Project Overview & Update

Old Lyme Shared Sewer Project Alliance

Miami Beach ● Old Colony Beach Association
Old Lyme Shores Beach Association ● Town of Old Lyme (Sound View)

August 27, 2022
Meeting Expectations

▪ Our topic regards the status of the Old Lyme regional wastewater system

▪ Our purpose is to provide public information – please hold your questions for your local WPCA board

▪ Welcome our invited guests:
  - Richard Blumenthal, Senator (CT)
  - Paul Formica, State Senator (20th Senate District)
  - Tim Griswold, First Selectman (Town of Old Lyme)
Some Definitions

▪ Consent Order

A consent order is a type of order issued by the Commissioner. It is not a contract and should not be labeled “consent agreement.” A consent order is enforceable as an order, which means that statutory penalties are applicable for noncompliance with it, and a lawsuit to enforce the consent order will have precedence in Superior Court over other lawsuits. (Reference)

▪ Equivalent Dwelling Unit (EDU)

Unit of demand on facilities equivalent to a typical single-family dwelling

▪ Benefit Assessment

Charge that a municipality or wastewater district places against a property to recover the cost of capital expenditures for the acquisition, construction, or upgrading of wastewater collection, conveyance, or treatment facilities
Overview

- Project History
  - Problem Statement
  - Our Shared Objectives
  - Our Shared Challenges
  - Our Solution
  - Accomplishments

- Costs & Funding
  - Cost Sharing Agreement
  - Understanding the Real Project Cost
  - Costs within Each Participating Entity

- Next Steps
Timeline

- 2010: Facilities Plan (Fuss & O’Neill)
- 2012: Vote for Wastewater Control Study (OLSBA)
- 2014: Consent Order (CT DEEP)
- 2016: Ordinance Establishing WPCA (OLSBA)
- 2018: Coastal Wastewater Local Plan (Woodard & Curran)
- 2020: Pandemic
- 2022: Unacceptable Bids
  - Amended WPCA Ordinance (OLSBA)
  - Unified Consent Order (CT DEEP)
  - New London Agreement
  - East Lyme Agreement

Legend:
- OLSBA Actions
- Intermunicipal Agreements
- Engineering Studies
- State of Connecticut Actions
- Other Items
Our Problem

- Our septic systems, groundwater and stormwater runoff contribute to polluting Long Island Sound, an Estuary of National Significance, that contributes $9.5B annually to the Connecticut economy
  - Creates hazards for human use of the Sound
  - Threatens wildlife and ecological stability of the Sound
- Connecticut DEEP issued remediation Consent Orders
  - Consent Order for the Town of Old Lyme AOWRMU 15002 / JUN15
  - Unified Consent Order for the Three Beaches COWRMU 18001 / FEB18

Statement of Noncompliance with Consent Orders

These consent orders are a final order of the Commissioner with respect to the matter addressed herein and is non-appealable and immediately enforceable. Failure to comply with these consent orders may subject the Beach Associations and Town of Old Lyme to an injunction and penalties.
Our Shared Objectives

▪ **Construct** a regional, coastal wastewater project that services the contiguous area including Miami Beach, Sound View, Old Colony, & Old Lyme Shores

▪ **Remediate** the pollution impact to Long Island Sound resulting from wastewater and stormwater runoff in the area

▪ **Comply** with State of Connecticut Department of Energy & Environmental Protection Consent Orders
Our Shared Challenges

- High density of development
- Undersized lot areas
- Shallow groundwater
- Flood risk
- Fast draining (sandy) soils
Challenge: High Density of Development

- Minimum horizontal separation from other septic systems or other receptors of environmental or public health concern
  - Stormwater swale
  - Watercourse
  - Inhabited dwelling
  - Drinking well
- Requires one or more public health code variances
- Overburdens soil conditions, leading to more urgent need to address issues
Challenge: Undersized Lots

- Each non-conforming lot
  - **Variance**: Requires one or more public health code variances to be approved
  - **Custom Solutions**: Demands a customized solution for each lot, driving up cost and complexity
Challenge: Shallow Groundwater

- Public health codes require >29” between the bottom of leaching field and the top of mean seasonal groundwater
- Standard septic leaching fields require 36-48” depth
- Groundwater tests in 2011 found depth at 22-43”
- Very difficult to effect proper aerobic treatment before leaching into ground
- Documented problems with leaching
Challenge: Flood Risk

- Storm surges (e.g. *Hurricane Irene, Storm Sandy*) bring ocean water inland
  - Pollutes drinking water
  - Renders onsite wastewater systems ineffective
- Engineered systems are costly & unsightly, with
  - Raised platforms for electrical components
  - Watertight enclosures
Challenge: Fast Draining Soils

- Adequate travel time required for nitrogen compound mitigation
- Fast soil percolation rates (<10m/in) common
- Common to coastal environments
- Groundwater quality tests performed in 2011 showed consistently high bacteriological counts in all areas
- Surface water samples showed very high bacteriological counts
Explored Options

- Conventional Septic System Upgrades
- Small Community Systems
- Advanced Treatment Units (aka Engineered Septic Systems)
- Centralized Sewer System
Option: Conventional Septic System Upgrades

- Upgrades to existing onsite wastewater treatment systems
- Option **rejected**, because:
  - Many existing systems do not meet current code requirements
  - Prevailing site conditions (mentioned previously) make compliance impossible for too many systems
  - Kicks the can down the road and will ultimately require reckoning
Option: Small Community Systems

- Combined wastewater flows conveyed to a centralized location for treatment and subsurface disposal

- Option rejected, because:
  - No suitable sites could be identified in discussions with DEEP
  - High construction and operational costs
  - Negative impact on nearby drinking water sources
Option: Advanced Treatment Units

- Each lot installs and maintains its own miniaturized wastewater treatment plant
- Requires custom design for each site/lot to accommodate unique conditions
- Annual spring system start-up requirement for proper operation
- Requires an annual operation & maintenance contract for life of the system

Option rejected, because:
  - Excessive cost for design, installation, and maintenance
  - Not acceptable in flood zones
Option: Centralized Sewer System

- Gravity pipes convey wastewater from beaches through East Lyme and Waterford via centralized pump station and force main pipe
- Wastewater delivered to New London wastewater treatment facility
- Well understood technology available for 4,000 years of history

Option selected, because
  - Solution available to 100% of residents
  - Lowest capital cost
  - Lowest operational and maintenance cost
Comparison of Alternatives

- **Total lifetime cost of ownership of the solution**
  - Non-sewer solutions ultimately costs 50-80% more than a sewer solution
  - Operations & maintenance costs are 5X greater for non-sewer solutions

- **Feasibility and inclusivity of the solution**
  - Sewer solution offers **100% inclusivity** with no technical barriers
  - Advanced treatment units cannot be installed in all cases, very high costs
  - Small community system has no viable site for the solution

- **Delegating individual septic solutions**
  - With ~2% of lots conforming, this approach dumps a heavy load on almost all other homeowners to obtain variances, perform site specific engineering studies, manage contractors, and absorb future operations and maintenance costs
Solution: Centralized Sewer System

- Effective
- Inclusive
- Economical
- Compliant
- Supported
- Reliable
- Maintainable
- Safe
Solution Scope: Wastewater, Drinking Water, Stormwater, & Roadways

- Adding a centralized sewer system motivates inclusion of additional project elements:
  
  **Roadway Paving:** Installation requires excavation of roadways and thus their repair or replacement
  
  **Drinking Water Safeguards**: DEEP engineers prefer metered inflows and outflows to identify future problems
  
  **Stormwater Management**: Opportunistic remediation of upstream contributions to Long Island Sound pollution

* Each association has its own constraints and requirements
Accomplishments

- Concluded all inter-municipal agreements
- Added the Town of Old Lyme to original Three Beaches to offset shared infrastructure costs
- Deferred obligation to begin repayment of state funds provided for design phase
- Successfully concluded the planning, contracting, and design phases
- Retained strong support for the project, even with challenges

Cost Sharing Agreement
- Old Lyme Shores, Old Colony, Miami Beach, & Town of Old Lyme

Town of East Lyme
- Conveyance agreement (includes Waterford)

City of New London
- Waste processing agreement
Costs & Funding

▪ Shared Infrastructure

▪ Entity Specific Costs
  • Sewers (Wastewater)
  • Drinking Water
  • Stormwater & Drainage
  • Roadway Paving
<table>
<thead>
<tr>
<th>Cost Allocations</th>
<th>Funding Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Shared Infrastructure</td>
<td>▪ Benefit Assessment</td>
</tr>
<tr>
<td>▪ Entity Specific Costs</td>
<td>• CT 20 yr note @ 2%</td>
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<tr>
<td>• Sewers (Wastewater)</td>
<td>▪ Grant Funding</td>
</tr>
<tr>
<td>• Drinking Water</td>
<td>▪ Tax / Assessment</td>
</tr>
<tr>
<td>• Stormwater &amp; Drainage</td>
<td>▪ Flat/Even – by property/EDU</td>
</tr>
<tr>
<td>• Roadway Paving</td>
<td>▪ Progressive – by valuation</td>
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<tr>
<td></td>
<td>▪ Metered – by utilization</td>
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## Costs: Shared Infrastructure Allocations

<table>
<thead>
<tr>
<th>Entity</th>
<th>EDU</th>
<th>Share Percent</th>
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</thead>
<tbody>
<tr>
<td>Town of Old Lyme</td>
<td>270</td>
<td>29.7%</td>
</tr>
<tr>
<td>Miami Beach</td>
<td>226</td>
<td>24.9%</td>
</tr>
<tr>
<td>Old Colony Beach</td>
<td>221</td>
<td>24.3%</td>
</tr>
<tr>
<td>Old Lyme Shores</td>
<td>192</td>
<td>21.1%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>909</td>
<td>100%</td>
</tr>
</tbody>
</table>
Costs: Shared Infrastructure

- Shared Force Main Design & Construction
- Pump Station(s) Construction & Upgrades
- Connection Buy-In, & Transit Charges (East Lyme, New London)
- Engineering & Technical Services
- Legal & Administrative

<table>
<thead>
<tr>
<th>Entity</th>
<th>EDU</th>
<th>Share Percent</th>
<th>Shared Cost (Est)</th>
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<tbody>
<tr>
<td>Sound View</td>
<td>270</td>
<td>29.7%</td>
<td>$4,900,000</td>
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<tr>
<td>Miami Beach</td>
<td>226</td>
<td>24.9%</td>
<td>$4,100,000</td>
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<tr>
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<td>221</td>
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<td>$4,000,000</td>
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<td>Old Lyme Shores</td>
<td>192</td>
<td>21.1%</td>
<td>$3,500,000</td>
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<td><strong>TOTAL</strong></td>
<td>909</td>
<td><strong>100.0%</strong></td>
<td><strong>$16,500,000</strong></td>
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Projected Cost: Miami Beach

- ~3 miles of private roads, more than any other association

- Complex subsoil conditions (peat, water table) along Pond Rd. drive additional costs

- Shallow and dense well placement require pipe liners

- Addition of stormwater increases costs by 15%

<table>
<thead>
<tr>
<th>Sewer &amp; Roads</th>
<th>Annual</th>
<th>Biannual</th>
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<tbody>
<tr>
<td>Cost with DEEP CWF Grant</td>
<td>$3,596</td>
<td>$1,791</td>
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<tr>
<td>Cost with DEEP &amp; Federal Grants†</td>
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<td>$1,288</td>
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† For illustration only, no funds yet obtained

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<tr>
<th>Total Costs</th>
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<tr>
<td>Sewers &amp; Roads</td>
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<tr>
<td>Stormwater</td>
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<td>$18,291,099</td>
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**Projected Cost: Old Colony Beach**

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<td>$1,300</td>
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<td>Cost with DEEP &amp; Federal Grants†</td>
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<td>$1,767</td>
<td>$ 884</td>
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† For illustration only, no funds yet obtained

- Storm drainage improvements
- Intersection sightline improvements
- Painted stop bars at all intersections
- All roads two-way with line striping
- Traffic calming speed humps
- Proper road pitch to remove ponding

**Total Costs**

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<tbody>
<tr>
<td>Sewers &amp; Roads</td>
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<td>Stormwater</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$8,484,417</strong></td>
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Projected Cost: Old Lyme Shores

- Significant excavation challenges due to ledge rock
- Road improvements for improved safety and utility
- Improvements to stormwater management to mitigate ponding

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<td>Cost with DEEP &amp; Federal Grants†</td>
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<td>Stormwater</td>
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<td><strong>TOTAL</strong></td>
<td><strong>$11,899,316</strong></td>
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### Projected Cost: Sound View

<table>
<thead>
<tr>
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<th>Sewer &amp; Roads</th>
<th>Annual</th>
<th>Biannual</th>
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<td>Cost with DEEP CWF Grant</td>
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<tr>
<td>Cost with DEEP &amp; Federal Grants†</td>
<td>$1,252</td>
<td>$623</td>
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</table>

† For illustration only, no funds yet obtained

- Includes shared costs, internals, & inter municipal agreements
- Roads patch and public roads paved by the Town of Old Lyme
- Drinking water already handled by Connecticut Water
- Stormwater is a separate project and funding

<table>
<thead>
<tr>
<th></th>
<th>Sewers &amp; Roads</th>
<th>IMAs</th>
<th>Stormwater</th>
<th>TOTAL</th>
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<tr>
<td><strong>Total Costs</strong></td>
<td>$9,357,524</td>
<td>$879,154</td>
<td>n/a</td>
<td>$10,233,678</td>
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Individual Cost Obligations

▪ Septic System Abandonment & Sewer Connection to Dwelling
  
  • *Depends on site conditions, can vary significantly by association*
  
  • *More information forthcoming from each WPCA*
Late Breaking News

- Not selected for latest round of Senate funding
  - Common to need several rounds of requests
  - Many funded programs remain available
  - We continue to pursue these sources of support

- Our existing agreements have drop dates, which imparts urgency to find resolution
  - CT DEEP has been a good partner in this effort
  - We will continue to work together to find a solution that is environmentally effective and economically viable
Next Steps

- Interim Funding Obligations (IFO) due 31JAN2023
- Pursue additional grants and subsidies from state and federal programs
- Investigate other opportunities for cost mitigation
- Each beach may hold referendum to reauthorize projects with updated cost and funding information
- Maintain collaborative and productive relationships with all project stakeholders
Q&A

- This presentation should have answered many of the questions that we received.
- We have some additional questions to address separately now.
- The remainder of the questions should be taken up with each member’s WPCA representatives.