



Town of

Orleans
Massachusetts

Joint Meeting of the Board of Selectmen and Finance Committee

Water Quality and Wastewater Planning Financial Model

February 18, 2016

Agenda

- ❖ Objectives and Key Items
- ❖ Non-Traditional Technologies Demonstration Projects
- ❖ Collection, Treatment and Disposal Systems
- ❖ Estimated Program Costs
- ❖ Financial Plan Update
- ❖ Financial Model



Objectives and Key Items

Objectives

- ❖ Model Flexibility
- ❖ Inputs / Outputs
- ❖ Ability to Show Relative Impacts of Various Financing Scenarios

Key Items

- ❖ Fair, Value-based Cost Allocation Plan
- ❖ Affordability and Cost Impact Provisions



Non-Traditional Technologies Demonstration Projects

❖ Aquaculture/Shellfish Propagation

- Quanset Pond
- Little Pleasant Bay (existing grant areas)

❖ Floating Constructed Wetlands

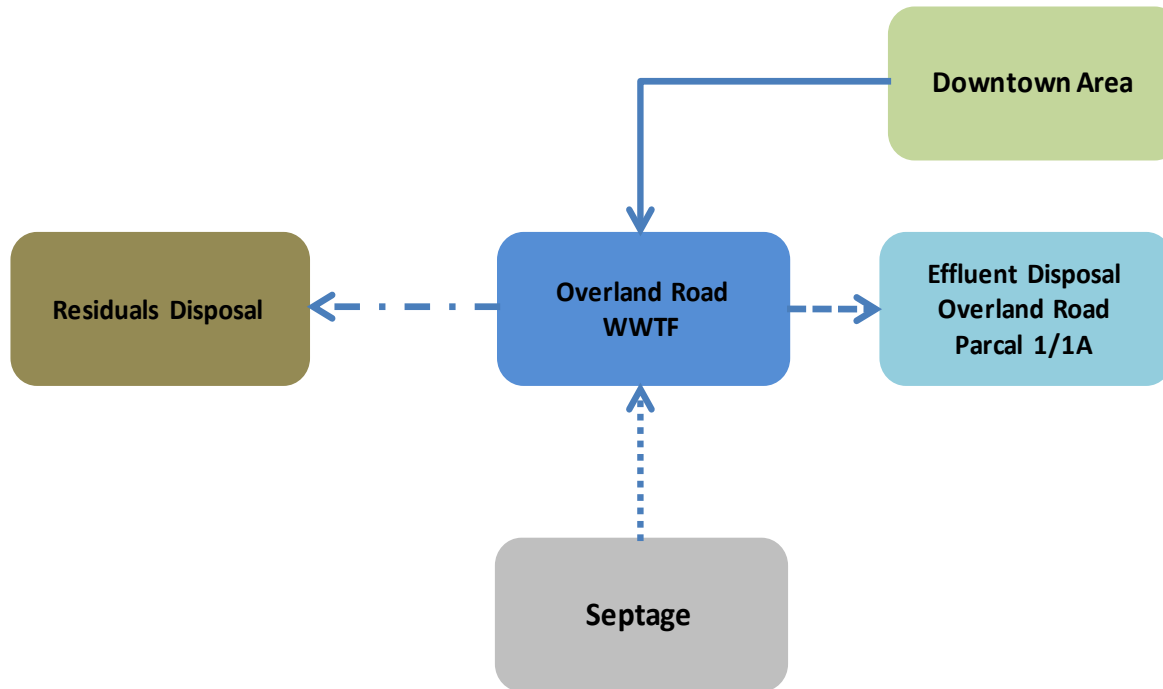
- Lonnie's Pond
- Quanset Pond

❖ Permeable Reactive Barriers

- Main Street and Tonset Road (Main Street)
- South Orleans Road at Tonset/Eldredge Parkway (Route 28 site)
- Town Cove Gibson Road
- Town Landfill



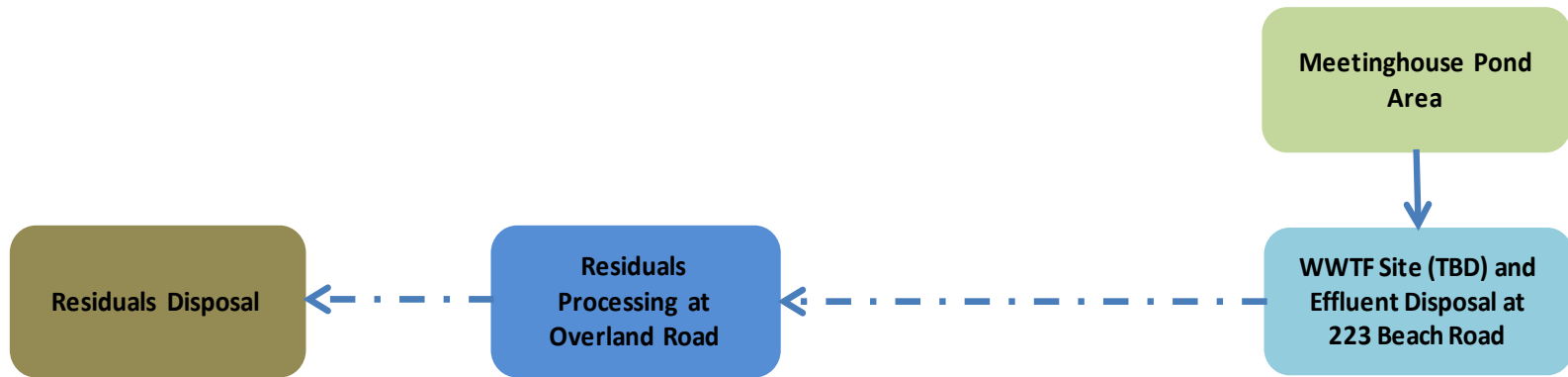
Collection, Treatment and Disposal Systems



Downtown Area Flow Schematic



Collection, Treatment and Disposal Systems (cont.)



Meetinghouse Pond Area Flow Schematic



Estimated Program Costs (cont.)

Elements of the Program

- ❖ Collection/Treatment/Disposal
- ❖ Non-Traditional Technologies
- ❖ Adaptive Management

Major Cost Components

- ❖ Project (Capital)
- ❖ Annual Operation and Maintenance
- ❖ Replacement
- ❖ Monitoring



Estimated Program Costs

Component	Preliminary Project Cost	Preliminary Annual Costs			
		O&M	Replacement	Monitoring	Total
<u>Downtown Area</u>					
Collection System	\$23,380,000	\$430,000	\$158,000	\$12,000	\$600,000
WWTF and Effluent Disposal	\$15,889,000	\$1,185,000	\$533,000	\$87,000	\$1,805,000
<u>Meetinghouse Pond Area</u>					
Collection System	\$21,094,000	\$212,000	\$91,000	\$3,000	\$306,000
WWTF and Effluent Disposal	\$6,809,000	\$709,000	\$235,000	\$143,000	\$1,087,000
<u>Non-Traditional Technologies</u>					
<u>Demonstration Projects</u>					
Floating Constructed Wetlands	\$3,247,000	\$11,000	\$74,000	\$384,000	\$469,000
Aquaculture/Shellfish Propagation	\$696,000	\$364,000	\$502,000	\$114,000	\$980,000
Permeable Reactive Barriers	\$973,000	\$0	\$75,000	\$375,000	\$450,000
<u>Non-Traditional Technologies</u>					
<u>Full Scale Projects</u>					
Floating Constructed Wetlands	\$10,823,000	\$38,000	\$246,000	\$1,279,000	\$1,563,000
Aquaculture/Shellfish Propagation	\$1,010,000	\$1,016,000	\$494,000	\$356,000	\$1,866,000
Permeable Reactive Barriers	\$3,796,000	\$0	\$101,000	\$563,000	\$664,000
Totals	87,717,000	3,965,000	2,509,000	3,316,000	9,790,000

Note: These are updated best estimates at this time and are subject to change



Financial Plan Update

Objectives

- ❖ Updated Cost Estimates
- ❖ Fair, Value-based Cost Allocation Plan
- ❖ Affordability and Cost Impact Provisions
- ❖ Consideration of Public-Private Partnership Options

Tasks

- ❖ Define Cost and Revenue Components
- ❖ Define User Categories
- ❖ Allocate Costs by User Category
- ❖ Define Financing Options
- ❖ Pursue Grant, Debt-Forgiveness options
- ❖ Test and Optimize Scenarios, Evaluate Affordability



Financial Model

- ❖ Program Cost Impact Assessment
 - Determine the revenue requirement based on engineering solutions
- ❖ SRF and Other Financing Options
 - Select financing options including SRF, USDA and Conventional financing
- ❖ Revenue Generating Options and Revenue Generating Plan
 - Select revenue generating options from Federal, State, Regional and Local sources
 - Develop revenue generating plan(s)
- ❖ P3 Options and Revenue Impact
 - Assess public-private partnerships to lower project costs or provide alternative financing mechanisms through TIFs, DIFs and Local Infrastructure Development Program
- ❖ Affordability
 - Affordability assessments to determine whether the average wastewater cost per household satisfies certain affordability criteria



Financial Plan Update (cont.)

Treatment Types	Type of Cost		Revenue Sources **	Users	Outputs
	Capital	Operating *			
Downtown WWTF	Capital Costs ***		Special Assessment	Sewered Commercial	Rate Scenarios By Customer Category
	Septic Capital Costs ***		Special Assessment	Sewered Residential	Parcel Specific
	Disposal Costs		Special Assessment		
	Connection Costs		Connection Fee		
		O, M, M & R Costs	User Charge		
Meetinghouse Pond WWTF	Capital Costs ***		Special Assessment	Sewered Residential	Rate Scenarios By Customer Category
	Disposal Costs		Special Assessment		Parcel Specific
	Connection Costs		Connection Fee		
		O, M, M & R Costs	User Charge		
Non-Traditional	Capital Costs ***		Special Assessment	Nitrogen-Sensitive, Non-Sewer	Rate Scenarios By Customer Category
	Capital Costs (On-site)		Management Fee		Average Parcel
		O, M, M & R Costs	User Charge		
			Management Fee		
On-site Septic	Capital Costs (On-site)		Management Fee	Non-Nitrogen, Non-Sewer	Rate Scenarios By Customer Category
		O, M, M & R Costs	Management Fee		Average Parcel
Notes:	* O = Operations; M = Maintenance; M= Monitoring; and R = Replacement				
	** General Revenues - Taxes, Grants and Loan Forgiveness				
	*** Planning, Design and Construction Capital Costs				





Betterment / Benefit Fee (One Time Charge)							
Downtown Area - Per Parcel	\$0	\$25,581	\$102,324	\$127,904	\$21,309	\$22,078	\$16,034
Meetinghouse Pond Area - Per Parcel	\$0	\$19,612	\$78,449	\$98,061	\$16,326	\$16,326	\$11,824
Non-Traditional Technology Area - Per Parcel	\$0	\$994	\$994	\$994	\$841	\$841	\$631
Connection Charges (One Time Charge)							
Downtown Area	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Meetinghouse Pond Area	\$8,000	\$8,000	\$8,000	\$8,000	\$8,000	\$8,000	\$8,000
Non-Traditional Technology Area	N/A	N/A	N/A	N/A	N/A	N/A	N/A
User Fees (Annual Charge)							
Downtown Area	\$327	\$327	\$327	\$327	\$327	-\$281	-\$281
Meetinghouse Pond Area	\$209	\$209	\$209	\$209	\$209	\$90	\$90
Non-Traditional Technology Area (O&M)	\$57	\$57	\$57	\$57	\$57	-\$62	-\$62
Non-Traditional Technology Area (Septic Impact Fee)	\$500	\$500	\$500	\$500	\$500	\$500	\$500
Net Property Tax (Annual Charge)							
Downtown Area	\$830	\$664	\$292	\$168	\$555	\$564	\$412
Meetinghouse Pond Area	\$830	\$664	\$292	\$168	\$555	\$564	\$412
Non-Traditional Technology Area	\$830	\$664	\$292	\$168	\$555	\$564	\$412



Total Annual Charge								
Downtown Area	\$1,656	\$2,769	\$6,234	\$7,389	\$2,447	\$1,887	\$1,433	
Meetinghouse Pond Area	\$1,439	\$2,254	\$4,823	\$5,680	\$1,980	\$1,870	\$1,493	
Non-Traditional Technology Area	\$1,387	\$1,271	\$898	\$774	\$1,154	\$1,044	\$882	
Cost per Customer - Systemwide Average	\$1,406	\$1,414	\$1,433	\$1,439	\$1,277	\$1,140	\$949	
General influence of financial metric on average rate compared to Baseline:	N/A	1%	2%	2%	-9%	-19%	-33%	



Financial Plan Update (cont.)

Inputs

- ❖ Project Cost
 - Project Cost
 - Annual O&M Cost
 - Replacement Cost
 - Annual Monitoring Cost

- ❖ Parcels / Users

Example Model Run

Input File

Financial Model





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Thank You