Town of Truro
New Public Works Facility

Discussion from 12/10/19 Select Board Presentation

- Overall cost of $20,655,000 is too high. Town would like to find ways to reduce this cost.

- Review program to determine if additional space reductions can be made to reduce overall costs.

- Evaluate alternate systems to minimize building size.

- Prepare a more detailed site development estimate to validate site development costs.

- Evaluate high contingencies and market adjustment to determine if these figures can be lowered:
  - 2019 Market adjustment
  - Design Contingency
  - 2020 Escalation
  - 2021 Escalation
  - Location Factor
  - Construction Contingency

$5,321,011
**Proposed Program and Cost Modifications**

- Reduced the overall program by another +/- 8%

<table>
<thead>
<tr>
<th><strong>Space Needs Assessment</strong></th>
<th><strong>Initial Needs</strong></th>
<th><strong>Rev 1</strong></th>
<th><strong>Rev 2</strong></th>
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<tbody>
<tr>
<td>Office / Office Support</td>
<td>2,035 SF</td>
<td>1,525 SF</td>
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<td>Employee Facilities</td>
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<td>Workshops</td>
<td>3,929 SF</td>
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<td>Vehicle Maintenance</td>
<td>7,279 SF</td>
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<tr>
<td>Wash Bay</td>
<td>1,750 SF</td>
<td>1,350 SF</td>
<td>1,350 SF</td>
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<tr>
<td>Vehicle &amp; Equipment Storage</td>
<td>19,551 SF</td>
<td>18,953 SF</td>
<td>16,958 SF</td>
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</tbody>
</table>

**Subtotal:** 36,689 SF 32,487 SF 29,608 SF

11.5% Reduction

19.3% Reduction
Town of Truro
New Public Works Facility

Proposed Program and Cost Modifications

- Reduced the overall program by another +/- 8%
- Deferred several industrial equipment purchases (potential bid alternates)
- Reduced mezzanine area by +/- 13%
- Reduced canopy area by +/- 10%
- Adjusted site development costs based on a detailed estimate for the anticipated site development (basic site development work was reduced but specialty site work increased)
## Town of Truro
### New Public Works Facility
#### Detailed Conceptual Site Development Cost Estimate

<table>
<thead>
<tr>
<th>Description</th>
<th>Unit</th>
<th>2019 Cost</th>
<th>Quantity</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DIVISION 2 - SITE WORK</strong></td>
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<td><strong>GENERAL SITE WORK</strong></td>
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<td><strong>2019 DPW Facility</strong></td>
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<tr>
<td><strong>Description</strong></td>
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<tr>
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</table>

### Retaining Walls & Fill: $690,250

### Remaining Site Development: $1,279,000

### TOTAL CONSTRUCTION COST: $1,969,250
Town of Truro
New Public Works Facility

Proposed Program and Cost Modifications

• Reduced the overall program by another +/- 8%
• Deferred several industrial equipment purchases (potential bid alternates)
• Reduced mezzanine area by +/- 13%
• Reduced canopy area by +/- 10%
• Adjusted site development costs based on a detailed estimate for the anticipated site development (basic site development work was reduced but specialty site work increased)
• Reduced Market Adjustment from 10% to 7%
• Reduced Design Contingency from 5% to 4% (based on the fact that a detailed site estimate has been provided which accounts for potential unknown conditions)
• Reduced Year 1 escalation from 6% to 5% and Year 2 from 6% to 4% (based on discussions of anticipated escalation rates with four separate contractors)
• Reduced A&E Fee and OPM Fee allowances in line with overall project adjustments
• Reduced Communication / Low Voltage System Allowance by 17%
Town of Truro  
New Public Works Facility

<table>
<thead>
<tr>
<th>Conceptual Cost Estimate</th>
<th>Original</th>
<th>Revised</th>
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<tbody>
<tr>
<td>Building Construction Costs:</td>
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<tr>
<td>Mezzanines:</td>
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<td>Industrial Equipment:</td>
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<td>Fuel System Relocation:</td>
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<tr>
<td>Site Development:</td>
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<td>Salt/Sand Storage Structure:</td>
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<td>Market &amp; Location Adjustment Factor:</td>
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<td>Design Contingencies &amp; Escalation:</td>
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<tr>
<td>Owner’s Project Development Costs:</td>
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<td>$2,354,000</td>
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**TOTAL PROJECT COST:** $20,655,000  $17,982,000  
$2,673,000 Reduction
Town of Truro
New Public Works Facility

Conceptual Cost Estimate

<table>
<thead>
<tr>
<th>Description</th>
<th>Revised Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Construction Costs:</td>
<td>$8,398,000</td>
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<td>Salt/Sand Storage Structure:</td>
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<td>Market &amp; Location Adjustment Factor:</td>
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<td>Construction Contingencies:</td>
<td>$885,000</td>
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<tr>
<td>Owner’s Project Development Costs:</td>
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TOTAL PROJECT COST: $17,982,000
# Town of Truro
## New Public Works Facility

### Construction Cost Comparison (Does not include soft costs)

<table>
<thead>
<tr>
<th>Description</th>
<th>Size (SF)</th>
<th>Bid Date</th>
<th>Average Bid Price</th>
<th>2019 Avg Cost per SF</th>
<th>2020 Avg Cost per SF</th>
<th>2021 Avg Cost per SF</th>
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<tbody>
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<td>Wayland Public Works Facility</td>
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<td>2014</td>
<td>$10,519,754</td>
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<td>$434</td>
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</tbody>
</table>

**Average Cost per SF:** $411 $436 $453

**Average Cost per SF for Southeast / Cape Communities:** $456

Truro DPW
- $14,743,000
- 29,600 SF
- $498 per SF
Town of Truro
New Public Works Facility

Project Inquiries & Responses
Town of Truro  
New Public Works Facility  

Project Inquiries & Responses  

- How were the potential sites analyzed and ranked?  

- How will water for domestic and fire protection be handled?  

- What protective measures would be incorporated into the new salt shed to prevent pollution?  

- What protective measures would be included in the new building to prevent pollution?  

- How will stormwater be managed?  

- Can the existing buildings be renovated and reused?  

- Are there any noise or visual barriers proposed around the site?
How were the potential sites analyzed and ranked?
Site Selection Process

- Worked with the Town to identify potential sites
  - **Site 1** – 340/344 Route 6 (Town owned)
  - **Site 2** – 5 Town Dump Road Transfer Station (Town owned)
  - **Site 3** – Lot 104 Route 6 Adjacent State Parcel (State owned)
  - **Site 4** – 24 Town Hall Road Existing DPW Site (Town owned)

- Conducted a screening analysis of the parcels
  - **Size** – Prepared conceptual generic “test-fit” site plans to determine if site can meet DPW operational requirements.
  - **Environmental Receptor Maps** – Prepared receptor maps to identify potential permitting restrictions which could hinder development.

- Sites which do not pass the initial screening analysis were eliminated
Site Selection Process

- Generic “Test Fit”
Town of Truro
New Public Works Facility

Site Selection Process

- Generic “Test Fit”
Town of Truro
New Public Works Facility

Site Selection Process

- Site 1 – 340/344 Route 6
  - Size: Passed
  - Environmental Receptors: Passed
Town of Truro
New Public Works Facility

Site Selection Process

- Site 2 & 3 – 5 Town Dump Road & Lot 104
  - Environmental Receptors: Failed
  - Size: Failed
Town of Truro
New Public Works Facility

Site Selection Process

- Site 2 & 3 – 5 Town Dump Road & Lot 104
  - Size: Failed
  - Environmental Receptors: Failed
Town of Truro
New Public Works Facility

Site Selection Process

- Site 2 & 3 – 5 Town Dump Road & Lot 104
  - Size: **Failed**
  - Environmental Receptors: **Failed**

Program does not fit on site
Town of Truro
New Public Works Facility

Site Selection Process

- Site 2 & 3 – 5 Town Dump Road & Lot 104
  - Size: Failed
  - Environmental Receptors: Failed
Site Selection Process

- Site 4 – 24 Town Hall Road
  - Size: Passed
  - Environmental Receptors: Failed
Town of Truro
New Public Works Facility

Site Selection Process

- Site 4 – 24 Town Hall Road
  - Size: **Passed**
  - Environmental Receptors: **Failed**

---

**Statement of Zone I Compliance**

☐ Your system is currently in compliance with Zone I requirements for the following well(s): __________. Please be advised that any modifications to the Zone I or activities within are subject to DEP approval.

☑ Please note that you lack ownership or control of the required (100 FT) Zone I protective radius around the following well: **4300041-01G**. If you plan to modify or expand this source or to replace any wells, you must notify DEP (in accordance with 310 CMR 22.21(3)(b), 310 CMR 22.04(1) and 22.21(10)(a)). At the time of such notification of a proposed modification or expansion, DEP may require you to comply with the Zone I requirement.

☑ You are hereby notified that the following well: **4300041-01G** are in non-conformance with the MassDEP’s requirement (310 CMR 22.21(1)(b)(5)) that Zone I activities be limited to those directly related to the provision of public water or will have no significant adverse impact on water quality (as specified in Policy 94-03A). To the extent possible, efforts should be made to reduce or eliminate the impacts of non-conforming uses within the Zone I. Pursuant to 310 CMR 22.04(1) and 22.21(a), you must notify the DEP if you plan to modify or expand your source or to replace any wells. At the time of such notification of a proposed modification, expansion, or replacement, DEP may require you to comply with the Zone I requirement that all Zone I activities be limited to those directly related to water supply or will have no significant impact on water quality.

Non-Conforming activities documented within the Zone I: **DPW BUILDING, PARKING LOT**
Town of Truro
New Public Works Facility

Site Selection Process

- Site 4 – 24 Town Hall Road
  - Size: **Passed**
  - Environmental Receptors: **Failed**

![Site Diagram]
How will water for domestic and fire protection be handled?
Town of Truro
New Public Works Facility

Water for Domestic & Fire Protection

- A flow test will be conducted in the next phase of design to check flow and pressure

- Based on preliminary review, it is anticipated that domestic service will be provided from the existing water main

- Fire protection will likely be achieved with a cistern and fire pump
What protective measures would be incorporated into the new salt shed to prevent pollution?
Town of Truro
New Public Works Facility

Salt Shed Protection Measures

- The salt shed is a fully enclosed structure designed to store salt indoors
- There will be no exterior handling or storage of salt
- Salt is stored on an impervious hot mix asphalt floor
- The structure has been designed to allow the salt to be delivered directly inside the salt shed (no exterior dumping and moving required)
- The salt shed is equipped with a loading ramp to provide the operator with better visibility when loading salt trucks. This loading ramp will reduce the potential for spilling or overfilling of salt
- The DPW will implement housekeeping procedures to immediately clean up any salt that may spill around the loading area and move the product back inside the salt storage structure
Town of Truro
New Public Works Facility

What protective measures would be included in the new building to prevent pollution?
Town of Truro  
New Public Works Facility

Building Protection Measures

VEHICLE STORAGE GARAGE

- Fully enclosed storage garage to store vehicles and equipment inside
- The vehicle storage area is equipped with a trench drain / sump system which will collect any runoff, drips, and/or leaks from vehicles and equipment when stored indoors.
- The trench drain / sump system will be connected to a Massachusetts State Approved gas, oil, and sand separator which will discharge a MA DEP registered tight tank.
Town of Truro
New Public Works Facility

Building Protection Measures

WASH BAY

- The building is equipped with a fully enclosed vehicle wash bay to allow washing of vehicles and equipment indoors.
- The wash bay includes a trench drain and deep sump to collect wash water.
- The wash water will be routed through a grit separation tank and a Massachusetts State Approved gas, oil, and sand separator which will discharge to a MA DEP registered tight tank.
- No wash water runoff from the wash bay will discharge to the stormwater system.
Town of Truro
New Public Works Facility

Building Protection Measures

VEHICLE MAINTENANCE AREA

- The building has been designed with a fully enclosed vehicle maintenance area to allow vehicles and equipment to be maintained indoors.

- The maintenance area includes a dedicated fluid storage room equipped with above ground storage and spill containment system for liquid petroleum and associated products used for vehicle maintenance operations. A summary of the fluid storage room mitigation measures includes:
  - Designed in accordance with 527 CMR Fire Prevention Regulations
  - Separate 2-hour fire rated / fully sprinklered room
  - Double-wall bulk storage tanks for maintenance fluids products
  - Overfill alarms to prevent overfilling of tanks
  - The fluid storage room will have an 8-inch thick concrete floor which will drain to a concrete sump with a reservoir capable of storing largest tank + 10% of the remaining volume of fluids in the fluid storage room
  - The concrete sump will have an alarm to notify Fire Department if liquid enters the sump at any time.
Building Protection Measures

VEHICLE MAINTENANCE AREA

- Fluids used for vehicle maintenance operations will be contained in a closed system to limit the potential for leaks or spills.

- The system consists of a closed piped system which will deliver the fluids from the fluid storage room directly to the vehicles via a lube reel dispensing system.

- The pumps for the system are operated by pneumatic (compressed air) pumps. The compressed air system used to operate the pumps will be connected to a solenoid valve which will shut down the system when the building is unoccupied to prevent the potential for an accidental discharge of the fluids during off-hour periods.

- The maintenance area is equipped with a floor drain system which will collect any runoff, drips, and/or leaks from vehicles and equipment within the maintenance area. The floor drain system will be connected to a Massachusetts State Approved gas, oil, and sand separator which will discharge to a MA DEP registered tight tank.
Town of Truro
New Public Works Facility

Building Protection Measures

FUELING SYSTEM

- The system includes relocation of the double walled leak detected above-ground storage tanks (ASTs). The tank is vehicle impact, projectile, and blast resistant tanks meeting or exceeding U.L. 2085.

- The entire perimeter of the tanks will be protected with concrete filled steel bollards and steel guardrail barriers to prevent incidental impact of the tank.

- The tank will be installed on a 12” thick impervious reinforced concrete pad surrounded by an 8” think impervious reinforced concrete fueling area surface. All construction and control joints will be sealed with petroleum resistant sealant.

- The fueling area surface pad includes a positive limiting barrier which consists of continuous ¾” x ¾” series of grooves which are interconnected and designed to maintain minor spills of up to 5 gallons for each dispenser. These grooves surround the entire perimeter of the fueling area.

- The dispensing area is equipped with an emergency spill kit to manage potential spills during fueling operations. The Town will implement standard operating procedures to utilize the emergency spill kit and immediately clean any incidental spills which may occur.
Building Protection Measures

FUELING SYSTEM

- The fueling system includes a remote shutoff control switch to shut down the system in the event of an emergency.

- Stormwater runoff from the fuel island area will be collected in deep sump hooded catch basins and will be routed through a stormwater treatment unit (hydrodynamic separator).

- The fuel system will include continual monitoring of the interstitial space for the double walled tanks and will provide remote notification if any fluids are measured within the interstitial space.

- The fuels contained and dispensed from the tanks will be monitored through a fuel management system. This system will provide an inventory of the fuels delivered to the tanks and dispenses from the tanks to allow the Town to verify that the fluids dispensed match the fluids received.
How will the Stormwater be managed?
Town of Truro
New Public Works Facility

**Stormwater**
- Erosion and sedimentation control systems during construction
- New stormwater system which will treat all stormwater runoff (minimum 80% TSS removal)
- Designed in accordance with Massachusetts Stormwater Handbook and in compliance with the standards therein
- Deep-sump hooded catch basins
- Stormwater Treatment Units (Hydrodynamic Separators)
- Infiltration galleries with isolation row
- Infiltration swales
- Perimeter curbing (contains runoff and prevents untreated discharge to surrounding property)
- Peak rate attenuation
Can the existing buildings be renovated and reused?
Are there any noise or visual barriers proposed around the site?
Town of Truro
New Public Works Facility
Sustainable / Energy Efficiency Design Considerations
Town of Truro
New Public Works Facility

New State-of-the-Art Building System
Town of Truro
New Public Works Facility

Envelope Compliance Statement
Compliance Statement: The proposed envelope design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed envelope systems have been designed to meet the 2015 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Interior Lighting Compliance Statement
Compliance Statement: The proposed interior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2015 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Exterior Lighting Compliance Statement
Compliance Statement: The proposed exterior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed exterior lighting systems have been designed to meet the 2015 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.
Town of Truro
New Public Works Facility

Sustainable Opportunities

• Sustainable Design
  • Heat Recovery / Destratification
  • Rainwater harvesting
  • Photovoltaic ready
  • Superinsulation envelope
  • Natural daylighting
Town of Truro  
New Public Works Facility  
Sustainable Opportunities  
  • Sustainable Design  
    • Heat Recovery / Destratification  
    • Rainwater harvesting  
    • Photovoltaic ready  
    • Superinsulation envelope  
    • Natural daylighting
Town of Truro
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Rainwater from the Roof
Town of Truro
New Public Works Facility

Sustainable Opportunities

- Sustainable Design
  - Rainwater harvesting
  - Photovoltaic ready
  - Superinsulation envelope
- Natural daylighting
Wayland DPW
Town of Truro
New Public Works Facility

Hopkinton DPW

Weston & Sampson
Town of Truro
New Public Works Facility

Sustainable Opportunities

• Sustainable Design
  • Rainwater harvesting
  • Photovoltaic ready
  • Superinsulation envelope
• Natural daylighting
Sustainable Opportunities

- Sustainable Design
  - Rainwater harvesting
  - Photovoltaic ready
  - Superinsulation envelope
- **Natural daylighting**