

Memorandum

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Subject **Town of Orleans, MA**
Water Quality and Wastewater Planning
Task Number 5.3 – Financial Evaluation
50 percent Draft on Financial Model Update

Project Number 60476644

From Thomas Parece, P.E., AECOM Project Manager

Date 02/09/16

1. Background

a. Purpose

This Technical Memorandum describes the updating of the Town's financial model. The Town originally utilized a financial model developed by its consultant Mike Domenica. A second model was developed as part of the Stantec analysis referred to as the "Kluge Model". Both models included cost, financing, revenue, and user charges functionality. The objective of this effort is to update and refine the Town's financial model.

2. Introduction

a. The Financial Model's Role

The Town has an existing model that it uses today for wastewater planning. As part of the Water Quality and Wastewater Planning program, an updated financial model is in development. The updated financial model is to:

- (1) Determine project costs including capital costs of the various treatment types to be implemented. Capital costs include planning, design, and construction costs;
- (2) Determine costs to finance capital costs over time through SRF, USDA, or conventional financing;
- (3) Determine revenue sources to fund the capital and financing costs, as well as the operating, maintenance, replacement, and monitoring costs;
- (4) Run scenarios to optimize a financial plan;

- (5) Test affordability based on selected criteria;
- (6) Finalize the Town's financing plan; and
- (7) Present financial results in a clear and simplified manner.

b. Groups of Customers in Existing Financial Model

The following user groups are found in the Town's existing financial model, but will not be defined as such in the updated financial model:

- (1) **Unsewered – Before WWTF Construction** – This group of users includes both residential and commercial users that are to be sewered;
- (2) **Residential** – Non-commercial users that will not be sewered. These users will be part of areas receiving other treatment types to remediate nitrogen;
- (3) **Commercial** – Non-residential users that will not be sewered. These users will be part of areas receiving other treatment types to remediate nitrogen;
- (4) **Institutional** – Public facilities dedicated to public service including schools and other Town buildings; and
- (5) **Unsewered – After WWTF Construction** – The same group of users included in the “Unsewered – Before WWTF Construction” group.

c. Groups of Customers in Updated Financial Model

- (1) **Sewered commercial users** – There are about 200 customers in the Tri-Town area to be sewered, according to plans.
- (2) **Sewered residential users** – There are about 100 customers in the Tri-Town area and about 300 customers in the Meetinghouse Pond area to be sewered, according to plans.
- (3) **Nitrogen-sensitive wastewater users** – There are about 3,000 customers that are in nitrogen-sensitive areas that require non-traditional technologies, such as PRBs, floating constructed wetlands and the like, for nitrogen remediation.
- (4) **Non-nitrogen-sensitive non-wastewater users** – There are about 2,300 customers that are in non-nitrogen-sensitive areas that require on-site septic systems to address their wastewater needs.

3. Description of Existing Financial Model

a. Data and Functionality in Existing Financial Model

The existing financial model consists of the following data, some of which does not exist in the updated model:

- Wastewater flows, septage flows, and food waste flows by user type;
- Sewer department budget;

- Indirect costs;
- Capital costs and operating, maintenance, and monitoring costs by watershed;
- Debt service;
- Borrowing schedules, based on capital costs;
- Reserves Requirements; and
- Other Financing Sources (Other Revenue Sources).

The existing financial model consists of the following functionality, some of which does not exist in the updated model:

- Determine Orleans' share of costs for sewerage;
- Using Orleans' share of costs for sewerage and for funding reserves, determine per-household user rate;
- Compare per-household user rate to affordability indicator to determine if rate is affordable;
- Determine wastewater user rate for Orleans based on revenue to be generated and flow;
- Repeat the last step for Brewster and Eastham;
- Repeat the wastewater user rate step for Orleans, Brewster, Eastham, and other towns, but for septage;
- Repeat the wastewater user rate step for Orleans, Brewster, and Eastham, but for food waste;
- Determine non-potable water user rate for Orleans based on revenue to be generated and consumption;
- Determine non-traditional technology user rate for Orleans based on costs and the number of parcels;
- Determine septic management fee for Orleans based on costs and the number of inspections; and
- Proof rates determined using reconciliation calculations.

b. Output Options in Kluge Model

- (1) **100 percent Tax (for Capital) and User Fees (for Operating, Maintenance, and Monitoring)** – This option is the Baseline. There is no betterment revenue with this option. The interest rate for borrowings is 2 percent and the borrowing term is 20 years.
- (2) **20 percent Betterments** – This option is the same as the baseline, but 20 percent of the capital costs are funded by betterments and 80 percent by taxes.

- (3) **20 percent Betterments, Zero Interest** – This option is the same as the baseline, but 20 percent of the capital costs are funded by betterments and 80 percent by taxes and the interest rate for borrowings is 0 percent.
- (4) **20 percent Betterments, Zero Interest, 30-Year SRF** – This option is the same as the baseline, but 20 percent of the capital costs are funded by betterments and 80 percent by taxes, the interest rate for borrowings is 0 percent, and the borrowing term is 30 years.
- (5) **20 percent Betterments, Zero Interest, 30-Year SRF, Septage Revenue** – This option is the same as option iv, but includes septage revenue.
- (6) **20 percent Betterments, Zero Interest, 30-Year SRF, Septage Revenue, 25 percent Grant** – This option is the same as option v, but includes a 25 percent Grant as an offset to capital costs.
- (7) **80 percent Betterments** – This option is the same as option ii, but 80 percent of the capital costs are funded by betterments and 20 percent by taxes.

Each of these output options include user charges.

4. Description of Changes to Financial Model

a. Customer Groups

- (1) **Sewered Commercial Users** – There are about 200 customers in the Tri-Town area to be sewered, according to plans.
- (2) **Sewered Residential Users** – There are about 100 customers in the Tri-Town area and about 300 customers in the Meetinghouse Pond area to be sewered, according to plans.
- (3) **Nitrogen-Sensitive Wastewater Users** – There are about 3,000 customers that are in nitrogen-sensitive areas that require non-traditional technologies, such as PRBs, floating constructed wetlands and the like, for nitrogen remediation.
- (4) **Non-Nitrogen-Sensitive Non-Wastewater Users** – There are about 2,300 customers that are in non-nitrogen-sensitive areas that require on-site septic systems to address their wastewater needs.

b. Betterments

Betterments are to be assessed to the sewered commercial and residential users in the Tri-Town and Meetinghouse Pond areas. Betterments may be assessed for the non-traditional capital costs in the nitrogen-sensitive areas. These assessments are to be based on the capital and financing costs related to the wastewater collection, treatment, and disposal for the Tri-Town and Meetinghouse Pond facilities, septage costs in the Tri-Town facility, and capital and financing costs for the non-traditional technologies. These costs will be allocated to users based on residential equivalent dwelling units (EDUs). The EDUs will be based on actual water usage.

Betterments will be assessed based on apportionments not to exceed 20 years, unless the Town seeks special legislation to extend the apportionments beyond 20 years similar to Barnstable's special legislation. Committed interest is applied to any apportioned betterments, based on Town Meeting vote of either 2 percent over the borrowing rate or 5 percent.

c. Inputs to the Financial Model

The updated financial model will rely on data in an input file for the costs (capital and operating, maintenance, replacement, and monitoring) related to the treatment types. The input files will be in a consistent format that will allow users to load in different treatment type solutions, if necessary.

d. Operating, Maintenance, Monitoring, and Replacement Costs

The financial model will be able accept operating, maintenance, monitoring, and replacement costs for the engineering solutions selected (Aquaculture/Shellfish Propagation, Permeable Reactive Barriers, Floating Constructed Wetlands, and Sewering) as inputs. The financial model will be able to show these costs.

e. Borrowing Schedules

Short-term loan schedules will be developed based on user-defined selections for the short-term borrowing (years, interest rate). Long-term principal and interest schedules will be developed for SRF, USDA, and conventional borrowings based on user-defined criteria. For SRF financing, origination and administrative fees will also be included. Origination fees will be set to accommodate interim-financing costs.

f. Public-Private Partnerships

The financial model will include a way to measure the financial impact of public-private partnerships related to Orleans' wastewater system, in the form of a percentage to represent an offset to project-wide capital costs.

g. Output Options

The financial model will include the seven options from the Kluge Model detailed previously in this document. Additionally, it will include an eighth option, based on selections of revenue sources by the user, if selections are made.

5. Conclusion

To be developed, once the Town's Revenue Options objectives are clearer.