Town of Orleans Massachusetts

Board of Selectmen

Water Quality and Wastewater Planning

December 14, 2016

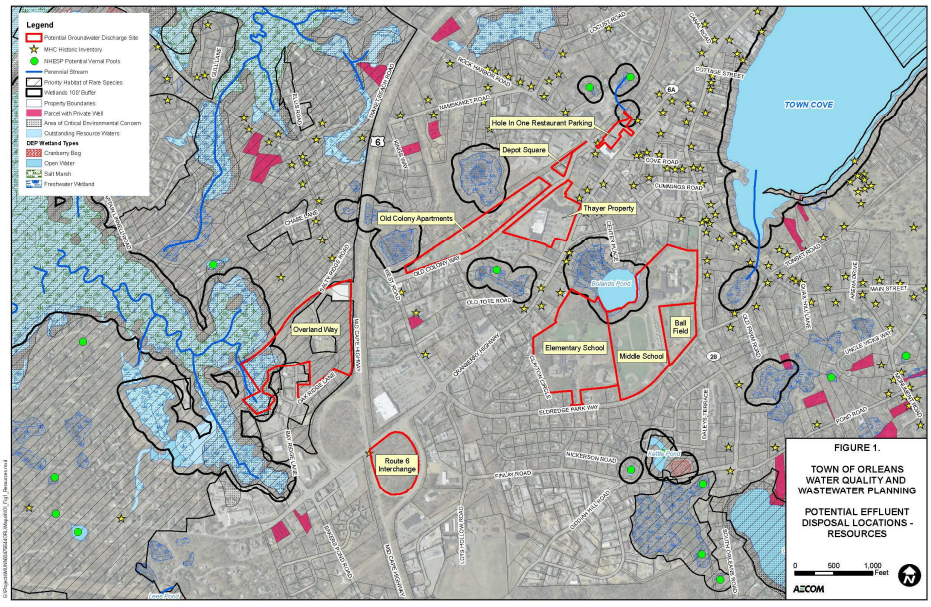
Agenda

- Effluent Disposal for Downtown Area Siting
- P3 Development and Financial Analysis
- Amended CWMP

AECOM

Downtown Area Effluent Disposal Evaluation

- Overland Way – Site 1/1A
- Route 6 Interchange (Exit 12 Cloverleaf)
- Thayer Site (Orleans Market Place)
- Old Colony Apartments (Old Colony Way)
- Hole in One Restaurant (Cranberry Highway)
- Depot Square (Old Colony Way)
- Orleans Elementary School (46 Eldredge Park Way)
- Nauset Regional Middle School (70 Eldredge Park Way)
- Firebirds Ball Field (76 Eldredge Park Way)



Downtown Area Effluent Disposal Evaluation (cont.)

Evaluation Criteria

- **Site Suitability**
  - Property Ownership
  - Distance from WWTF
  - Site Topography
  - Uses of Site
  - Depth to Groundwater
  - Potable Water Wells
  - Land Area Available for Discharge
  - Funding Potential
  - Community Impacts
- **Permitting**
  - Wetlands
  - ACEC
  - Priority/Estimated Habitat of Rare Species
  - MHC Sites
- **Engineering Factors**
  - Nitrogen Impacted Estuary
  - Results of Previous Studies
  - Effluent Quality - Nitrogen
  - Groundwater Discharge Method(s)

Downtown Area Effluent Disposal Evaluation (cont.)

Potential Effluent Discharge Location	Score	Rank
Overland Way – Site 1/1A	**673**	**1**
Route 6 Interchange (Exit 12 Cloverleaf)	492	4
Thayer Site (Orleans Market Place)	**510**	**3**
Old Colony Apartments (Old Colony Way)	466	7
Hole in One Restaurant (Cranberry Highway)	411	9
Depot Square (Old Colony Way)	485	5
Orleans Elementary School (46 Eldredge Park Way)	477	6
Nauset Regional Middle School (70 Eldredge Park Way)	**545**	**2**
Firebirds Ball Field (76 Eldredge Park Way)	440	8

Update and Preliminary Results of Financial Analyses

❖ New Financial Scenarios Modeled

- Model runs conducted in October-November demonstrate how user costs affected by interest rate, length of borrowing, grant funding, use of alternative procurement methods, and allocation of costs among different user groups

.

- Latest model results organized to show seven "Cases" to demonstrate effects of putting all capital costs for all program components (traditional and non-traditional) on tax rate (at request from Finance Committee)
- The user costs in following Table reflect average costs based on number of users for each area. Linkage of model to water use data and property assessments by parcel is in process with results available in January
- Using actual water use and property assessment data will increase some user costs while decreasing others, compared to average costs.

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Update of Public-Private Partnership and Financial Evaluations (cont.)

Example Cases (Finance Committee Request: All Capital Costs on Taxes)

- **Case A, Baseline**: 100% capital cost on tax rate; 100% O/M/R/R on user charge; 4% conventional financing; 20 years
- **Case B, Historic EPA Grant Funding**: Same as Case A but with 90% Grant/Loan forgiveness with balance of capital cost using conventional financing
- **Case C, Introduce SRF at 2% Financing**: Same as Case A but 2% SRF financing instead of 4% conventional financing
- **Case D, Introduce 0% SRF Financing**: Same as Case C but 0% instead of 2% SRF financing
- **Case E, Introduce the 25% Grant/Loan Forgiveness**: Same as Case D but with 25% Grant/Loan forgiveness with balance of capital cost at 0% financing
- **Case F, Extend Borrowing:** Same as Case E but extend borrowing to 30 years
- **Case G, Multiple Discounts:** Same as Case F but also include D/B/O with 21% savings on capital and additional 7% savings on O&M; 5% local options tax savings; septage revenue; and reduce contingency on capital from 25% to 15%

Town of Orleans
Water Quality and Wastewater Planning Program
Compatible with Cost Estimates Version 44
Customer Rate Scenarios

Assumptions	Case A (Baseline) Capital - 100% Tax O&M&R&M - 100% User Fees Financing - 4% 20-year Conventional	Case B Same as Case A, including Conventional Financing, plus 90% Grant/Loan Forgiveness	Case C Same as Case A, but with 2% SRF Financing	Case D Same as Case A, but with 0% SRF Financing	Case E Same as Case D plus 25% Grant/Loan Forgiveness	Case F Same as Case E, but with 30-year SRF Financing	Case G Same as Case F, plus 25% Grant, 21% D/B, 7% D/B/O, 5% Local Options Tax Savings, Septage Revenue, and Contingency for Capital/ Replacement costs reduced from 25% to 15%
Special Assessment	0%	0%	0%	0%	0%	0%	0%
Bond Years	20	20	20	20	20	30	30
Interest on Bond	4%	4%	2%	0%	0%	0%	0%
Grant / Loan Forgiveness	0%	90%	0%	0%	25%	25%	25%
Design / Build	0%	0%	0%	0%	0%	0%	21%
Design / Build / Operate	0%	0%	0%	0%	0%	0%	7%
Septage Revenue (Annual)	$0	$0	$0	$0	$0	$0	$584,000
Local Options Tax	0%	0%	0%	0%	0%	0%	5%
Total Equivalent Annual Cost	$6,780,184	$3,727,780	$6,367,869	$5,832,577	$5,221,589	$5,235,024	$4,682,510
Capital Costs							
Downtown Area	$44,370,400	$4,437,040	$44,370,400	$44,370,400	$33,277,800	$33,277,800	$24,506,274
Meetinghouse Pond Area	$30,445,400	$3,044,540	$30,445,400	$30,445,400	$22,834,050	$22,834,050	$16,607,657
Non-Traditional Technology Area	$20,721,100	$2,072,110	$20,721,100	$20,721,100	$15,540,825	$15,540,825	$14,306,175
Totals	**$95,536,900**	**$9,553,690**	**$95,536,900**	**$95,536,900**	**$71,652,675**	**$71,652,675**	**$55,420,106**
Total Annual Charge							
Downtown Area - Commercial	$2,415	$1,394	$2,277	$2,098	$1,894	$1,692	$1,498
Downtown Area - Residential	$2,415	$1,394	$2,277	$2,098	$1,894	$1,692	$1,498
Meetinghouse Pond Area	$2,820	$1,798	$2,682	$2,503	$2,298	$2,097	$1,672
Non-Traditional Technology Area	$1,634	$612	$1,496	$1,316	$1,112	$910	$648
Septic System Only	$1,135	$114	$997	$818	$614	$412	$319

Footnotes:
Capital and financing costs are recovered via an increase in property taxes with each property in Town paying an equal amount.
Annual costs (O&M, replacement, and monitoring) are recovered via user charges with each area's users paying an equal share of that area's annual costs.
Replacement cost of conventional on-site systems is $800 annually.
Replacement cost of I/A systems is $1,530 annually and would be required in nitrogen-sensitive areas if non-traditional technologies do not remove desired levels of nitrogen.

Town of Orleans
Water Quality and Wastewater Planning Program
Customer Rate Scenarios

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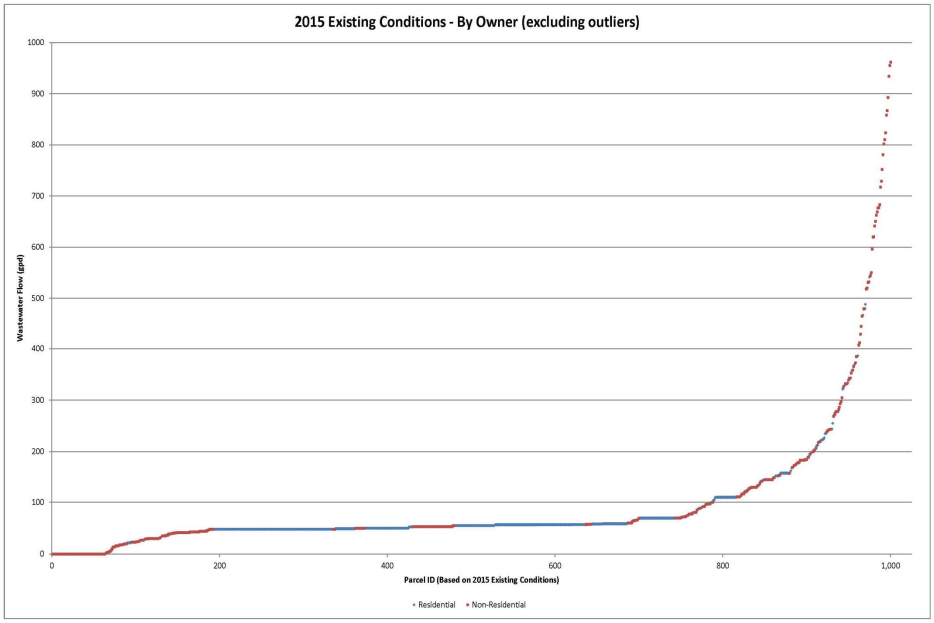
Key Issues and Conclusions

- New Runs made only to evaluate ranges based on 100% property tax allocation
- User Fees for O&M&R costs are major factor in total annual rates:
  - Non-Traditional O&M costs are higher than for traditional solutions
  - Monitoring costs and uncertainty of performance are key factors
- "Best Case" Plan (Case G) *average residential* annual charges are above affordability range for sewered areas:
  - Does not reflect demand charge for high water users
  - Does not reflect property valuation factors
  - Does not reflect phasing timeframes for capacity requirements
- Meetinghouse Pond annual charges are higher than downtown due to fewer users with separate WWTP
- Annual costs for unsewered nitrogen sensitive areas on NT Technologies may need to be spread among other categories
- **Overall Factor:** Construction of collection, treatment and disposal systems in one 20- to 30-year program is key difference compared to systems in other built over several generations
  - Program phasing will be imperative



Update and Preliminary Results of Financial Analyses

- **Next Steps**
  - Input implementation phasing plan for program, including Downtown, into model
  - Incorporate water use and property assessment data by January
  - Review O&M and R&R costs to identify any other opportunities to further reduce costs (if possible)
  - Continue to evaluate feasibility of other procurement methods
  - Continue to investigate other state funding sources to further reduce costs to Town
  - Provide update to Downtown user group in January

Amended CWMP Document

- **Updated Draft Amended CWMP submitted to Town 12/02/16**
- **BOS to provide comment and "agreement" on 12/14/16 to distribute the Amended CWMP to CCC and MassDEP for their review and comment on compliance with regulatory processes**
- **Continue to update Amended CWMP throughout Spring 2017**
- **Final Amended CWMP to be completed and submitted by June 30, 2017**

Town of Orleans Massachusetts

Thank You

Downtown Area Effluent Disposal Evaluation (cont.)

- **Overland Way (1)**
  - Pros – Town Owned, Discharge Most/All Flow, Adjacent to Proposed WWTF, Well Studied Site (USGS), Previously Approved for Groundwater Discharge, Discharge to Watersheds with no Nitrate TMDL, Several Discharge Options
  - Cons – Near ACEC, wetlands, Priority/Estimated Habitat of Rare Species, and MHC sites
- **Route 6 Interchange (4)**
  - Pros – Near Proposed WWTF, Discharge Most/All Flow, Depth to Groundwater, Several Discharge Options
  - Cons – Owned by State (MassDOT), Partial Discharge to Watershed with Nitrate TMD, Near ACEC, wetlands, Priority/Estimated Habitat of Rare Species, and MHC sites
- **Thayer Site (2)**
  - Pros – Approved Hydrogeological Evaluation
  - Cons – Not Town Owned, Some Discharge to Watersheds with Nitrate TMDL, Discharge below Projected, Limited Discharge Options

Downtown Area Effluent Disposal Evaluation (cont.)

- **Old Colony Apts. (7)**
  - Pros – Has Existing Septic Discharge
  - Cons – Not Town Owned, Some Discharge to Watershed with Nitrate TMDL, Discharge below Projected Flow, Limited Discharge Options.
- **Hole in One Rest. (9)**
  - Pros – Has Existing Septic Discharge
  - Cons – Not Town Owned, Some Discharge to Watershed with Nitrate TMDL, Discharge below Projected Flow, Limited Discharge Options
- **Depot Square (5)**
  - Pros – Town Owned
  - Cons – Small Parcel, Some Discharge to Watershed with Nitrate TMDL, Discharge below Projected Flow, Limited Discharge Options

Downtown Area Effluent Disposal Evaluation (cont.)

- **Orleans Elementary School (6)**
  - Pros – Town Owned, Existing Septic Discharge
  - Cons – Discharge to Watershed with Nitrate TMDL Cannot Discharge Projected Flow, Limited Discharge Options
- **Nauset Regional Middle School (2)**
  - Pros – Existing Advanced Treatment Disposal Site, Discharge Most/All Flow, Proposed PRB (Nitrate Reduction)
  - Cons – Not Town Owned, Discharge to Watershed with Nitrate TMDL Limited Discharge Options.
- **Firebirds Ball Field (8)**
  - Pros – Town Owned
  - Cons – Discharge to Watershed with Nitrate TMDL, Cannot Discharge Projected Flow, Limited Discharge Options