment Storage Facility: $1,560,000
  - No. 2 - Fiber Optic Conduits, Handholes and Fiber Optic Cable: $80,000
  - No. 3 - Tracer Wire: $4,600
- Total: $32,786,000

Contract No. 2019-02 - Downtown Area Collection System and Pumping Stations
- Award to: Robert B. Our Co., Inc.
- Base Bid: $8,989,312.40
- Alternatives
  - No. 1 - Pavement Restoration: $1,019,430.00
  - No. 2 - PS No. 3 Tributary Area: $7,309,506.10
  - No. 3 - Fiber Optic Conduits and Handholes: $139,110
  - No. 4 - Tracer Wire: $84,300
- Total: $17,741,658 *

* Does not include SRF Ineligible Items
Award Considerations and Recommendations (cont.)

<table>
<thead>
<tr>
<th>Description</th>
<th>SRF Application</th>
<th>Post Bids</th>
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</thead>
<tbody>
<tr>
<td><strong>A. Construction</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Contract No. 2019-01 - Downtown Area Wastewater Treatment Facility and Effluent Disposal</td>
<td>$ 23,032,500</td>
<td>$ 32,786,000</td>
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<tr>
<td>b. Contract No. 2019-02 - Downtown Area Collection System and Pumping Stations</td>
<td>$ 13,773,200</td>
<td>$ 17,541,658</td>
</tr>
<tr>
<td>c. Construction Contingency (10% pre-bid / 5% post-bid)</td>
<td>$ 3,680,100</td>
<td>$ 2,558,142</td>
</tr>
<tr>
<td>Sub Total</td>
<td>$ 40,485,800</td>
<td>$ 52,885,800</td>
</tr>
<tr>
<td><strong>B. Construction Services</strong></td>
<td>$ 5,612,000</td>
<td>$ 5,612,000</td>
</tr>
<tr>
<td><strong>C. Other Costs</strong></td>
<td>$ 1,285,000</td>
<td>$ 1,085,000</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td>$ 47,382,800</td>
<td>$ 59,582,800</td>
</tr>
</tbody>
</table>

Additional Funding Required at Town Meeting - $12,200,000

Financing

- **State Revolving Fund (SRF)**
  - 30-Years at 0%

- **Hotel/Motel Tax**
  - 2% Increase

- **Short-term Rental Tax**
  - 6% Tax on Short-term Rentals
  - Less than 31 Days

- **Stabilization Fund**
  - All Wastewater Receipts are Deposited into this Account
  - Funding of Wastewater Projects
  - Expenditures Requires a 2/3rds Vote at Town Meeting

- **Cape Cod & Islands Water Protection Fund**
  - 2.75% Surtax on All Hotel/Motel and Short-term Rental Taxes Across Cape Cod
  - 25% Funding To Implement Wastewater Projects Across Cape Cod

- **WWTF and Effluent Disposal Paid Via Local Tax**

- **Collection System and Pumping Stations Paid Via Betterments Charged to Users**
Article 13 - Fund Comprehensive Water Resources Management Plan Implementation

Article 14 - Fund Brewster Cross Road and Locust Road Water Quality Projects

Article 19 - Fund Replacement of Water Services in Sewer Area

Article 20 - Fund Replacement of Canal Road Water Main

- Funding Requested
  - $1,700,500

- Components
  - Meetinghouse Pond Area Sewers ($831,700) and Owner's Project Management Services ($213,200)
  - Permeable Reactive Barrier Demonstration Project Monitoring at Eldredge Park ($106,600)
  - Permeable Reactive Barrier Planning in the Pleasant Bay, Nauset Harbor and Rock Harbor Watersheds ($549,000)

- Keeps Approved Consensus Plan Moving
- Regulatory Input Regarding Applicability / Approvals
- Updates to Capital Improvement Plan
- SRF Funding Applicability
- Previous Funding Appropriations Are Specific to Previous Warrant Articles and Cannot Be Utilized to Reduce Funding Requested
### Article 13 - Fund Comprehensive Water Resources Management Plan Implementation (cont.)

<table>
<thead>
<tr>
<th>Components</th>
<th>Remarks</th>
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</table>
| Meetinghouse Pond Area Preliminary Design and Owner's Project Management Services | ➢ Meetinghouse Pond Area Requires 100 Percent Removal of Nitrogen in the Watershed. Funding Delay Impacts the Town’s Ability to Meet this Requirement.  
➢ Identify Location of On-site Disposal Systems and Utilities  
➢ Topographic Survey and Subsurface Explorations  
➢ Update Capital Improvement Plan  
➢ Maintain SRF Funding Schedule |
| Permeable Reactive Barrier Demonstration Project Monitoring | ➢ Final Year of Monitoring  
➢ At Least Three Years of Monitoring Required  
➢ Data Used To:  
  • Complete Analysis of Removal Efficiencies  
  • Determine Applicability as a SRF Fundable Non-traditional Alternative to Traditional Sewering  
  • Determine Permitting Requirements and Limits |
| Permeable Reactive Barrier Planning in the Pleasant Bay, Nauset Harbor and Rock Harbor watersheds | ➢ Confirm Town-wide Locations  
➢ Information Used To:  
  • Identify Locations that May be Implemented in the Future to Meet Watershed Permits  
  • Confirm Assumptions and N Removal Values  
  • Update Future Implementation and Replacement Costs |

### Project Schedule: State Revolving Fund Meetinghouse Pond Area

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
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<tr>
<td>2020</td>
<td>Utility and Preliminary Design Phase Begins – August 2020</td>
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<tr>
<td>2021</td>
<td>Final Design Phase Funding – May 2021</td>
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<tr>
<td>2021</td>
<td>Submit Project Evaluation Form (PEF) – August 2021</td>
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<tr>
<td>2022</td>
<td>Intended Use Plan (IUP) Issued/ATM Warrant Set – March 2022</td>
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<tr>
<td>2022</td>
<td>Final Design Phase Begins – July 2021</td>
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<tr>
<td>2022</td>
<td>Construction Phase Funding – May 2022</td>
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<tr>
<td>2022</td>
<td>Advertise for Bids - February 2023</td>
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<tr>
<td>2022</td>
<td>Conduct Bid Opening – April 2023</td>
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<tr>
<td>2023</td>
<td>Execute Contracts – June 2023</td>
</tr>
<tr>
<td>2023</td>
<td>Start Construction – September 2023</td>
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<tr>
<td>2023</td>
<td>Submit SRF Application – October 2022</td>
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<tr>
<td>2023</td>
<td>MassDEP Issues PAC and Approval to Advertise – January 2023</td>
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<tr>
<td>2023</td>
<td>Submit “Part B” – April 2023</td>
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</table>

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**June 15, 2020 ATM Public Forum**

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**June 15, 2020 ATM Public Forum**
Article 14 - Fund Brewster Cross Road and Locust Road Water Quality Projects

- **Funding Requested**
  - $45,000

- **Location**
  - Brewster Cross Road
  - Locust Road

- **Objective**
  - Reduce Nutrient Loading into Boland’s Pond and Cedar Pond

- **Proactive Actions**
  - Complete with Downtown Area Collection System Construction to Avoid Re-excavation of Roadways and Reduce Construction Costs
  - Obtain Economies of Scale Savings
  - $115,000 Lower Than The 2019 Capital Improvement Plan Estimate

- **Cannot be Completed at the Funding Requested Without Passage of Article 42**

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Article 19 - Fund Replacement of Water Services in Sewer Area

- **Funding Requested**
  - $125,000
  - Paid From the Water Special Revenue Fund

- **Location**
  - 60 Locations Throughout the Downtown Area Collection System

- **Objective**
  - Replace 57-year-old Water Services

- **Proactive Actions**
  - Lesson’s Learned from Main Street Wastewater System
  - Complete with Downtown Area Collection System Construction to Avoid Future System Failures, Re-excavation of Roadways and Reduce Construction Costs
  - Obtain Economies of Scale Savings
  - $88,200 Lower Than The 2019 Capital Improvement Plan Estimate

- **Cannot be Completed at the Funding Requested Without Passage of Article 42**
Article 20 - Fund Replacement of Canal Road Water Main

- **Funding Requested**
  - $300,000
  - Water Asset Management Plan Report Recommendation to Improve Fire Flows in the Area
  - Paid From the Water Special Revenue Fund

- **Location**
  - Canal Road from Jones Road to Eastham Town Line

- **Objective**
  - Replace the Original 1963 Water Main on Canal Road

- **Proactive Actions**
  - Complete with Downtown Area Collection System Construction to Improve Safety, Avoid Future System Failures and Re-excavation of Roadways and Reduce Construction Costs
  - Obtain Economies of Scale Savings
  - $46,500 Lower Than The 2019 Capital Improvement Plan Estimate

- **Cannot be Completed at the Funding Requested Without Passage of Article 42**

Questions and Answers
Submitted Questions and Answers

- Project Cost Breakdown
- Equipment Storage Facility - Requirements vs Alternative
- Site Overview
- WWTF - Plan and Elevations
- Equipment Storage Facility - Plan and Elevations
- Waterline Industries - Sub-Bids Valid if they are not the General Contractor?
- Warranties - Reduced to 1 Year – Why?
- MassDOT - Permit Issuance and Impacts
- Owner Pre-Selected Equipment - Combined Cost at $1.625M - How Reliable / Solid?
- System Communications - Base Bid vs. Alternative?
- WWTF and Effluent Disposal - Bids Received and Range of Bids
- Collection System and Pump Stations - Bids Received and Range of Bids
- Supply Chain Update | Lead Times and Prices
- SRF Program - Additional Funding and Award Date
- Orleans Financing
- Anticipation of Cost Increases
- Water System Upgrades and Water Quality Improvements Coordination
- Town Long-Term Benefit Enhancements
- Contract Documents - Clarifications and Adjustments Based on Feedback From Potential Bidders
- Permeable Reactive Barriers
### Description

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<tr>
<td>B. Construction Services</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. General Supervision</td>
<td>$ 2,586,635</td>
<td>$ 2,586,635</td>
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<tr>
<td>b. Resident Engineering</td>
<td>$ 1,114,765</td>
<td>$ 1,114,765</td>
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<tr>
<td>c. Testing of Materials</td>
<td>$ 25,000</td>
<td>$ 25,000</td>
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<tr>
<td>d. As Built Plans</td>
<td>$ 260,000</td>
<td>$ 260,000</td>
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<tr>
<td>e. Operation and Maintenance Manual</td>
<td>$ 303,600</td>
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<tr>
<td>f. Start-up Supervision and Extended Operations</td>
<td>$ 710,000</td>
<td>$ 710,000</td>
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<tr>
<td>g. Other: OPM</td>
<td>$ 612,000</td>
<td>$ 612,000</td>
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<tr>
<td><strong>Sub Total</strong></td>
<td><strong>$ 5,612,000</strong></td>
<td><strong>$ 5,612,000</strong></td>
</tr>
<tr>
<td>C. Other Costs</td>
<td></td>
<td></td>
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<tr>
<td>a. Police – Traffic Detail</td>
<td>$ 1,000,000</td>
<td>$ 1,000,000</td>
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<tr>
<td>b. Town Administration</td>
<td>$ 85,000</td>
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<tr>
<td>c. Land / ROW / Easements</td>
<td>$ 200,000</td>
<td>$ 0</td>
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<tr>
<td><strong>Sub Total</strong></td>
<td><strong>$ 1,285,000</strong></td>
<td><strong>$ 1,085,000</strong></td>
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### Equipment Storage Facility Requirements vs Alternative

- **Exterior Based on the Requirements of Old Kings Highway Historic District**
- **Minimum Requirements**
  - Maintenance / Repair Area (Room 202)
  - One Truck Bay
- **The Building Provides**
  - Maintenance / Repair Area
  - Storage of O&M Equipment
  - Storage of Spare Parts
  - Storage of O&M Vehicles
- **Alternative**
  - Identified Costs to be Increasing
  - Created Alternatives in an Attempt to be Able to Award the Project Within Existing Funding
- **If Funding Was Not Available**
  - Two Locations within the WWTF Identified to be Temporarily Repurposed (Room 102) and Basement (Future Chemical Area) for Maintenance / Repair Area; Storage of O&M Equipment; and Storage of Spare Parts
  - Does Not Provide Storage Space for O&M Vehicles
Site Overview

Wastewater Treatment Facility
Plan View – Ground Floor
Wastewater Treatment Facility Plan View – Basement

Wastewater Treatment Facility (cont.) Elevations
Equipment Storage Facility (cont.)
Elevations
Waterline Industries
Sub-Bids Valid if they are not the General Contractor?

- Waterline Industries Provides Many of the Sub Trades that go into the Construction of a Wastewater Treatment Facility
  - Miscellaneous Metals
  - Roofing
  - Plumbing
  - HVAC
  - Electrical
- Sub-bids Restricted to Themselves as is Allowed by Mass. General Law.
- Other General Contractors Cannot Use Waterline Industries’ Restricted Sub-bids.
- Waterline Industries’ Sub-bids are Valid, but only when Paired with their Bid as a General Contractor.

Warranties
Reduced to 1 Year – Why?

- Initially the Contract Documents Specified a Longer Warranty (4 Years).
- Bidding Phase Concerns Raised About Specific Extended Warranties. Concerns Relate to Warranties Beginning with the Date of Substantial Completion.
- As the Contractor’s Demobilize they Lose the Ability to Control / Maintain Equipment. This is Viewed as a Costly Risk.
- Maintaining Longer Warranties Could Stifle Competition or Lead to Holes in Contractor’s Bids Filled by a Guess.
- Contractors Increase Bid Costs for These Guesses. Unknown Cost of Risks = High Costs.
- Mass. General Law Allows For/Requires a 1 Year Warranty and This Change Still Reflects this Standard.
MassDOT Permit Issuance and Impacts

- **MassDOT Permit Application**
  - Submitted in September 2019.
  - Received in March 2020.

- **MassDOT Meetings**
  - Permit for Route 6A and Route 28 Would Only Take a Few Months.
  - Conditions of the Permit would be Similar to the MassDOT Permit Issued for the Main Street Intersection Project.
  - Therefore, the Contract Documents were Based on the Previously Issued Permit.

- **Critical Differences Due to MassDOT Requirements**
  - Temporary Trench Pavement Thickness
  - Permanent Trench Pavement Thickness
  - MassDOT inspector at the Route 6 Crossing
  - Utility Tracer Wires

- **Estimated Cost of $192,000**

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Owner Pre-Selected Equipment
Combined Cost at $1.625M - How Reliable / Solid?

- **An Equipment Preselection Process Completed in Early 2019.**

- **RFPs were Advertised in COMMBUYS; Central Register; and The Cape Codder Newspaper.**

- **Two-step Selection Process:**
  - (1) Engineering Evaluation of the Technical Proposals; and (2) Life Cycle Cost Analysis.
  - Selection Based on Proposal with Best Value to Town.

- **RFPs**
  - Proposal price shall include a guaranteed, Lump Sum price in May 2019 US Dollars based on the mechanical and performance specification and the service requirements specified.
  - Lump Sum Price to be adjusted for inflation by the percent increase in the ENR Construction Cost Index between May 2019 and the month in which the Purchase Order is issued.
  - Current Lump Sum Price = $1.652M
System Communications
Base Bid vs. Alternative?

- **Base Bid**
  - Radio Communications
  - Between the WWTF, Effluent Disposal and the Three Pump Stations.

- **Bid Alternatives**
  - Fiber Optic Communications Between the WWTF, Effluent Disposal and Pump Station No. 1 (Old Colony Way).
  - Radio Communications Between the WWTF and Pump Station No. 2 (Snow Library) and Pump Station No. 3 (Stop & Shop).

### WWTF and Effluent Disposal
Bids Received on May 13, 2020 and Range of Bids

<table>
<thead>
<tr>
<th>Contractor</th>
<th>Range of Base Bids Plus Alternatives A-1 thru A-3</th>
<th>Percent Above Low Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daniel O'Connell's Sons, Inc.</td>
<td>$32,786,000.00</td>
<td>---</td>
</tr>
<tr>
<td>Waterline Industries Corporation</td>
<td>$33,350,677.00</td>
<td>1.7%</td>
</tr>
<tr>
<td>Methuen Construction Co.</td>
<td>$36,843,095.00</td>
<td>12.4%</td>
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<tr>
<td>MWH Constructors, Inc.</td>
<td>$37,172,747.00</td>
<td>13.4%</td>
</tr>
<tr>
<td>R.H. White Construction, Co.</td>
<td>$39,080,000.00</td>
<td>19.2%</td>
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</tbody>
</table>

Note: Six General Contractors were Prequalified Pursuant to M.G.L. c. 149, § 44D½ and 810 CMR 9.00
## Contract No. 2019-01 - Downtown Area Wastewater Treatment Facility and Effluent Disposal

<table>
<thead>
<tr>
<th>Description</th>
<th>C.H. Nickerson</th>
<th>Daniel O'Connell's</th>
<th>Methuen Construction</th>
<th>MWH Constructors</th>
<th>R.H. White Construction</th>
<th>Waterline Industries</th>
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<tbody>
<tr>
<td><strong>Base Bid – Basis of Award</strong></td>
<td>---</td>
<td>$31,141,400</td>
<td>$34,911,648</td>
<td>$35,472,747</td>
<td>$36,955,000</td>
<td>$31,465,677</td>
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<td><strong>Alternatives</strong></td>
<td>---</td>
<td>$1,560,000</td>
<td>$1,824,422</td>
<td>$1,625,000</td>
<td>$1,966,000</td>
<td>$1,700,000</td>
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<tr>
<td>Equipment Storage Facility</td>
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<tr>
<td>Fiber Optic Conduits</td>
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<td>$80,000</td>
<td>$95,609</td>
<td>$70,000</td>
<td>$142,000</td>
<td>$112,000</td>
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<td>Tracer Wire</td>
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<td>$4,600</td>
<td>$11,416</td>
<td>$5,000</td>
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<td>$73,000</td>
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<td>SBR Transfer Pump No. 4</td>
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<td>$70,000</td>
<td>$75,178</td>
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<td>SBR Blower No. 4</td>
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<td>$69,930</td>
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<td>$77,000</td>
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<td>SBR Diffuser Grids</td>
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<td>$18,000</td>
<td>$29,165</td>
<td>$70,000</td>
<td>$89,000</td>
<td>$50,000</td>
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## Collection System and Pumping Stations

**Bids Received on May 6, 2020 and Range of Bids**

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<th>Contractor</th>
<th>Range of Base Bids - SRF Eligible Items Plus Alternatives A-1 thru A-4</th>
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<tr>
<td>P. Gioioso &amp; Sons, Inc.</td>
<td>$17,830,016.50</td>
<td>1.6%</td>
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<tr>
<td>Revoli Construction Co., Inc.</td>
<td>$18,172,123.90</td>
<td>3.6%</td>
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<tr>
<td>RJV Construction Corp.</td>
<td>$22,345,055.40</td>
<td>27.7%</td>
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<tr>
<td>C.C. Construction, Inc.</td>
<td>$24,943,152.61</td>
<td>42.2%</td>
</tr>
</tbody>
</table>
### Contract No. 2019-02 - Downtown Area Collection System and Pumping Stations

<table>
<thead>
<tr>
<th>Description</th>
<th>Contractor</th>
<th>Contractor</th>
<th>Contractor</th>
<th>Contractor</th>
<th>Contractor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>C.C. Construction</td>
<td>P. Gioloso &amp; Sons</td>
<td>Revoli Construction</td>
<td>Robert B. Our</td>
<td>RJV Construction</td>
</tr>
<tr>
<td><strong>Base Bid – Basis of Award</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SRF Eligible Items</td>
<td>$12,228,109.85</td>
<td>$9,586,430.92</td>
<td>$9,738,454.2</td>
<td>$8,989,312.40</td>
<td>$11,156,773.32</td>
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<tr>
<td>SRF Ineligible Items</td>
<td>$425,458.00</td>
<td>$581,960.40</td>
<td>$509,060.66</td>
<td>$404,644.00</td>
<td>$517,410.40</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>$12,653,567.85</strong></td>
<td><strong>$10,168,391.32</strong></td>
<td><strong>$10,247,514.88</strong></td>
<td><strong>$9,393,956.40</strong></td>
<td><strong>$11,674,183.72</strong></td>
</tr>
<tr>
<td><strong>Alternatives</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pavement Restoration</td>
<td>$1,210,410.00</td>
<td>$1,015,750.00</td>
<td>$1,071,700.00</td>
<td>$1,019,430.00</td>
<td>$1,155,251.00</td>
</tr>
<tr>
<td>PS No. 3 Tributary Area</td>
<td>$11,056,477.76</td>
<td>$6,971,985.58</td>
<td>$7,103,469.48</td>
<td>$7,309,506.10</td>
<td>$9,662,131.08</td>
</tr>
<tr>
<td>Fiber Optic Conduits</td>
<td>$224,760.00</td>
<td>$171,550.00</td>
<td>$230,400.00</td>
<td>$139,110.00</td>
<td>$230,400.00</td>
</tr>
<tr>
<td>Tracer Wires</td>
<td>$223,395.00</td>
<td>$84,300.00</td>
<td>$28,100.00</td>
<td>$84,300.00</td>
<td>$140,500.00</td>
</tr>
<tr>
<td>Highway Crossing Using Jacking</td>
<td>$937,000.00</td>
<td>$350,000.00</td>
<td>$875,000.00</td>
<td>$750,000.00</td>
<td>$750,000.00</td>
</tr>
</tbody>
</table>

Supply Chain Update | Lead Times and Prices

**Gilbane Building Company**

**April 30, 2020**

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Status</th>
<th>Lead Time</th>
<th>Price</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cast Iron</td>
<td>Consistent</td>
<td>Consistent</td>
<td></td>
<td>Non-delivery – birth control of the operation</td>
</tr>
<tr>
<td>Ceiling/Acoustic</td>
<td>Consistent</td>
<td>Consistent</td>
<td></td>
<td>Non-delivery – major plants operational</td>
</tr>
<tr>
<td>Flooring Domestic</td>
<td>Consistent</td>
<td>Consistent</td>
<td></td>
<td>Non-delivery – major plants operational</td>
</tr>
<tr>
<td>Flooring Imported</td>
<td>Delayed</td>
<td>Consistent</td>
<td></td>
<td>Non-delivery – major plants operational</td>
</tr>
<tr>
<td>Furniture Domestic</td>
<td>Delayed</td>
<td>Consistent</td>
<td></td>
<td>Watch out – immediate</td>
</tr>
<tr>
<td>Furniture Imported</td>
<td>Delayed</td>
<td>Consistent</td>
<td></td>
<td>Watch out – China, Canada, and the Philippines</td>
</tr>
<tr>
<td>Glass Domestic</td>
<td>Delayed</td>
<td>Consistent</td>
<td></td>
<td>Non-delivery – 6 to 8 weeks lead time</td>
</tr>
<tr>
<td>Glass Imported</td>
<td>Consistent</td>
<td>Consistent</td>
<td></td>
<td>Delay due to contamination</td>
</tr>
<tr>
<td>HVAC/ MEP Domestic</td>
<td>Consistent</td>
<td>Consistent</td>
<td></td>
<td>Watch out – Los Angeles, CA – fully operational</td>
</tr>
<tr>
<td>HVAC/ MEP Imported</td>
<td>Consistent</td>
<td>Consistent</td>
<td></td>
<td>Watch out – Los Angeles, CA – fully operational</td>
</tr>
<tr>
<td>Lighting/Imported</td>
<td>Impact Under</td>
<td>Consistent</td>
<td></td>
<td>Watch out – China, Mexico</td>
</tr>
<tr>
<td>Process Equipment/Imported</td>
<td>Consistent</td>
<td>Consistent</td>
<td></td>
<td>Watch out – Germany</td>
</tr>
<tr>
<td>IPS/C19 Related Equipment</td>
<td>Delayed</td>
<td>Delayed</td>
<td></td>
<td>Watch out – 3.5 days increase in supplied plats availability improving</td>
</tr>
<tr>
<td>Rops, Valves and Fittings</td>
<td>Consistent</td>
<td>Consistent</td>
<td></td>
<td>Non-delivery – manufactures and mills operational</td>
</tr>
<tr>
<td>Stainless Pipe and Fittings</td>
<td>Consistent</td>
<td>Consistent</td>
<td></td>
<td>Non-delivery – manufactures and mills operational</td>
</tr>
<tr>
<td>Steel Domestic</td>
<td>Consistent</td>
<td>Consistent</td>
<td></td>
<td>Non-delivery – manufactures and mills operational</td>
</tr>
<tr>
<td>Steel Imported</td>
<td>Impact Under</td>
<td>Impact Under</td>
<td></td>
<td>Watch out – demand, elevated plant capacities</td>
</tr>
</tbody>
</table>

Q&A
SRF Program
Additional Funding and Award Date

**Additional Funding**
- The Project Team Contacted MassDEP Regarding Additional SRF Funding.
- Message on May 12, 2020 from Steve McCurdy (MassDEP) Stated that the SRF Program has Historically Covered Overages.

**Award Date**
- The Project Team Contacted MassDEP Regarding Extension of Award Deadline.
- E-Mail on May 19, 2020 from Maria Pinaud (MassDEP Municipal Services) Advising There are Currently No Plans to Further Extend the August 14, 2020 Award Deadline.
- Projects Not Awarded by August 14, 2020 Will Lose SRF Funding and Must Reapply in the Future.

---

Summary of Wastewater System Funding Sources for Total Cost of $59,494,200

<table>
<thead>
<tr>
<th>Description</th>
<th>Estimated Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cape Cod &amp; Islands Clean Water Trust</td>
<td>25% = $14,873,550</td>
</tr>
<tr>
<td>State Revolving Loan Fund Capital Forgiveness</td>
<td>10% = $5,949,420</td>
</tr>
<tr>
<td>Current Betterment Policy</td>
<td>19% = $11,519,882</td>
</tr>
<tr>
<td>6% Hotel / Motel Tax</td>
<td>18% = $10,489,530</td>
</tr>
<tr>
<td>Short-term Rental Tax</td>
<td>13% = $7,606,890</td>
</tr>
<tr>
<td>Property Tax</td>
<td>15% = $9,054,928</td>
</tr>
</tbody>
</table>

Prepared by Alan McClennen
June 12, 2020
Anticipation of Cost Increases

- The Probability of Costs were Estimated in July 2018 as Part of the SRF Project Evaluation Form.
- The Probability of Cost was Based on Preliminary Design Information and Not Completed Contract Documents.
- The Contract Documents were Only 30 Percent Complete and No Updated Cost Information Was Available.
- Probability of Construction Costs were Used for the May 2019 Town Meeting.

Contract No. 2019-02 - Downtown Area Collection System and Pumping Stations

<table>
<thead>
<tr>
<th>SRF Ineligible Items</th>
<th>CIP Estimate</th>
<th>Robert B. Our Co., Inc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>December 2019</td>
<td></td>
</tr>
<tr>
<td>Replacement of Water Services</td>
<td>$213,200</td>
<td>$105,720</td>
</tr>
<tr>
<td>Replacement of Canal Road Water Main</td>
<td>$346,500</td>
<td>$271,924</td>
</tr>
<tr>
<td>Subtotals</td>
<td>$543,400</td>
<td>$377,644</td>
</tr>
<tr>
<td>Traffic Police and Contingency</td>
<td>Included Above</td>
<td>$47,356</td>
</tr>
<tr>
<td>Totals</td>
<td>$559,700</td>
<td>$425,000</td>
</tr>
<tr>
<td>Water Quality Improvements</td>
<td>$160,000</td>
<td>$27,000</td>
</tr>
<tr>
<td>Traffic Police and Contingency</td>
<td>Included Above</td>
<td>$18,000</td>
</tr>
<tr>
<td>Totals</td>
<td>$160,000</td>
<td>$45,000</td>
</tr>
</tbody>
</table>

Funding Required at Town Meeting - $470,000
Water System Upgrades and Water Quality Improvements Coordination

<table>
<thead>
<tr>
<th>Project</th>
<th>Asset Management Plan - 2020</th>
<th>CIP Estimate December 2019</th>
<th>Robert B. Our Co., Inc. Plus Other Costs</th>
<th>Economies of Scale Savings From CIP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Services Replacement</td>
<td>$320,000.00</td>
<td>$213,200.00</td>
<td>$125,000.00</td>
<td>$88,200.00</td>
</tr>
<tr>
<td>Replacement of Canal Road Water Main (Scheduled for FY2026)</td>
<td>$293,000.00</td>
<td>$346,500.00</td>
<td>$300,000.00</td>
<td>$46,500.00</td>
</tr>
<tr>
<td>Water Quality Improvements - Brewster Cross Road and Locust Road</td>
<td>---</td>
<td>$160,000.00</td>
<td>$45,000.00</td>
<td>$115,000.00</td>
</tr>
</tbody>
</table>

Reduced CIP Estimate From $719,700 to $470,000 = $249,700.00 34.7%

Enhancements Provide Long-Term Benefit to Town

- Permanent Surfacing of Local Streets (similar to State specs) Including: Center Place, Jones Road, Liberty Lane and Old County Road.
- Work to protect Existing Town Water System Including Replacement of Old Water Services and Water Main Crossing Replacements (Saving the Town Future Costly Repairs and Breaks Resulting in Lost Water and Revenue).
- Addition of More Manholes for Ease of Access / Maintenance / Monitoring to Properties Abutting System Including Condominium Complexes.
Contract Documents - Clarifications and Adjustments Based on Feedback From Potential Bidders

**WWTF and Effluent Disposal**
- Insurance Requirements
- Facility Start-up and Testing Requirements
- Equipment Warranty
- General Contractor and Filed Subcontractor Scope of Work Clarifications
- Updated Town Standard Details
- Bid Alternatives
- Design Clarifications / Adjustments

**Collection System and Pump Stations**
- Insurance Requirements
- Permit Requirements
- Traffic Control Devices
- Jacking vs. Horizontal Directional Drilling
- Payment Process
- Updated Town Standard Details
- Bid Alternatives
- Design Clarifications / Adjustments

Permeable Reactive Barriers (PRBs)

- Permeable - Groundwater Flows Through (passive)
- Reactive - Promotes Biological Denitrification
- Barrier - Prevents Nitrate Migration to Coastal Embayments

![Diagram of PRBs](image-url)
Permeable Reactive Barriers
Denitrification Results - Shallow Well (MW-B2010C)
Permeable Reactive Barriers
Denitrification Results - Shallow Zone

- Total of ~34,000 Linear Feet in 3 Major Watersheds
  - Pleasant Bay
  - Nauset
  - Rock Harbor

Red Lines Show PRBs
Blue Lines Show Contributing Area of Watershed (Capture Zone of PRB)

Enlarged Area
### Permeable Reactive Barriers
#### PRBs vs Traditional System - LCCA

<table>
<thead>
<tr>
<th>PRB Description</th>
<th>Permeable Reactive Barrier</th>
<th>Traditional System</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Life Cycle Cost</td>
<td>N Removed (kg/yr)</td>
</tr>
<tr>
<td>Pleasant Bay Estuary</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blossom</td>
<td>$1,513,400</td>
<td>65</td>
</tr>
<tr>
<td>Briar Spring</td>
<td>$8,168,400</td>
<td>257</td>
</tr>
<tr>
<td>Duck Hole</td>
<td>$11,335,800</td>
<td>296</td>
</tr>
<tr>
<td>Gosnold</td>
<td>$5,966,700</td>
<td>126</td>
</tr>
<tr>
<td>Granny’s</td>
<td>$2,174,200</td>
<td>104</td>
</tr>
<tr>
<td>Keziah’s</td>
<td>$3,775,700</td>
<td>113</td>
</tr>
<tr>
<td>Mayflower</td>
<td>$4,969,200</td>
<td>152</td>
</tr>
<tr>
<td>Monument</td>
<td>$4,889,900</td>
<td>178</td>
</tr>
<tr>
<td>Namequoit, Ridge &amp; Lockwood</td>
<td>$7,577,200</td>
<td>396</td>
</tr>
</tbody>
</table>

| Pleasant Bay Estuary (cont.)     |                |                  |                        |                |                  |                        |
| Quonset 1, 2, & 3                | $5,071,900     | 187              | $27,104                | $15,991,500    | 261               | $61,245               |
| Richwood                         | $2,805,100     | 178              | $15,722                | $11,027,600    | 310               | $35,565               |
| Winslow                          | $3,496,900     | 61               | $57,397                | $8,991,300     | 180               | $50,087               |

| Nauset Estuary                   |                |                  |                        |                |                  |                        |
| Norseman                         | $1,999,700     | 122              | $16,411                | $12,338,300    | 201               | $61,302               |
| Tonset Road and Main Street      | $22,059,000    | 744              | $29,643                | $38,691,600    | 1,246             | $31,060               |

| Rock Harbor Estuary              |                |                  |                        |                |                  |                        |
| Rock Harbor                      | $10,896,700    | 305              | $35,771                | $10,994,600    | 441               | $24,953               |
Permeable Reactive Barriers

Next Steps

- **Current Phase**
  - Run Scenarios through Updated MEP Model via SMAST
  - Identify Recommended PRB Locations
  - Finalize Technical Memorandum

- **Next Phase**
  - Conduct Field Investigations
  - Modify Assumptions Based on Information Obtained During Investigations
  - Modify Recommended PRB Locations

- **Future Phases over 10 Years**
  - Preliminary Design
  - Final Design
  - Implementation

- **Re-Run Scenarios through Updated MEP Model**
- **CWMP Notice of Project Change**
- **Obtain Regulatory Approvals**
- **Develop Implementation Technical Memorandum**
  - Scope of Work
  - Schedule
  - Costs