## **OLD LYME WASTEWATER MANAGEMENT PROJECT**

Presented by: Carlos Esguerra and Nisha Patel Bureau of Water Protection and Land Reuse Water Planning and Management Division

and a new rate of the back of the back of

ONNECTICU,

& ENVIRC

ĒĽ

# AGENDA

- Project timeline
- How a septic system works
- Past evaluation of options for Planning
- Order Issuance
- Alternatives evaluated
- Cost estimate for OLSBA
- -Additional cost considerations/savings
- -May 24, 2025 Vote



# At-a-glance Project timeline

PLANNING	ENV. REVIEW	IMA/CSA	CONSENT ORDER	DESIGN	
OLSBA 2012	OLSBA, OCBCA and	Cost Sharing	OLSBA, OCBCA and	Bid # 1 2021	
OCBCA 2012		agreement 2016	MBA	Bid # 2 2025 (Except	
MBA 2013	Town 2018	Intermunicipal	2018	OLSBA, MBA-no	
Town 2015 🚬		Agreement	$\widehat{}$		
		2018/2024			

#### How a septic system works

The Public Health Code defines the minimum criteria for a subsurface sewage disposal system (septic system) which will protect public health and the environment. Septic systems needs adequate vertical and horizontal separation to properly renovate wastewater.

Typical septic systems do <u>not</u> provide significant treatment for nutrients like nitrogen. Sewering and onsite advanced treatment units (which require constant O&M) would reduce nitrogen.



#### PAST EVALUATION OF OPTIONS FOR PLANNING 2011 DATA:





**Note**: without a change in the underlying conditions (more details on next slide), no appreciable change in the pollutant levels would occur.



#### PAST EVALUATION OF OPTIONS FOR PLANNING FINDINGS/EVALUATION CRITERIA (CONTINUED)



Source: Woodard and Curran. Town of Old Lyme, Coastal Wastewater Management Report, December 2014.

 Nitrogen contributes to low dissolved oxygen in LIS, which is harmful to aquatic life and significantly impact uses such as fishing, recreation, etc.

• High density of development: Average number of bedrooms per acre (Approx. 13 bedrooms per acre). DPH identifies no more than 6 bedrooms/ acre.

• Lot size : Over **85%** of the lots within the project area are smaller than 0.25-acres with a significant number of lots smaller than 0.1-acres.

• Subsurface conditions:

- shallow bedrock (eastern part of OLSBA and areas closer to Rte. 156),
- sandy soils with high percolation rates (< 10 minutes/inch of soil traveled)

shallow groundwater in a

-Additionally, septic systems in seasonal communities don't function properly because constant activity is necessary for a biomat to form and sustain, and for proper system performance.

\*Biomat is made up of bacteria attached soil particles. These microorganisms rely on the organic matter in the effluent for sustenance to break down pollutants. Without regular flow (year-round occupancy) parts of the biomat can dry out and degrade reducing the effectiveness of the system.



## SUMMARY OF WHAT ALTERNATIVES WERE EVALUATED

1. Conventional septic system upgrades on each property:

 Prevalence of small lot sizes and difficult subsurface conditions make septic system repairs difficult for a significant number of properties in project area. Also, conventional septic systems do not inherently remove nitrogen or bacteria, without additional treatment in the soil.

**2. Community wastewater system:** Wastewater from project area would be collected with sanitary sewers and taken to another site for treatment and disposal in the ground

 Project considered the "Cherry Stones" site but it was ruled out due to existence of a community well field nearby and hydraulic/soil capacity limitations.

**3. Advanced Treatment Units:** Each property would be equipped with a miniature version of a wastewater treatment plant.

• Ruled out due to high cost and complexity of program implementation in seasonal communities.

4. Sanitary sewers: Construction of internal gravity sewers and a shared force main and pump station.

<u>\*Selected alternative</u>

### \*Non-sewer options were determined to be infeasible and unprotective

## **ORDER ISSUANCE**

DEEP reviewed the reports and findings (summarized in previous slides) and determined that a pollution problem exists or can be reasonably anticipated.

DEEP issued an order requiring the implementation of the best selected alternative (sewers) based on the following authority:

**Connecticut General Statutes (CGS Section 22a-423)** define pollution as "...the contamination or rendering unclean or impure or prejudicial to public health of any waters of the state by reason of any wastes or other material discharged or deposited therein by any public or private sewer or otherwise so as directly or indirectly to come in contact with any waters..."

**CGS SEC. 22a-428.** ...If the commissioner finds that any municipality is causing pollution of the waters of the state, or that a community pollution problem exists, or that pollution by a municipality or a community pollution problem can reasonably be anticipated in the future, he may issue to the municipality an order to abate pollution.



#### **Project Costs – Sewer Project Only**

Illustration of Per EDU Cost

		OCBCA (24%)		OLSBA (21%)		MBA (26%)	TOL (29%)
	Shared	\$4,780,522.07		\$4,153,213.74		\$4,867,047.36	\$5,840,456.83
	Internal	\$5,371,195.00		\$7,000,000.00		\$10,500,000.00	\$8,731,200.00
	Accrued design interest (internal)	\$42,000.00		\$56,000.00		\$50,000.00	\$50,000.00
	Accrued design int (shared)	\$14,400.00		\$12,600.00		\$15,600.00	\$17,400.00
	Subtotal Inf.	\$10,208,117.07		\$11,221,813.74		\$15,432,647.36	\$14,639,056.83
	Interest during const	\$204,162.34		\$224,436.27		\$308,652.95	\$292,781.14
			_				 
J	Design Svcs	\$1,766,507.12		\$1,832,608.22		\$1,938,641.25	\$1,402,107.90
)	INF + DFSIGN	\$12,178,786,53		\$13.278.858.24		\$17.679.941.55	 \$16,333,945,86
-	Contingency (X0.1)	\$1,217,878.65		\$1,327,885.82		\$1,767,994.16	\$1,633,394.59
i							
j	SUBTOTAL	\$13,396,665.19		\$14,606,744.06		\$19,447,935.71	\$17,967,340.45
	CWF (Small Comm)25%	\$3,349,166.30		\$3,651,686.02		\$4,861,983.93	\$4,491,835.11
	PF (Max \$15M)	\$3,600,000.00		\$3,150,000.00		\$3,900,000.00	\$4,350,000.00
	Loan	\$6,447,498.89		\$7,805,058.05		\$10,685,951.78	\$9,125,505.34
	Legal/admin/land aq (1%)	\$133,966.65		\$146,067.44		\$194,479.36	\$179,673.40
	Total loan	\$6,581,465.54		\$7,951,125.49		\$10,880,431.14	\$9,305,178.74
	\$ per EDU (20-yr cost)	\$29,780.39		\$41,197.54		\$44,775.44	\$34,463.62
					1		
	INAA Buy-ins (CW/E Indegible)	\$715 118 00	_	\$621.279.00		\$786 306 00	\$678,000,00
ible	\$ per EDII (20-yr cost)	\$715,118.00	÷	\$3,219,06		\$780,500.00	\$2 511 11
		<i>43,233.03</i>	╉	<i>\J</i> ,213.00		<i>43,233.</i> 03	<i>42,311.11</i>
	TOTAL EDU COST (sewers-only)	\$33,016.22		\$44,416.60		\$48,011.26	\$36,974.74
	TOTAL EDU COST/year	\$1,650.81		\$2,220.83		\$2,400.56	\$1,848.74

Notes:

1. Costs are estimates for projects not bid **and actual for those with bids** 

2. For MBA and OLSBA, estimates are bid-adjusted

3. This table includes: Capital costs (public ROW) work. It does not include: sewer lateral cost (capital cost ~\$7,000 to 15,000 per property), annual O&M cost of ~\$450/yr). Note that tie-in costs to New London are included here. This includes a contingency of 10% (2x 5% contingency typically used)

4. The EDU/yr cost for sewer only: ~\$2,220

Connecticut Department of Energy & Environmental Protection

Inelig

# STORMWATER SYSTEM UPGRADE NEEDS

DEEP is aware that Old Lyme Shores would like to voluntarily upgrade stormwater drainage infrastructure. These costs are generally ineligible for CWF funding participation <u>unless</u> there is a direct conflict between a stormwater asset and the proposed sanitary sewer system\*. As a result, some CWF funding may exist\* for stormwater work in addition to construction cost savings associated with stormwater work occurring along with ground disturbance for sewers.

\*If there is a direct conflict between the stormwater system and the proposed sanitary sewer infrastructure, DEEP could finance the cost to modify or relocate the stormwater asset. Considering the magnitude of the sewer construction work (installation of sewer main and lateral stubs within public right of way), it is currently <u>estimated</u> that ~40-60% of the cost to upgrade the stormwater system could be eligible for CWF financial participation.

#### PROJECT COSTS WITH ADDITIONAL VOLUNTARY STORMWATER UPGRADE ILLUSTRATION OF EDU COST

	Storm drainage total	\$663,906.00	\$2,157,469.00	\$2,402,000.00	\$0.00
	Contingency (X0.1)	\$66,390.60	\$215,746.90	\$240,200.00	\$0.00
Eligible	CWF Eligible storm (≤60%)	\$438,177.96	\$1,423,929.54	\$1,585,320.00	\$0.00
	CWF25%Grant	\$109,544.49	\$355,982.39	\$396,330.00	\$0.00
	CWF loan	\$328,633.47	\$1,067,947.16	\$1,188,990.00	\$0.00
	\$EDU (Storm eligible)	\$1,487.03	\$5,533.40	\$4,892.96	\$0.00
	\$EDU Eligible (SW+Sewer)	\$31,267.42	\$46,730.95	\$49,668.40	\$34,463.62
Ineligible	IMA Buy-ins (CWF Inelegible)	\$715,118.00	\$621,279.00	\$786,306.00	\$678,000.00
	\$ per EDU (20-yr cost)	\$3,235.83	\$3,219.06	\$3,235.83	\$2,511.11
	Inelegible Storm (40% of cost)	\$225,728.04	\$733,539.46	\$816,680.00	\$0.00
nelegible	Ineligible Engineering (SW)	\$148,423.00	\$318,357.00	\$312,000.00	\$0.00
	Subtotal Ineligible	\$374,151.04	\$1,051,896.46	\$1,128,680.00	\$0.00
	\$EDU (Inelegible)	\$1,692.99	\$5,450.24	\$4,644.77	\$0.00
	Total cost /EDU	\$36,196.24	\$55,400.25	\$57,549.00	\$36,974.74
	Annually	\$1,809.81	\$2,770.01	\$2,877.45	\$1,848.74
	Monthly	\$150.82	\$230.83	\$239.79	\$154.06

# ADDITIONAL COST CONSIDERATIONS/SAVINGS

- •DPH approved alternate well protection measures for sewer designs in areas in proximity of drinking water wells (i.e., this will result in construction costs savings for MBA, Sound View and to a lesser extent in OLSBA).
- Economies of scale for private service connections. Same contractor can address several connections in one mobilization.
- CTDOT mill and overlay on Route 156
- Installation of sewers will result in property value increases since it will be a permanent solution to the pollution problem and allow greater use of lot areas to meet owner needs

# MAY 24, 2025 VOTE

## If Bond Authorization increase is approved:

- Bidding process to identify actual construction costs can be determined.
- OLSBA portion of the \$15M principal forgiveness continues to be available
- Shows continued progress towards compliance with DEEP Order (for the project area and shared project)
- Shows continued commitment to community partners and in-place agreements related to shared sewer infrastructure
- Opportunity to exceed IFO date exists (if needed to align with shared project partners)

## If Bond Authorization increase is not approved:

- Bidding cannot occur and OLSBA will be unable to show progress towards compliance with the Order and goodfaith efforts to make progress on the selected alternative
- DEEP will consider its options to address non-compliance via its enforcement tools. As presented in earlier slides, DEEP does not re-consider on-site system improvements
- DEEP will re-evaluate allocation of OLSBA's share of the \$15M principal forgiveness
- OLSBA will need to consider impacts due to failure to meet obligations due to various standing agreements among the beach associations and downstream communities (New London).



## **THANK YOU**