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Memorandum

To	George Meservey, Director of Planning & Community Development Michael Domenica, PE, Program Manager
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Subject	**Town of Orleans, MA** **Water Quality and Wastewater Planning** **Task Number 10.3 – P3 Development and Financial Analysis** **Deliverable 10.3.C - Final Financial Model Update with "Best Case" Scenarios**
Project Number	60476644
From	Thomas Parece, P.E., AECOM Project Manager
Date	July 10, 2017

Approvals	Date	Signature / Initials
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Michael Domenica, P.E., Water Resources Associates, Program Manager		

1. Purpose

This Technical Memorandum describes the functionality of the financial model available to the Town. The Town originally utilized a financial model developed by its consultant Mike Domenica. A second model, referred to as the "Kluge Model" was developed by Pioneer Consulting in 2015 as part of the Stantec Analysis. Both models included cost, financing, revenue, and user charges functionality. The main objective of this current effort has been to develop a robust financial model that provides the Town with flexibility when analyzing Water Quality and Wastewater Planning program costs. While similar concepts and data points are brought into the new model, the new financial model was separately developed to provide greater functionality and provide for significantly greater opportunity to be used by representatives from the Town. The new financial model has the flexibility to accept updated costs and display the impact of those costs on different customer groups in Town.

2. Introduction

A. The Financial Model's Role

The Town has utilized multiple financial models for wastewater planning. As part of the Water Quality and Wastewater Planning program, a new financial model has been developed. The new financial model can:

1) Accept program costs, broken into capital costs, operating costs, maintenance costs, replacement costs, and monitoring costs, as well as costs tied to one or two wastewater treatment facilities and different amounts of contingency costs;

2) Accept costs at the total program level, as well as annual costs for up to a 40-year implementation period for the program;

3) Determine costs to finance capital costs over time through SRF, USDA, and/or conventional financing;

4) Present funding of the program's capital and financing costs, as well as the operating, maintenance, replacement, and monitoring costs, using different revenue sources;

5) Run scenarios to optimize a financial plan;

6) Accept user selections to determine which scenarios to run;

7) Provide information to evaluate affordability based on selected criteria;

8) Produce data that can aid the Town with its financing plan; and

9) Present financial results, including output tables and graphs, in a clear and simplified manner.

B. Financial Model Update

The Financial Model Update includes several iterations sought to find a good balance of financing options and revenue options to produce reasonable output cases for the Town's consideration. The different output cases include "Best Case" outputs considering various federal, state and local funding inputs as well as refinement of the Program Cost Estimate.

C. Definition of Users

1) **Downtown Area Non-Residential Users** – Downtown Area Non-Residential Users are defined as users that are located within the Downtown Area wastewater collection service area. Downtown Area Non-Residential Users will connect into the proposed wastewater collection system and their existing on-site septic systems will be abandoned.

2) **Downtown Area Residential Users** – Downtown Area Residential Users are defined as users that are located within the Downtown Area wastewater collection service area. Downtown Area Residential Users will connect into the proposed wastewater collection system and their existing on-site septic systems will be abandoned.

3) **Meetinghouse Pond Area Users** – Meetinghouse Pond Area Users are defined as users (both residential and non-residential) that are located within the Meetinghouse Pond Area wastewater collection service area. Meetinghouse Pond Area Users will connect into the proposed wastewater collection system and their existing on-site septic systems will be abandoned.

4) **Non-Traditional Technology Area Users** – Non-Traditional Technology Area Users are defined as users who are located outside of the Downtown Area and Meetinghouse Pond Area wastewater collection service areas and are located within a MassDEP defined nitrogen sensitive area. Non-Traditional Technology Area Users currently use and will continue to use on-site septic systems to address their wastewater needs in accordance with "310 CMR 15.00: The State Environmental Code Regulating Septic Systems (Title 5)" by MassDEP.

5) **Septic System Only Users** – Septic System Only Users are defined as users who are located outside of the Downtown Area and Meetinghouse Pond Area wastewater collection service areas and not located within a MassDEP defined nitrogen sensitive area. Septic System Only Users currently use and will continue to use on-site septic systems to address their wastewater needs in accordance with "310 CMR 15.00: The State Environmental Code Regulating Septic Systems (Title 5)" by MassDEP.

D. Groups of Customers in New Financial Model

The customer groups in the new financial model were defined through collaboration between AECOM, The Abrahams Group (model developer), and the Town. They are defined differently than they were defined in the Town's other financial models and the number of customers in each group have been updated to reflect the updated data available in the model.

1) **Downtown Area Non-Residential Users** – There are about 400 non-residential/mixed use users in the Downtown Area to be sewered, according to plans.

2) **Downtown Area Residential Users** – There are about 600 residential users in the Downtown Area to be sewered, according to plans.

3) **Meetinghouse Pond Area Users** – There are about 470 Meetinghouse Pond Area users to be sewered, according to plans. Most of the users are residential. For one-facility cases, Meetinghouse Pond Area properties are considered part of the Downtown Area.

4) **Non-Traditional Technology Area Users** – There are about 4,200 properties that are in nitrogen-sensitive areas who will continue to use on-site systems and whose areas require non-traditional technologies, such as enhanced on-site septic system, PRBs, aquaculture/shellfish propagation and the like, for nitrogen remediation.

5) **Septic System Only Users** – There are about 800 properties that are in non-nitrogen-sensitive areas who will continue to use on-site septic systems to address their wastewater needs and whose areas do not subject to nitrogen remediation.

E. Output Options in Financial Model

The Town is interested in utilizing the format of the customer impact table as established in the Kluge Model. Therefore, the new model provides a similar table as previously provided. The Town sought additional financing options and costs offsets as compared to the previous models.

The output cases in the customer impact table include different combinations of the following, depending on selections made by the user, including whether cases should be run with costs for one or two wastewater treatment facilities:

1) Long-term borrowings with conventional financing with any term and any interest rate;

2) Long-term borrowings with SRF financing with 20-year, 30-year term, and 40-year term and zero-percent interest rate and two-percent interest rate;

3) Capital and financing costs funded by special assessments (a unique charge that government units can assess against real estate parcels for certain public projects), including the possibility that the percentage of costs assessed to Downtown Area and Meetinghouse Pond Area properties in two-facility cases are different, as well as the possibility that the percentage of costs assessed to residential and non-residential Downtown Area properties are different;

4) Capital and financing costs funded by property taxes;

5) Operating, maintenance, replacement, and monitoring costs, annualized and funded by user fees;

6) Septage revenue included as an offset to annualized operating, maintenance, replacement, and monitoring costs;

7) Grant revenue/principal forgiveness included as an offset to capital costs;

8) Design/Build procurement savings included as an offset to wastewater treatment facility capital costs;

9) Design/Build/Operate procurement savings included as an offset to annualized operating, maintenance, replacement, and monitoring costs related to the wastewater treatment facility or facilities; and

10) Additional Local Options Tax savings as an offset to annualized operating, maintenance, replacement, and monitoring costs.

The Financial Model's "customer impact table" presents the costs for customers that are averaged between the properties in a given area, which shows that all properties in a given area pay the same amounts, regardless of their water usage and assessed value. It is the lone output for the financial model's "All in Year One" output selection, which presents program costs as if the program is completed in one year.

The customer impact table is an output for the financial model's "Program Phased over 40 Years (Property Costs Averaged)" output selection, as one is produced for each of the 40 years included in the financial analysis. Another output produced with this output selection is a line graph that shows the average annual charge per property in a given area for each of the 40 years. The annual charge amounts shown in the graph are taken from the customer impact table produced for each of the 40 years.

The third and final output selection is for the financial model's "Program Phased over 40 Years (Projected Actual Per-Property Costs)." With this selection, the model produces as an output a large Excel spreadsheet containing projections of actual per-property costs based on each property's water usage and assessed value (data from 20XX). The per-property costs included are property taxes, user fees, and special assessments and the costs are shown on a yearly basis over the 40-year period.

3. Important Data and Functionality in New Financial Model

A. User Selections – The model has a User Selections tab that allows the user to select whichever inputs he/she desires for a model run. The User Selections tab supports the running of up to three cases at the same time, and allows the user to select which of three output file options should be produced by the model run.

B. Customer Groups

1) **Downtown Area Non-Residential Users** – There are about 400 non-residential/mixed use users in the Downtown Area to be sewered, according to plans.

2) **Downtown Area Residential Users** – There are about 600 residential users in the Downtown Area to be sewered, according to plans.

3) **Meetinghouse Pond Area Users** – There are about 470 Meetinghouse Pond Area users to be sewered, according to plans. Most of the users are residential. For one wastewater facility cases, Meetinghouse Pond Area properties are considered part of the Downtown Area.

4) **Non-Traditional Technology Area Users** – There are about 4,200 properties that are in nitrogen-sensitive areas who will continue to use on-site systems and whose areas require non-traditional technologies, such as PRBs, aquaculture/shellfish propagation and the like, for nitrogen remediation.

5) **Septic System Only Users** – There are about 800 properties that are in non-nitrogen-sensitive areas who will continue to use on-site septic systems to address their wastewater needs and whose areas do not require additional treatment for nitrogen remediation.

C. Special Assessments - Special assessments are assessed to the sewered properties in the Downtown Area and Meetinghouse Pond Area. These assessments are based on the capital and financing costs related to the wastewater collection, treatment, and disposal for the Downtown Area and Meetinghouse Pond Area facilities, septage costs at the Downtown Wastewater Treatment Facility, and capital and financing costs for the non-traditional technologies. These costs are allocated to properties based on the properties' actual water usage. Special assessments are assessed based on apportionments not to exceed 20 years, unless the Town adopts MGL Chapter 83, Section 1A to extend the apportionments beyond 20 years, but not greater than 50 years. Committed interest of either up to two percent over the borrowing rate or five percent is applied to any apportioned special assessments, based on a Town Meeting vote

D. Inputs to the Financial Model - The new financial model relies on data in a Cost Estimates input file for the costs (capital, operating, maintenance, replacement, and monitoring) related to the treatment types. The Cost Estimates input files are in a consistent format such that, if cost estimates change, the updated ones can be loaded into the financial model seamlessly. The data in the Cost Estimates file used by the financial model include program-level costs and phasing costs, which are presented as annual costs over a 40-year implementation period. The financial model can accept costs related to a one-treatment facility solution or a two-treatment facility solution. The financial model can accept costs containing any level of contingency costs.

E. Operating, Maintenance, Monitoring, and Replacement Costs - The financial model extracts operating, maintenance, monitoring, and replacement costs for each of the engineering solutions included in the Costs Estimates file, including Aquaculture/Shellfish Propagation, Permeable Reactive Barriers, Nitrogen Removing Biofilter, and Sewering, and includes them as part of any financial analysis it presents.

F. Borrowing Schedules - Based on user-defined criteria, the financial model produces long-term principal and interest schedules for SRF, USDA, and conventional borrowings. For SRF financing, origination and administrative fees are included. The interest percentage used to determine origination fees has been set to accommodate interim-financing costs, if any.

G. Public-Private Partnerships - The financial model contains functionality 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 and operating costs. The current version of the model does not have this functionality active and available to the user. However, this functionality can again be activated and used if the Town desires to use it.

H. Output Options - The financial model has the ability to produce output files for multiple cases, for each model run, in the form of the customer impact table, a line graph, and a large per-parcel Excel spreadsheet detailed previously in this document. Each of these output options can be selected by the user at runtime, although the model currently supports only one output option selection per model run.

4. Conclusions

The new financial model available for the Town's use has gone through several iterations as the Team sought to find a good balance of financing options and revenue options to produce reasonable output cases for the Town's consideration, as well as determine the right functionality to have available to the user. Additionally, part of the intent with the creation of different output cases was to show the impact of including septage costs and revenue, grant revenue/principal forgiveness, design/build and design/build/operate savings, and costs for one treatment facility to show different ways the Town could save on project costs to make the project more affordable. Throughout its development, the financial model produced many different output cases, many of which were created as an exercise to see what the results indicated.

The three output cases of the financial model that have been the primary focus of recent discussions are defined in Table 1. Each of these cases is a one-wastewater facility case. These cases are the ones that AECOM, The Abrahams Group (model developer), and the Town believe to be a range of the different options available to the Town to finance the Water Quality and Wastewater Planning program.

Table 1 – Financial Model Output Cases

Description	Output Cases		
	1	2	3
Financing Options			
20-Year SRF with 0% Interest Rate			
30-Year SRF with 0% Interest Rate	X	X	X
Funding of Capital and Financing Costs			
100% Property Taxes	X		
50% Property Taxes / 50% Special Assessments		X	
20% Property Taxes / 80% Special Assessments, with 30% Residential / 50% Non-Residential/Mixed Use			X
Number of Wastewater Treatment Facilities			
Two (Downtown Area and Meetinghouse Pond Area)			
One (Downtown Area only)	X	X	X
Contingency Costs			
25% Contingency – Capital/Replacement Costs			
15% Contingency – Capital/Replacement Costs	X	X	X
Project Costs Offsets			
10% Grant/Principal Forgiveness	X	X	X
21% Design/Build Savings on Capital Costs			
7% Design/Build/Operate Savings			
Septage Revenue	X	X	X
5% Additional Local Options Taxes	X	X	X

A. Financing Options

1) **30-Year SRF with Zero-Percent Interest Rate –** Schedules with SRF financing include total yearly payments that are similar over the life of the loan. Principal payments are the same each year. The schedules also include a per-payment administrative fee, which is a percentage of the outstanding principal balance at the time of payment, and a one-time up-front origination fee, which is a percentage of the overall loan amount.

B. Funding of Capital and Financing Costs

1) **100 Percent Property Taxes –** All project and financing costs are paid via property taxes. Applying these costs to the tax base spreads them equally to all properties in town or, for the runs with the per-property output, spreads them based on properties' assessed value.

2) **50 Percent Property Taxes/50 Percent Special Assessments –**This option allows half of the capital and financing costs tied to certain areas to be assessed to properties in those areas only, but also allows the remainder of capital and financing costs to be spread across all properties in town via property taxes.

3) **20 Percent Property Taxes/80 Percent Special Assessments, with a Breakdown of 30 Percent Residential/50 Percent Non-Residential/Mixed Use –** This option allows a large portion of the capital and financing costs tied to certain areas to be assessed to properties in those areas only, but also allows the remainder of capital and financing costs to be spread across all properties in town via property taxes. Further, this option allows for the total costs to be assessed to the non-residential/mixed use properties in the Downtown Area to be greater than the total costs assessed to residential properties in the Downtown Area.

C. Number of Wastewater Treatment Facilities

1) **Two (Downtown Area and Meetinghouse Pond Area) –** The original Cost Estimates data includes costs for the implementation of two wastewater treatment facilities.

2) **One (Downtown Area Only) –** The second Cost Estimates data for the implementation of a single wastewater treatment facility has been developed. Therefore, a separate analysis has been included in the Cost Estimates file that reflects costs for the implementation of one wastewater treatment facility in the Downtown Area only. This facility would serve customers in the Downtown Area as well as the Meetinghouse Pond Area. Any costs associated with the facility that would be funded by customers in the Downtown Area would also be funded by customers in the Meetinghouse Pond Area for the cases with the implementation of only one facility. Assuming contingency costs of 15 percent, implementing one facility instead of two results in capital costs savings of over $2 million and annualized operating, maintenance, replacement, and monitoring costs savings of about $150,000.

D. Contingency Costs

1) 25 Percent Contingency – Capital/Replacement Costs – The original Cost Estimates data includes capital and replacement costs that include a contingency of 25 percent.

2) 15 Percent Contingency – Capital/Replacement Costs – Changing the contingency for capital and replacement costs from 25 percent to 15 percent results in a savings of over $7 million in capital costs and almost $50,000 in replacement costs annually.

E. Project Costs Offsets

1) 10 Percent Grant/Principal Forgiveness – With this capital costs offset, the Town would not be responsible for 10 percent of the capital costs of the project and 90 percent of the capital costs would remain and be put into borrowing schedules.

2) 21 Percent Design/Build Savings – If the Town were to complete the Downtown Area and Meetinghouse Pond Area Wastewater Treatment Facilities, Collection System and Effluent Disposal Sites as design/build projects, the Town could recognize capital costs savings of 21 percent (average based on a number of projects AECOM has completed).

3) 7 Percent Design/Build/Operate Savings – If the Town were to complete the Downtown Area and Meetinghouse Pond Area Wastewater Treatment Facilities, Collection System and Effluent Disposal Sites as design/build/operate projects, the Town could recognize operating and maintenance savings of 7 percent (average ased on a number of projects AECOM has completed).

4) **Septage Revenue –** If the Downtown Area Wastewater Treatment Facility were to be built to handle septage, then the Town could realize $584,000 in annual septage revenue, based on 16,000 gallons processed per day at a rate of 10 cents per gallon. Operating and maintenance costs related to septage are estimated at $200,000 annually. Capital costs related to septage are estimated at $500,000. If amortized over 40 years, capital costs are estimated at $12,500 annually. Ignoring financing costs, the Town could see an annual net septage revenue amount of $371,500. The financial model uses this revenue as offsets to operating and maintenance costs, replacement costs, and monitoring costs and applies savings to all properties in town equally.

5) **5 Percent Additional Local Options Taxes –** The Town could collect additional local options taxes to use as an offset to project costs. The financial model uses this revenue as offsets to operating and maintenance costs, replacement costs, and monitoring costs and applies to all properties in town equally. The Town would have to consider raising its meals and/or rooms tax (or some other tax measure) in order to accomplish this.

5. APPENDIX

A. Appendix A

Appendix contains a detailed breakdown of what makes up each of the three cases.

B. Appendix B

Appendix B includes a Financial Model Update Summary based on the three cases. The following provides some definition as well as summaries some reflection on the current Financial Model outputs:

1) NT Technology refers to “Non-Traditional Technologies” that includes Aquaculture/Shellfish Propagation, Permeable Reactive Barriers, Nitrogen Remover Barriers (also known as “Layer Cake”) and On-Site Innovative/Alternative Systems or on-site systems which have enhance nitrogen removing capabilities.

2) The wastewater collection system and a single Wastewater Treatment Facility for the wastewater flows from the Downtown Area and Meetinghouse Pond Area is proposed to be implemented in phases. Therefore users do not pay user charges or special assessments until their phase is implemented. All costs shown on page 7 represent "Year 20" when all users have been connected and will be assessed user charges.

3) Wastewater flows were determined using 95 percent of the average 2014 and 2015 water usage data for the Downtown Area and Meetinghouse Pond Area service areas.

4) Assessed values are based on FY15 assessor's data for the Downtown Area and Meetinghouse Pond Area service areas.

5) Special Assessments are applied to applicable user groups located in the Downtown Area and Meetinghouse Pond Area service areas.

6) Non-residential categories are defined as parcels that are not 100 percent residential such as mixed use, conservation, developable, etc.

7) Former Scenario Runs that are shown in italics is based on previously created Financial Model output using various “Scenario Development and Assumptions” shown on page 4.

8) In order to reduce the wide range of proposed annual costs, a Town-wide minimum and maximum total annual cost methodology was developed. The minimum and maximum charges were not applied to the 161 undevelopable parcels. The cost differential was allocated equally Town-wide (with the exception of the 161 undevelopable parcels). A user selection allows the Town-wide minimum and maximum total annual cost to be changed. For the three most recent cases, the current costs are as follows: Minimum at $300 per year and Maximum at $7,000 per year.

9) The minimum cost shown for the re-allocated costs does not include undevelopable parcels, which may have an annual cost less than the minimum charge.

10) Septage revenues are applied to off-set annual operation and maintenance costs.

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Appendix A

Output Cases

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Financial Model

Detailed Breakdown for Three Output Cases

Each of the model runs completed consisted of the following parameters:

- The special assessments and user charges amounts were determined using number of users with water usage per the town's Water Department, which is 986 for the Downtown Area, with the further breakdown of 600 residential and 386 non-residential/mixed use, 473 for the Meetinghouse Pond Area, 4,199 for the Non-Traditional Technology Area, and 790 for the Septic System Only Area. The total number of users with water usage is 6,448.
- The property taxes amounts were determined using number of parcels with an assessed value in the town's assessor's database, which is 957 for the Downtown Area, with the further breakdown of 583 residential and 374 non-residential/mixed use, 466 for the Meetinghouse Pond Area, 4,127 for the Non-Traditional Technology Area, and 770 for the Septic System Only Area. The total number of parcels with an assessed value is 6,320.
- Since each case is a one-facility case, the user base described for the Downtown Area and the Meetinghouse Pond Area are combined.

The following information details the most recent output cases:

Case 1

- **Long-term Borrowings:** 30-year term, SRF financing, 0% interest rate
- **Funding of Capital and Financing Costs:** 100% property taxes
- **Grant/Loan Forgiveness:** 10%
  - **NOTE:** These savings reduce capital costs for all areas equally.
- **Design/Build Procurement Savings:** None
- **Design/Build/Operate Procurement Savings:** None
- **Septage Processing Included for Downtown Area Facility:** Yes
  - **NOTE:** These savings reduce annual costs (O&M, Replacement, and Monitoring) for all properties in town equally.
- **Savings Due to Additional Local Options Taxes:** 5%
  - **NOTE:** These savings reduce annual costs (O&M, Replacement, and Monitoring) for all areas equally.
- **Other Notes:** Costs represent implementation of one facility.

Case 2

- **Long-term Borrowings:** 30-year term, SRF financing, 0% interest rate
- **Funding of Capital and Financing Costs:** 50% property taxes, 50% special assessments
- **Grant/Loan Forgiveness:** 10%
  - **NOTE:** These savings reduce capital costs for all areas equally.
- **Design/Build Procurement Savings:** None
- **Design/Build/Operate Procurement Savings:** None
- **Septage Processing Included for Downtown Area Facility:** Yes
  - **NOTE:** These savings reduce annual costs (O&M, Replacement, and Monitoring) for all areas equally.
- **Savings Due to Additional Local Options Taxes:** 5%
  - **NOTE:** These savings reduce annual costs (O&M, Replacement, and Monitoring) for all areas equally.
- **Other Notes:** Costs represent implementation of one facility.

Case 3

- **Long-term Borrowings:** 30-year term, SRF financing, 0% interest rate
- **Funding of Capital and Financing Costs:** 20% property taxes, 80% special assessments, with a breakdown of 30% residential, 50% non-residential/mixed use
- **Grant/Loan Forgiveness:** 10%
  - **NOTE:** These savings reduce capital costs for all areas equally.
- **Design/Build Procurement Savings:** None
- **Design/Build/Operate Procurement Savings:** None
- **Septage Processing Included for Downtown Area Facility:** Yes
  - **NOTE:** These savings reduce annual costs (O&M, Replacement, and Monitoring) for all areas equally.
- **Savings Due to Additional Local Options Taxes:** 5%
  - **NOTE:** These savings reduce annual costs (O&M, Replacement, and Monitoring) for all areas equally.
- **Other Notes:** Costs represent implementation of one facility.

Appendix B

Financial Model Update Summary

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Town of Orleans, MA
Water Quality and Wastewater Planning

Financial Model Update Summary

Financial Plan Development

- Developed Detailed Model with Functionality
- Developed Initial Scenarios and Average Costs per User Category using Total Number of Users/Owners per User Area
- Incorporated Implementation Phasing Program for Downtown Area and Meetinghouse Pond Area Systems
- Incorporated Parcel Level Water Use and Property Assessment Data (to Better Refine Rates for User Categories)
- Updated and Adjusted Project Costs
- Estimated Average and Parcel-specific Rates for User Categories
- Compared User Costs to EPA Affordability Benchmark (2% MHI) and 2010 Approved CWMP

Scenario Development and Assumptions

- **Produced Approximately 24 Scenarios (170 Runs)**
- **Key Considerations**
  - Cost Allocation Across User Groups
  - Identification of Costs for Residential and Non-residential Users
  - Direct and Indirect Benefit to the Users
  - Reasonable “Affordability” using EPA Affordability Benchmark
  - Contribution from Downtown Businesses
  - Delivery Options Feasibility and Savings

Scenario Development and Assumptions (cont.)

Component Description	A	B	C	D	E	F	G	H	I
100% Capital Cost on Tax Rate	X	X	X	X	X	X	X		
100% O/M/R/R on User Charge	X	X	X	X	X	X	X	X	X
~~4% Conventional Financing~~	~~X~~	~~X~~							
~~20 Year Borrowing~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~				
~~90% Grant/Loan Forgiveness~~		~~X~~							
~~2% SRF Financing~~			~~X~~						
0% SRF Financing				X	X	X	X	X	X
25% Grant/Loan Forgiveness					X	X	X		
10% Grant/Loan Forgiveness								X	X
30 Year Borrowing						X	X	X	X
D/B/O Savings							X	X	
Local Options Tax							X	X	X
Septage Revenue							X	X	X
One WWTF								X	X
Special Assessments								X	X

New Scenario Assumptions – One Plant

- **Capital Costs- WWTF and Collection System**
  - Case 1 – 100% Tax Rate
  - Case 2 – 50% Tax Rate, 50% Downtown Area/MHP Special Assessment
  - Case 3 – 20% Tax Rate, 80% Downtown Area/MHP Special Assessment (Split 50% Downtown Non-residential, 30% Downtown Residential/MHP)
- **Capital Costs Effluent Disposal and NT - 100% Tax rate**
- **O&M&R&M - 100% User Fees**
- **Financing**
  - 30-year 0% SRF
  - 10% Grant
  - Additional 5% Local Tax Option
  - Septage Revenue ($584,000 annually)
  - 15% Contingency for Capital/ Replacement Costs
- **Non-traditional and Septic Only costs do not include individual owner costs to pump and maintain on-site septic systems**

Setting Minimum and Maximum Costs Methodology

- **Apply Maximum Annual Cost**
- **Apply Minimum* Annual Cost**
- **Re-allocate* the difference of costs Town-wide**

*Excludes undevelopable parcels

		Case 1	Case 2	Case 3
		100% Tax Rate	50% Tax Rate, 50% Special Assessment	20% Tax Rate, 80% Special Assessment (50% Downtown Non-Residential, 30% Downtown Residential/ Meetinghouse Pond)
Number owners with annual cost above:	$7,000	30	52	66
Total costs owed by owners with costs above maximum:		$ 420,464	$ 765,052	$ 1,182,348
Balance to cover if they only pay the maximum:		$ 210,464	$ 401,052	$ 720,348
Number of Owners to Increase to Minimum:	$300	1199	1547	1998
Surplus after minnimum charge applied:		$ 166,946	$ 224,930	$ 306,879
Net amount remaining to allocate:		$ 43,518	$ 176,122	$ 413,469
Number of Owners to allocate to:		6,398	6,398	6,398
Additional cost allocated per owner:		$ 7	$ 28	$ 65

Total Owners/Users Town-Wide:	6,559
Total number of owners/users with undevelopable land:	161

Summary – Annual Costs (Year 20)

							Case 1		Case 2		Case 3	
							100% Tax Rate		50% Tax Rate, 50% Special Assessment		20% Tax Rate, 80% Special Assessment (50% Downtown Non-Residential, 30% Downtown Residential/ Meetinghouse Pond)	
	Area of Orleans	**Type of Wastewater Service[1]**	**Number of Users in Category**	**Average Wastewater (gpd)[4]**	**Average Assessed Value[5]**	**Cost Description[7]**	**Total Average Annual Charges (Year 20)**	**Range of Total Annual Charges (Year 20)[8, 9]**	**Total Average Annual Charges (Year 20)**	**Range of Total Annual Charges (Year 20)[8, 9]**	**Total Average Annual Charges (Year 20)**	**Range of Total Annual Charges (Year 20)[8, 9]**
Sewered Areas	**Sewered Area** Downtown Non-Residential	Sewers &WWTF	384	235	$505,512	*Former Scenario Runs*	*$1,550*	*$0 - $35,544*	*$2,494*	*$0 - $55,128*	*$3,737*	*$0 - $81,405*
						New Scenario Runs	$1,285	*$307* - $7,007	$1,727	*$307* - $7,028	$2,148	*$307* - $7,065
	Downtown Residential/Meetinghouse Pond		1,176	95	$330,644	*Former Scenario Runs*	*$722*	*$0 - $10,657*	*$1,072*	*$0 - $19,079*	*$1,056*	*$0 - $19,607*
						New Scenario Runs	$738	*$307* - $7,007	$1,091	*$307* - $7,028	$1,114	*$307* - $7,065
Unsewered Areas	**Nitrogen Sensitive Areas** Non-Traditional Areas	NT Technology or I/A System	4,208	118	$533,329	*Former Scenario Runs*	*$928*	*$0 - $36,577*	*$755*	*$0 - $36,432*	*$644*	*$0 - $36,339*
						New Scenario Runs	$939	$307 - $7,007	$801	$307 - $7,028	$739	$307 - $7,065
	Non-Nitrogen Sensitive Areas Septic Only	Title 5 On-Site System	791	130	$643,889	*Former Scenario Runs*	*$476*	*$0 - $12,791*	*$317*	*$0 - $8,524*	*$216*	*$0 - $5,790*
						New Scenario Runs	$518	$307 - $7,007	$418	$307 - $7,028	$397	$307 - $5,855

Notes

1. NT Technology = Shellfish, PRB, NRB or On-site I/A System
2. The WWTF will be implemented in phases and therefore users do not pay user charges or special assessments until their phase is implemented. All costs shown here represent "Year 20" when everyone will be connected and paying user charges.
3. Wastewater flows were determined as 95% of the average 2014-2015 water usage data.
4. Assessed values based on FY 2015 assessor's data.
5. Special Assessments are applied to applicable user groups (Downtown and Meetinghouse Pond).
6. Non-residential categories include all parcels that are not 100% residential, such as mixed use, conservation, developable, etc.
7. "Former Scenario Runs" (as determined by the Financial Model) are shown in italics.
8. Maximum and minimum total annual costs were applied, Town-wide. The minimum charge was not applied to the 161 undevelopable parcels. The cost differential was allocated equally Town-wide (with the exception of the 161 undevelopable parcels).
9. The minimum shown for the re-allocated costs does not include undevelopable parcels, which may have an annual cost less than the minimum charge.
   Minimum: $300 Maximum: $7,000