



Town of

Orleans
Massachusetts

Orleans Water Quality Advisory Panel

Stakeholder Workshop

December 2, 2015

Tri-Town Septage Treatment Plant Status & Plan

- ❖ TTSTP has exceeded its design life; major capital repair and replacement required:
 - \$1 M to \$1.25 M to extend life for 5 years
 - \$5.2 M to extend life for 20 years
- ❖ IMA and DEP permit expire on December 31, 2016
- ❖ Eastham has voted not to fund short-term R&R expenditure; Brewster expected to vote similarly
- ❖ Orleans Board voted in 2013 not to extend permit past 12/31/2016
- ❖ Funding of design for demolition of the plant has been approved by the three towns



Tri-Town Septage Treatment Plant Status & Plan (cont.)

- ❖ Procurement of demolition design will proceed in May 2016 pending Town Meeting approval in May
- ❖ Orleans will coordinate plant demolition
- ❖ Demolition design and permitting will take about 6 months
- ❖ Plant will accept last septage deliveries in September 2016 to allow decommissioning by 12/31/2016.
- ❖ Y-D septage capacity may be available in Winter. Off-Cape hauling required during on-season periods
- ❖ Demolition will be bid and completed in 2017 pending approval at Town meeting in May 2017



Tri-Town Septage Treatment Plant Status & Plan (cont.)

- ❖ Demolition cost estimate recently revised to cost approximately \$2,025,000 (See AECOM TM)
- ❖ Consideration of delaying demolition to combine with construction of new wastewater septage plant does not appear cost-effective due to inflation.
- ❖ Above to be evaluated in more detail considering salvage value of some existing facilities (e.g. admin building)
- ❖ Design, permitting and construction of new WWTF with septage capacity may be completed in 3-4 years.
- ❖ Cape Cod Commission now beginning evaluation of regional septage management options





Town of

Orleans
Massachusetts

Orleans Water Quality Advisory Panel

Review of AECOM Progress on Consensus Plan Tasks

Betsy Shreve-Gibb, AICP, Project Director
Thomas Parece, P.E., Project Manager
AECOM Technical Services, Inc.

December 2, 2015

AECOM

AECOM's Project Scope of Work

- ❖ 1. Facilities Engineering
- ❖ 2. Tri-Town Transition Requirements
- ❖ 3. NT Demonstration Projects
- ❖ 4. Adaptive Management Implementation
- ❖ 5. Financial Evaluation
- ❖ 6. Regulatory Review and Coordination
- ❖ 7. Preparation of the Amended CWMP



3.a. Demonstration Project Progress

Technology

- ❖ Floating Constructed Wetlands
- ❖ Aquaculture/Shellfish Propagation
- ❖ Permeable Reactive Barriers

Tasks

- ❖ Identified Possible Sites
- ❖ Conducted Preliminary Field Survey
- ❖ Assembling Base Data
- ❖ Establishing Criteria For Site Evaluations
- ❖ Preparing for PRB Field Investigations



3.b. Disposal Site Studies

Proposed Locations

- ❖ Route 6 (Interchange 12) Cloverleaf
 - Downtown Area
- ❖ 223 Beach Road
 - Meetinghouse Pond Area

Tasks

- ❖ Proposed Hydrogeologic Site Evaluation
 - Work Plan submitted to MassDEP
 - Test Pit Investigation
 - Soils and Slug Testing and Data Analysis
 - Baseline Water Quality Analysis
 - Estimate of High Water Table
 - Estimated Groundwater Mounding
- ❖ Coordination with MassDOT
- ❖ Schedule and Conclusions



3.c. Downtown Planning Study

Focuses on Downtown/Village Center Areas

- ❖ Verify Vision Established
 - Comprehensive Plan (2006)
 - Village Center (2009)
 - Others
- ❖ Identify Changes/Trends in Market/Economy
- ❖ Review/Modify Recommendations to Strengthen Downtown
- ❖ Select Future Growth Scenario to Predict WW Flows/Loads

Tasks

- ❖ Review Previous Studies
- ❖ Conduct Workshop to Confirm Vision
- ❖ Update Build-out by Parcel
- ❖ Conduct Economic/Market Analysis
- ❖ Identify Future Scenarios (high, low and medium growth)
- ❖ Develop Future Build-Out
- ❖ Conduct 2nd Workshop



3.c. Downtown Planning Workshop December 15, 2015 Agenda

- ❖ Welcome and Introductions (5 min)
- ❖ Purpose of Workshop (5 min)
- ❖ Background (10 min)
- ❖ Economic Analysis (35-40 min)
- ❖ Q&A (10 min)
- ❖ Summarize Pertinent Recommendations from Village Center Analysis (10 min)
- ❖ Breakout Sessions (20 min)
- ❖ Report Back and Wrap Up (15 min)



3.d. Downtown System Engineering: Collection, Treatment and Septage

Collection Systems Types

- ❖ Gravity Sewers
- ❖ Low Pressure Sewers
- ❖ Vacuum Sewers
- ❖ Septic Tank Effluent Pumping
- ❖ Septic Tank Effluent Gravity

Tasks

- ❖ Identify Evaluation Criterion
- ❖ Perform Evaluation
- ❖ Prepare Preliminary System Layout (2 Highest Ranked Types)
- ❖ Prepare Cost Estimate (Capital and Operating)



3.d. Downtown System Engineering: Collection, Treatment and Septage (cont.)

Transport System Types

- ❖ Submersible
- ❖ Suction Lift
- ❖ Package (Wet Pit/Dry Pit)
- ❖ Custom

Tasks

- ❖ Identify Evaluation Criterion
- ❖ Perform Evaluation
- ❖ Prepare Preliminary System Layout (2 Highest Ranked Types)
- ❖ Prepare Cost Estimate (Capital and Operating)



3.d. Downtown System Engineering: Collection, Treatment and Septage (cont.)

WWTF/Septage Location and Types

- ❖ Location
 - Bay Ridge Lane (Tri-Town)
 - East Orleans
- ❖ Process Types
 - Conventional Activated Sludge
 - Rotating Biological Contactors
 - Sequencing Batch Reactors
 - Membrane Bioreactors

Tasks

- ❖ Identify Evaluation Criterion
- ❖ Prepare Preliminary Layout and Design Data
- ❖ Perform Evaluation
- ❖ Prepare Cost Estimate (Capital and Operating)



3.e. Public-Private Partnerships

- ❖ Public – Private Partnerships (P3s) cover a broad range of financing and ownership alternative combinations:
 - Site ownership
 - Facilities ownership
 - Facility design
 - Facility construction
 - Facility operation
 - System financing: collection, treatment, disposal, residuals

- ❖ Advantages & Disadvantages of each option
 - Cost: capital and operating
 - Financial/debt condition of municipality
 - Legal issues - e.g. special legislation
 - Regulatory – e.g. private permits for municipal services
 - Management and administration requirements
 - Risk to Town: short-term and long-term
 - Schedule



3.e. Public-Private Partnerships (cont.)

- ❖ Most common P3 is operations contract management (con-ops)
- ❖ Necessary to develop two tracks separately to fully evaluate options:
 - Municipal option - Consensus Plan
 - Private option – Private downtown project
- ❖ Selectmen are planning workshop(s) to better understand P3 options and issues



3.f. Financial Evaluation

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 and Value
- ❖ Define Financing Options
- ❖ Pursue Grant, Debt-Forgiveness options
- ❖ Test & Optimize Scenarios



3.f. Financial Evaluation (cont.)

Treatment Type	Type of Cost		Revenue Sources **	Users	Outputs
	Project *	Operating			
Tri-Town WWTF	Capital Septic Disposal Connection	O, M, M & R Costs	Special Assessment Special Assessment Special Assessment Connection Fee User Charge	Sewered Commercial and Sewered Residential	Rate Scenarios By Customer Category and Specific Parcel
Meetinghouse Pond WWTF	Capital Disposal Connection	O, M, M & R Costs	Special Assessment Special Assessment Connection Fee User Charge	Sewered Residential	Rate Scenarios By Customer Category and Specific Parcel
Non Traditional	Capital Connection	O, M, M & R Costs	Special Assessment Connection Fee User Charge Management Fee	Nitrogen Sensitive Non Sewer	Rate Scenarios By Customer Category and Average Parcel
On-site Septic	Capital	O, M, M & R Costs	Management Fee Management Fee	Non Nitrogen Non Sewer	Rate Scenarios By Customer Category and Average Parcel

Notes:

* Project Costs = Planning, Design and Construction Capital Costs

** General Revenues - Taxes, Grants and Loan Forgiveness



3.g. Adaptive Management Implementation

- ❖ Review of Historic Monitoring/Modeling Program
- ❖ Development of Integrated, Long-Term Monitoring/Modeling Plan - Gap Analyses
 - Baseline Monitoring
 - Continuing Waterbody Monitoring
 - Non-Structural Technology Performance Monitoring
 - MEP Study Update Monitoring
 - MEP Model Update and Implementation Analysis
 - Stormwater and Fertilizer Program Monitoring
 - AMP Workshop Being Planned
- ❖ Continuing Adaptation of the Program, as Appropriate.



3.g. Adaptive Management Plan

- ❖ Review of Historic Monitoring/Modeling Program
- ❖ Development of Integrated, Long-Term Monitoring/Modeling Plan - Gap Analyses
 - Baseline Monitoring for Demo Project
 - Continuing Waterbody Trend Monitoring
 - Non-Structural Technology Performance Monitoring
 - MEP Study Update Monitoring
 - MEP Model Update and Implementation Analysis
 - Stormwater and Fertilizer Program Monitoring
- ❖ AMP Monitoring/Modeling Workshop Being Planned
- ❖ Continued Adaptation of the Plan





Town of
Orleans
Massachusetts

Thank You