

# 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

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- 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 (20<sup>th</sup> Senate District)*
  - *Tim Griswold, First Selectman (Town of Old Lyme)*

# Some Definitions

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- **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

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- **Project History**

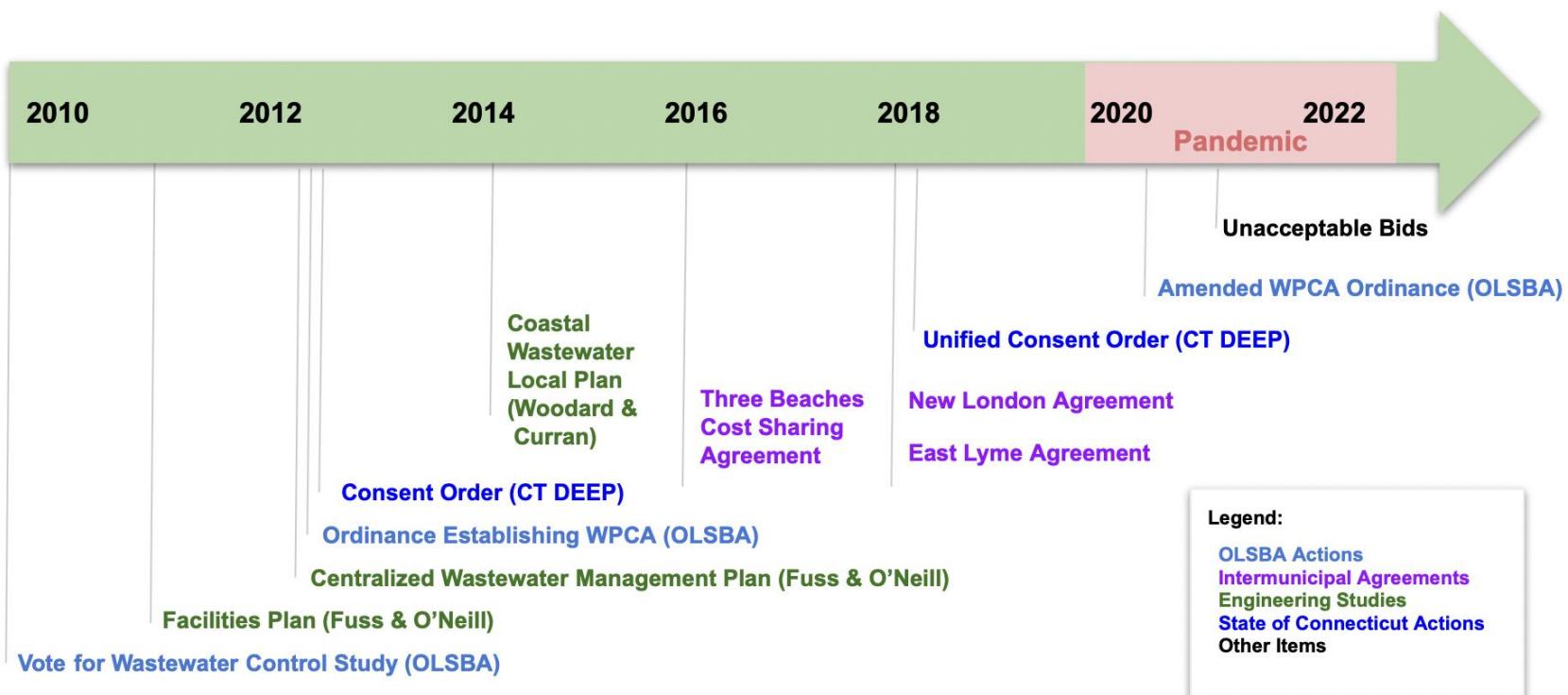
- *Problem Statement*
- *Our Shared Objectives*
- *Our Shared Challenges*
- *Our Solution*
- *Accomplishments*

- **Costs & Funding**

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

- **Next Steps**

# Timeline



# Our Problem

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- 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**

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- **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**

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

## Challenge: High Density of Development

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- 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

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- Each non-conforming lot
  - **Variances:** *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**

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- 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

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- 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**

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- 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

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

## Option: Conventional Septic System Upgrades

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- 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

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- 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

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- 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

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- 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

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- **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**

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- 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

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- 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

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- Shared Infrastructure
- Entity Specific Costs
  - *Sewers (Wastewater)*
  - *Drinking Water*
  - *Stormwater & Drainage*
  - *Roadway Paving*

# Cost Allocations & Funding Sources

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## Cost Allocations

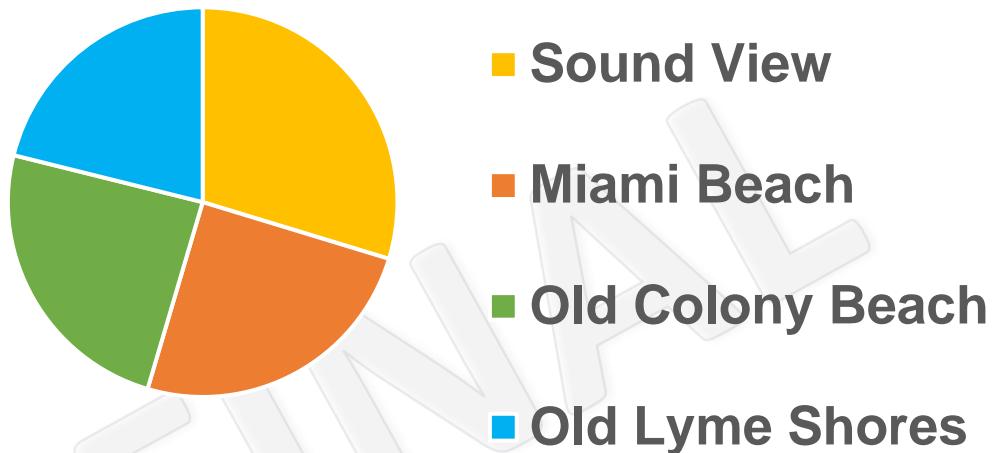
- Shared Infrastructure
- Entity Specific Costs
  - *Sewers (Wastewater)*
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  - *Stormwater & Drainage*
  - *Roadway Paving*

## Funding Sources

- Benefit Assessment
  - CT 20 yr note @ 2%
- Grant Funding
- Tax / Assessment
  - **Flat/Even** – by property/EDU
  - **Progressive** – by valuation
  - **Metered** – by utilization

# Costs: Shared Infrastructure Allocations

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Entity	EDU	Share Percent
Town of Old Lyme	270	29.7%
Miami Beach	226	24.9%
Old Colony Beach	221	24.3%
Old Lyme Shores	192	21.1%
<b>TOTAL</b>	<b>909</b>	<b>100%</b>

## Costs: Shared Infrastructure

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

Entity	EDU	Share Percent	Shared Cost (Est)
Sound View	270	29.7%	\$ 4,900,000
Miami Beach	226	24.9%	\$ 4,100,000
Old Colony Beach	221	24.3%	\$ 4,000,000
Old Lyme Shores	192	21.1%	\$ 3,500,000
<b>TOTAL</b>	<b>909</b>	<b>100.0%</b>	<b>\$ 16,500,000</b>

# Projected Cost: Miami Beach

Sewer & Roads	Annual	Biannual
Cost with DEEP CWF Grant	\$3,596	\$1,791
Cost with DEEP & Federal Grants <sup>†</sup>	\$2,587	\$1,288

<sup>†</sup>For illustration only, no funds yet obtained

- ~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%

Total Costs	
Sewers & Roads	\$16,288,076
Stormwater	\$2,003,023
<b>TOTAL</b>	<b>\$18,291,099</b>

# Projected Cost: Old Colony Beach

Sewer & Roads	Annual	Biannual
Cost with DEEP CWF Grant	\$2,600	\$1,300
Cost with DEEP & Federal Grants <sup>†</sup>	\$1,767	\$ 884

<sup>†</sup>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	
Sewers & Roads	\$8,484,417
Stormwater	n/a
<b>TOTAL</b>	<b>\$8,484,417</b>

## Projected Cost: Old Lyme Shores

Sewer & Roads	Annual	Biannual
Cost with DEEP CWF Grant	\$3,730	\$1,865
Cost with DEEP & Federal Grants <sup>†</sup>	\$2,900	\$1,450

<sup>†</sup>For illustration only, no funds yet obtained

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

Total Costs	
Sewers & Roads	\$10,000,743
Stormwater	\$1,898,573
<b>TOTAL</b>	<b>\$11,899,316</b>

# Projected Cost: Sound View

Sewer & Roads	Annual	Biannual
Cost with DEEP CWF Grant	\$2,140	\$1,066
Cost with DEEP & Federal Grants <sup>†</sup>	\$1,252	\$623

<sup>†</sup> 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

Total Costs	
Sewers & Roads	\$9,357,524
IMAs	\$879,154
Stormwater	n/a
<b>TOTAL</b>	<b>\$10,233,678</b>

## Individual Cost Obligations

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- 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**

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- 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**

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- 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**

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- 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