EXETER / STRATHAM
INTERMUNICIPAL WATER AND
WASTEWATER SYSTEMS
EVALUATION STUDY
FINAL REPORT - APPENDIX 4

ROCKINGHAM PLANNING
COMMISSION

DECEMBER 2012

APPENDIX 4

AGENDAS AND MINUTES FROM MEETINGS AND WORKSHOPS

Appendix 4
Agendas and Minutes from the Meetings and Workshops

AGENDA – KICK OFF MEETING

February 16, 2012

EXETER/STRATHAM INTER-MUNICIPAL WATER AND WASTEWATER STUDY

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1. INTRODUCTIONS

- ROCKINGHAM PLANNING COMMISSION (RPC) PROJECT TEAM MEMBERS
- KLEINFELDER PROJECT TEAM MEMBERS

2. COMMUNICATIONS

- RPC AND KLEINFELDER PRIMARY CONTACTS
- EXETER AND STRATHAM CONTACTS

3. REVIEW SCOPE OF WORK

- REFER TO ATTACHED SCOPE OF WORK

4. REVIEW STUDY SCHEDULE

5. PRELIMINARY DISCUSSION OF TECHNICAL FEASIBILITY ANALYSIS

6. NEXT STEPS

- SUMMARIZE MEETING AND APPLICABLE ACTION ITEMS
- SCHEDULE TECHNICAL WORKSHOP AND IDENTIFY REQUIRED ATTENDEES

SIGN-IN SHEET
KICK OFF MEETING
EXETER/STRATHAM INTER-MUNICIPAL WATER AND WASTEWATER STUDY

FEBRUARY 16, 2012

Name	Company/Affiliation	Telephone	E-mail

KLEINFELDER Bright People. Right Solutions. ▪ S E A S E A CONSULTANTS INC.

MEETING MINUTES

DATE OF MEETING:	February 16, 2012
ATTENDEES:	See Attached Sign-in Sheet
RECORDED BY:	Kleinfelder / SEA
CC:	Attendees; file
SUBJECT:	Rockingham Planning Commission Exeter / Stratham Inter-Municipal Water and Wastewater Study Kickoff Meeting Minutes
S E A No.:	2005350.01-A

Discussion Items:

1. Introductions

Team members present at the meeting introduced themselves and their roles.

2. Communications

Communications shall go through the following primary contacts.

- Kleinfelder / SEA – Rob McCoy
- Rockingham Planning Commission – Theresa Walker
- Town of Exeter – Technical – Michael Jeffers and Jennifer Perry
- Town of Exeter – Financial – Russell Dean
- Town of Stratham – Paul Deschaine

All communications with the press and the public shall go through the Rockingham Planning Commission.

3. Review of Scope of Work

The scope of work was reviewed. Based on the discussions at the meeting it was agreed that in addition to the approved scope of work, the study shall address the following:

- The study will include a comparison of baseline conditions where each town works independently in order to compare cost savings that may potentially result from a collaborative approach.
- References for all key technical data and costs referenced during the study should be noted during discussions and in the report.
- The study will consider a proposed staged expansion in the Town of Stratham. It is not expected that the all of the infrastructure in Stratham will be built at one time.
- The timing of the last meeting noted in line item 4 E of the Scope of Work will be adjusted to be held prior to writing the Final Report.
- The Final Report should include recommended Next Steps. Both Short Term and Long Term implementation steps should also be included.

4. Review of Study Schedule

The proposed study schedule was reviewed. The schedule is primarily contingent on the timing of the four proposed Workshops and Meetings, which are tentatively scheduled as noted:

1. Technical Feasibility Workshop – March 15, 2012
2. Infrastructure Costs Workshop – April 2012
3. Financial Collaboration Workshop – May 2012
4. Summary / Review of Findings Meeting – June 2012

5. Preliminary Discussion of Technical Feasibility Analysis

A preliminary discussion of the technical feasibility of sharing water and wastewater infrastructure was conducted. The questions and concerns noted in the attached Technical Feasibility Issues list, which was distributed at the meeting served as the basis of the discussions. The following bullets summarize the highlights of the preliminary discussions:

- The extent of Exeter's available potable water capacity will depend significantly on whether the proposed Groundwater Plant passes at the Town Meeting vote,

scheduled for March 13. It was agreed by those in attendance that the Technical Feasibility Workshop should be held after this vote.

- Sleeves were installed beneath Route 101 along Route 108 that will be useful for a water interconnection. The Town of Stratham has as-built plans showing the location of these sleeves.
- The Town of Exeter has a hydraulic model of its potable water distribution system. Kleinfelder suggested that several modeling runs be conducted to determine what volumes of water can be delivered to Stratham using the existing system. Underwood developed the water model and Wright Pierce has a copy as well. The model needs to be checked as to whether it includes the most recent updates including the Epping Road water tank.
- It is unlikely that the Town of Exeter has sufficient capacity to accept and treat all of Stratham's proposed wastewater flow at the Exeter WWTF based on Exeter's current permitted flow rate of 3.0 MGD. The ability to increase the permitted capacity of the Exeter WWTF is critical to assessing the feasibility of collaborating on wastewater. In addition, the total nitrogen permit limit in the final permit (whether it is 3 mg/L or 8 mg/L) will greatly impact costs. Due this fact, representatives from EPA and DES will be invited to attend the next meeting to take part in these discussions.
- The most likely approach for a wastewater interconnection in Stratham is to construct a pump station in Stratham with a dedicated force main that pumps directly to the Exeter WWTF. This is due in part to capacity issues on the sewer lines and pump stations that handle the wastewater on Route 108 in Exeter. A forcemain from Stratham to the Exeter WWTF may involve a directional drill or attaching to the Route 101 bridge over the Squamscott River.
- Exeter WWTF capacity is impacted by Infiltration and Inflow (I/I). It is possible that capacity at the WWTF will be freed up as I/I is removed in Exeter. I/I is being addressed in the Jady Hill project and Underwood Engineers is completing an updated I/I Study (due to be completed in July) that may highlight expected I/I removal. A previous study conducted by CDM and dating to 1998 will be supplied to Kleinfelder / SEA for review.
- Phasing of water and wastewater expansions in Stratham will need to be considered when looking at required capacity. All of the capacity noted in the reports will not be needed at one time.

6. Next Steps

Action Items:

- The Town of Exeter will reach out to EPA and DEP to see if they are willing to attend the upcoming Technical Feasibility Workshop.
- Kleinfelder / SEA will provide the RPC with an electronic copy of the PowerPoint handouts from this meeting for distribution.
- Kleinfelder / SEA will contact technical representatives from both Towns directly as it conducts the technical feasibility analysis.

Next Meeting:

The Technical Feasibility Workshop will be held on March 15 at 4:00 p.m. at the Stratham Municipal Complex. This meeting will focus on technical feasibility issues, so primarily project team members involved with the technical aspects need to attend.

7. Attachments

List of Attendees

Handouts distributed at meeting listing Technical Feasibility Issues

SIGN-IN SHEET
KICK OFF MEETING
EXETER/STRATHAM INTER-MUNICIPAL WATER AND WASTEWATER STUDY

FEBRUARY 16, 2012

Name	Company/Affiliation	Telephone	E-mail
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ROCKINHAM PLANNING COMMISSION
TECHNICAL FEASIBILITY BRAINSTORMING SESSION
FEBRUARY 17, 2012

TASK 1 TECHINCAL FEASIBILITY ISSUES
COLLABORATION ON POTABLE WATER

Question: Does Exeter have sufficient water to meet Stratham's needs with its existing Surface Water Plant?

Technical Resources:
Town of Exeter Water Supply Alternatives Study, Weston and Sampson, January 2010
Stratham Fire Suppression and Potable Water Supply Study, Wright Pierce, May 2010

Question: Would Exeter have sufficient water to meet Stratham's needs after the proposed Groundwater Plant gets built?

Technical Resources:
Town of Exeter Water Supply Alternatives Study, Weston and Sampson, January 2010
Stratham Fire Suppression and Potable Water Supply Study, Wright Pierce, May 2010

Question: Can an interconnection for potable water be built? Where would it be located? What would it include? (i.e., valve vault, meter vault, etc)

Technical Resources:
Meeting notes from Exeter / Stratham community meeting, October 7, 2010.
Information on the location and size of the pipe sleeves installed beneath Route 101 (This information is requested)

Question: Would the hydraulic grade lines required for the two towns be compatible?

Technical Resources:
Exeter water distribution pressure data and distribution model results (This data is requested)
Stratham Fire Suppression and Potable Water Supply Study, Wright Pierce, May 2010
Stratham Ground Water Supply Investigation Study, Wright Pierce, March 2011

Question: Are any distribution system or lift pump upgrades required in Exeter to convey the necessary water to Stratham?

Technical Resources:
Exeter water distribution hydraulic model results (This data is requested)

Question: Is additional distribution system storage required if Exeter supplies Stratham? Where would it be located?

Technical Resources:
Exeter water distribution hydraulic model results (This data is requested)
Stratham Fire Suppression and Potable Water Supply Study, Wright Pierce, May 2010
Stratham Ground Water Supply Investigation Study, Wright Pierce, March 2011

ROCKINHAM PLANNING COMMISSION
TECHNICAL FEASIBILITY BRAINSTORMING SESSION
FEBRUARY 17, 2012

TASK 1 TECHINCAL FEASIBILITY ISSUES
COLLABORATION ON WASTEWATER

Question: Does Exeter have sufficient wastewater plant capacity to meet Stratham's needs?

Technical Resources:
Exeter wastewater current influent flow data (This data is requested)
Exeter WWTF flow projections (This data is requested)

Question: If not, would it be possible to amend the WWTF NPDES permit to increase the permitted capacity?

Technical Resources:
Feedback from DES and US EPA on the potential ramifications of this course of action (This data is requested)

Question: Can sufficient plant capacity be created through aggressive infiltration and inflow (I/I) Removal?

Technical Resources:
Results of Exeter's I/I Investigations (This data is requested)

Question: Can an interconnection wastewater be built? Where would it discharge? Where would it be located? What would it include? (i.e pump station, meter station, force main, inverted siphon?)

Technical Resources:
Limited investigation of alternatives to date.

Question: Are any collection system upgrades required in Exeter to convey Stratham's wastewater to the WWTF?

Technical Resources:
Exeter Collection System capacity information (This data is requested)
Sewer Map (This data is required)
Results of Exeter's I/I Investigations (This data is requested)

ROCKINHAM PLANNING COMMISSION
TECHNICAL FEASIBILITY BRAINSTORMING SESSION
FEBRUARY 17, 2012

TASK 1 TECHINCAL FEASIBILITY ISSUES
STRATHAM'S WATER AND WASTEWATER NEEDS

POTABLE WATER

Question: Can a potable water source for Stratham be permitted and built?

Technical Resources:
Stratham Fire Suppression and Potable Water Supply Study, Wright Pierce, May 2010
Stratham Ground Water Supply Investigation Study, Wright Pierce, March 2011

Question: Can a potable water distribution system for Stratham be permitted and built?

Technical Resources:
Stratham Fire Suppression and Potable Water Supply Study, Wright Pierce, May 2010
Stratham Ground Water Supply Investigation Study, Wright Pierce, March 2011

Question: Will a storage tank be needed for the potable water system? Where will it be located?

Technical Resources:
Stratham Fire Suppression and Potable Water Supply Study, Wright Pierce, May 2010
Stratham Ground Water Supply Investigation Study, Wright Pierce, March 2011

WASTEWATER

Question: Can a wastewater treatment plant for Stratham be permitted and built?

Technical Resources:
Stratham Wastewater Management Concept Plan Preliminary Report, Wright Pierce, May 2011

Question: Can a wastewater collection system for Stratham be permitted and built?

Technical Resources:
Stratham Wastewater Management Concept Plan Preliminary Report, Wright Pierce, May 2011

ROCKINHAM PLANNING COMMISSION
TECHNICAL FEASIBILITY BRAINSTORMING SESSION
FEBRUARY 17, 2012

TASK 1 TECHINCAL FEASIBILITY ISSUES
EXETER'S WATER AND WASTEWATER NEEDS

POTABLE WATER

Question: Does Exeter have sufficient potable water? Is additional water, such as that from the proposed Groundwater Plant, needed to supplement the existing water supplies?

Technical Resources:
Town of Exeter Water Supply Alternatives Study, Weston and Sampson, January 2010
Town of Exeter Water Efficiency and Management Plan Draft, Weston and Sampson, May 2011

Question: Is Exeter's water meeting required Water Quality Standards or are additional upgrades needed?

Technical Resources:
Town of Exeter Water Supply Alternatives Study, Weston and Sampson, January 2010
Town of Exeter Water Treatment Facility Desktop Study, Weston and Sampson, January 2011

Question: Is Exeter's potable water distribution system and existing water storage sufficient to deliver required water volumes to the Town?

Technical Resources:
Exeter water distribution hydraulic model results (This data is requested)

WASTEWATER

Question: Does Exeter's wastewater treatment plant have sufficient capacity for the Town? Will it be upgraded to meet the proposed NPDES permit limits?

Technical Resources:
Exeter wastewater current influent flow data (This data is requested)
Exeter WWTF flow projections (This data is requested)

Question: Are ongoing improvements needed to Exeter's wastewater collection system to address I/I and Combined Sewer Overflow (CSO) issues?

Technical Resources:
Exeter Collection System capacity information (This data is requested)
Sewer Map (This data is requested)
Results of Exeter's I/I Investigations (This data is requested)

ROCKINGHAM PLANNING COMMISSION

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Exeter-Stratham Intermunicipal Water and Wastewater Study
Technical Workshop
March 15, 2012
4:00 pm
Stratham Municipal Complex
Bunker Hill Avenue
Stratham, NH

1. Review Key Discussion Items from Kick-off Meeting

2. Potable Water Infrastructure
    a. Stratham's Water System Improvements
        i. Proposed Phasing of Water System Expansion
        ii. Domestic Water Demands
        iii. Fire Flow Demands
    b. Exeter's water system demands and required infrastructure improvements
    c. Exeter's Available Potable Water Capacity
    d. Interconnection Options
    e. Impacts to Exeter's Water Distribution System
        i. Hydraulic modeling scenarios
        ii. Providing Fire Flows in Stratham
            1. Need for water storage tank
            2. Maintain separate Fire water system in initial phases
    f. Recommended Scenario for Evaluation

3. Wastewater Infrastructure
    a. Stratham's Wastewater System Improvements
        i. Proposed Phasing of wastewater system expansion
        ii. Wastewater system capacity needs
    b. Exeter's wastewater system demands and required infrastructure improvements
    c. Exeter's Available Wastewater Plant Capacity
        i. Feasibility of increased permitted capacity at the WWTF
            1. Effect of nitrogen removal permit limits
        ii. Feasibility of I/I removal to increase available capacity at the WWTF
    d. Interconnection Options
        i. Utilize existing Exeter Collection System/Main Sewage Pumping Station
        ii. Establish new interconnection directly to Exeter WWTP
    e. Impacts to Exeter's Wastewater Collection System
    f. Recommended Scenario for Evaluation

4. Next Steps

KLEINFELDER Bright People. Right Solutions. ▪ S E A S E A CONSULTANTS INC.

MEETING MINUTES

DATE OF MEETING:	March 15, 2012
ATTENDEES:	See Attached Sign-in Sheet
RECORDED BY:	Kleinfelder / SEA
CC:	Attendees; file
SUBJECT:	Rockingham Planning Commission Exeter / Stratham Inter-Municipal Water and Wastewater Study Technical Workshop Meeting Minutes
S E A No.:	2012063.01-A

A Technical Workshop was held at 4:00 p.m. on March 15, 2012 at the Stratham Municipal Complex. The workshop was attended by representatives from Exeter, Stratham and the Rockingham Planning Commission to discuss the results of the capacity evaluation and to review and screen viable infrastructure alternatives developed by Kleinfelder (see attached Technical Workshop Agenda). Key items of discussion from the workshop are summarized below:

1. Review of Key Discussion Items from Kick-Off Meeting:

   - Since the kick-off meeting, Kleinfelder has been in contact with representatives from both Towns to gather additional information to assist with the capacity evaluation and development of infrastructure alternatives. Kleinfelder has also coordinated with the Town of Exeter's engineering consultant responsible for the current version of the water distribution system hydraulic model to perform simulations to assess the feasibility of sharing water service between the two towns.
   - The purpose of the Technical Workshop was reiterated. The objective of the workshop is to collectively discuss the feasibility of the infrastructure alternatives identified to date that have the potential to achieve a collaborative approach to water and wastewater service in both Towns, and to identify which infrastructure alternatives shall be evaluated further in preparation for the Infrastructure Cost Workshop in April. The infrastructure alternatives identified and developed as part of this study are not intended to represent the final recommended technical approach to establishing interconnections and sharing water and wastewater service between both towns. Rather, the alternatives are intended to provide

feasible technical options and realistic projections of capital costs that can be utilized during the financial analysis and modeling that will occur later in the study.

2. Potable Water Infrastructure

- Kleinfelder provided handouts of tables at the workshop identifying the assumptions and summarizing the feasibility analysis for potable water cooperation between both towns (refer to attached handouts).
- Demand projections and future system requirements for Stratham, assuming it moves forward independently, were reviewed. As outlined in the Town of Stratham's 2010 Fire Suppression and Potable Water Study Report, the potable water system in Stratham would expand in multiple phases. Initial phases would create an expanded fire protection system network to serve the larger commercial developments and extend to the Exeter Town Line. In the next phase, the system would be converted to potable water (including fire protection) by constructing a new well and groundwater treatment facility (if necessary), constructing a new water storage tank, and extending the 16-inch water main northward to Bunker Hill Avenue. A water demand of 150,000 gpd (average daily flow, ADF) is projected initially for this phase, increasing to approximately 350,000 gpd ADF at build-out conditions. In the final phase, the 16-inch water main would be extended from Bunker Hill Avenue to the Town Center at Winnicut Road. The Fire Suppression and Potable Water Study Report indicated higher flow capacities than those noted above. The projections in this report are based on very dense development and were noted to be quite aggressive. A revised flow of 600,000 GPD ADF for overall system design will be used for the purposes of this study.
- Future system upgrades for the Town of Exeter include a new groundwater treatment plant, which recently passed Town Meeting, and repairs and optimization of the water treatment plant, river pump station, reservoir, Skinner Wells, replacement of water pipe in Jady Hill neighborhood, and rehabilitation of the Hampton Road Tank. Water demand projections for Exeter range from 1.0 mgd ADF under existing conditions to 1.25 mgd ADF under future conditions. Maximum day demands (MDD) range from 1.7 mgd under existing conditions to 2.0 mgd under future conditions. Actual capacity of the water treatment plant ranges from 2.0 to 2.3 mgd. The capacity of the Lary Lane Well is approximately 0.25 mgd. Therefore, total capacity ranges from 2.25 mgd to 2.55 mgd, which is 0.55 mgd to 0.85 mgd above Exeter's current MDD, suggesting that spare capacity is available to accommodate the earlier phases of the Stratham water system development and expansion.

- The results of the technical evaluation performed thus far suggest that Exeter has surplus available potable water supply/treatment capacity it could provide to Stratham to meet the earlier phases of its water system development and expansion. Once Exeter constructs the new groundwater treatment plant, Exeter could provide water for the later phases of expansion of the Stratham water system, depending on the level of growth in Exeter.
- Recent hydraulic modeling performed by the Town of Exeter's engineering consultant confirmed that Exeter does not have sufficient distribution system capacity or storage volumes to provide reliable fire flows of 3,500 gpm to Stratham without making significant upgrades to its distribution system. Therefore, it is assumed that Stratham will require a water storage tank to meet its fire flow needs unless a separate fire protection system(s) is maintained.
- The recent hydraulic modeling suggests that Exeter could supply the maximum day demand to Stratham at the full build-out condition, meaning that Exeter could potentially serve as the primary water supply source to Stratham, provided that Stratham meets peak hour and fire flow needs through the construction of the water storage tank.
- The possible physical infrastructure to provide a water interconnection between Stratham and Exeter was discussed. The interconnection would consist of a meter vault located near the Route 101/108 interchange. The water line interconnection should be located on the east side of Route 108.
- It was agreed that Kleinfelder will prepare capital costs for the following potable water improvements in advance of the Infrastructure Cost Workshop:

  1) Costs to install water distribution system in Stratham from Exeter Town line to Bunker Hill Avenue, utilizing the existing 24-inch steel sleeves under Route 101 on the east side of Route 108. Costs to extend the water distribution system beyond Bunker Hill Avenue will not be prepared as those later phases are expected to occur beyond the 20 year planning period.

  2) Costs to construct a water interconnection and meter station with a total capacity of 1,080,000, or the projected maximum day demand for the full build-out condition (i.e. extension of water system to Winnicut Road). The water interconnection will likely occur on the eastern side of Route 108, not on the western side as shown on PowerPoint Slide shown at the Workshop.

  3) Costs to construct a 1,000,000 gallon storage tank on Bunker Hill.

3. Wastewater Infrastructure

- Kleinfelder provided handouts of tables at the workshop identifying the assumptions and summarizing the feasibility analysis for wastewater cooperation between both towns (refer to attached handouts).
- Wastewater flow projections and future system requirements for Stratham, assuming it moves forward independently, were reviewed. As outlined in the Town of Stratham's 2011 Wastewater Management Concept Plan Report, the wastewater system in Stratham would expand in multiple phases, similar to the proposed potable water system. The initial phase would create a wastewater collection system to serve the area along Route 108 between Route 101 and Frying Plan Lane, a wastewater treatment facility (WWTF) at the Industrial Park to treat only Stratham flows, an adjacent groundwater discharge system to handle treated flows, and a pump station to convey flows from the collection system to the wastewater treatment facility. For this initial phase, wastewater flows of 165,000 gpd ADF are projected (180,000 gpd including Industrial Park flows). In the next phase, the system would extend northerly to Bunker Hill Avenue and the WWTF would be expanded to handle projected flows of 390,000 gpd ADF (440,000 gpd including Industrial Park flows). And in the final phase, the collection system would extend northerly again to the Stratham Town Center at Winnicut Road, and the WWTF would be expanded to handle projected flows of 660,000 gpd ADF (715,000 gpd including Industrial Park flows). The flow projections noted above were determined by increasing the potable water use projections previously discussed by 10 percent to account for infiltration and inflow. The flow projections provided in the Wastewater Management Concept Plan Report are somewhat higher than those presented above and are thought to be somewhat aggressive. The reduced flows, based on estimated potable water use, will be used for this study.
- The key issue currently facing the Town of Exeter, irrespective of infrastructure sharing, is the need to upgrade its wastewater treatment facility (WWTF) to meet projected demands and to meet forthcoming U.S.E.P.A nutrient (i.e. total nitrogen) removal requirements. The current capacity of the WWTF is 3.0 mgd ADF, which equates to 2.4 mgd ADF permitted capacity based on the U.S.E.P.A. 80% rule. The peak flow capacity of the WWTF is currently 7.5 mgd. Currently, flows to the WWTF average approximately 2.0 mgd, with a peak flow of approximately 6.0 mgd. Therefore, there is approximately 400,000 gpd of spare capacity at the

Exeter WWTF (2.4 mgd – 2.0 mgd). During the Workshop it was discussed that if half of Exeter's spare capacity were made available to Stratham, then Stratham could discharge up to 200,000 gpd of wastewater to Exeter's WWTF, which corresponds approximately to projected flows during the initial phase of Stratham's sewer system expansion.

- In communications with the RPC and the Town of Exeter subsequent to the workshop, however, it was acknowledged that Exeter will need to reserve additional spare capacity to address potential growth in Town moving forward. Therefore, it should be assumed that there is limited available spare capacity at the Exeter WWTF to accommodate wastewater flows from Stratham. The Feasibility Summary Tables will be modified to show Exeter's reserved future wastewater plant capacity allocation, similar to the Table for potable water use.
- A key finding from the evaluation performed to date is that an expansion of the Exeter WWTF is likely necessary before any wastewater flows are received from Stratham. Alternatively, removal of some portion of the estimated 1,000,000 gpd in extraneous I/I flow from Exeter's wastewater collection system has the potential to free up sufficient capacity to allow Exeter to receive flows from Stratham without a plant expansion, at least for the initial phases of the Stratham sewer system expansion.
- Exeter's collection system at the northern part of Route 108 has capacity limitations at the Webster Avenue Pump Station, the Squamscott River crossing, and the Main Pump Station and does not have excess capacity to receive wastewater flows from Stratham.
- Due to the capacity limitations in Exeter's existing wastewater collection system cited above, interconnection between Stratham and Exeter would need to consist of a pump station in Stratham and a dedicated force main directly to the Exeter WWTF. A possible location for the new pump station and the alignment for the force main was presented (see attachments) and discussed. There was general consensus that the possible location of the pump station and the force main alignment as shown on the handout was sufficient for the purposes of this study. The route of the forcemain for the interconnection will need to be modified to account for the presence of several gas lines in immediate vicinity to the propsed force main.
- It was agreed that Kleinfelder will prepare capital costs for the following wastewater improvements in advance of the Infrastructure Cost Workshop:

1) Costs to install wastewater collection system in Stratham from Exeter Town line to Bunker Hill Avenue.

2) Costs to extend the wastewater collection system in Stratham from Bunker Hill Avenue to Town Center at Winnicut Road.

3) Costs to construct a wastewater interconnection with a total capacity of 2.64 mgd (projected peak hour flow at full build-out condition when extended to Winnicut Road). Interconnection infrastructure shall assume to consist of a pump station and a dedicated force main directly to the Exeter WWTF as shown on the handouts provided by Kleinfelder at the workshop. Directional drilling shall be assumed for installation of the new force main across Route 101 and the Swampscott River.

4) Costs to expand the Exeter WWTF to receive wastewater flows from Stratham. WWTF plant expansion will focus on the initial and secondary phases of the new wastewater collection system in Stratham (i.e. initial flows of 165,000 gpd increasing to potentially 390,000 gpd when the system is extended to Bunker Hill Avenue). Costs to expand the Exeter WWTF to reflect flows for the final phase (to Winnicut Road) will not be developed as this phase is expected to occur beyond the 20 year planning period. Costs will be developed assuming total nitrogen removal requirements of both 8 mg/L and 3 mg/L.

5) Costs to remove I/I from Exeter wastewater collection system in order to free up additional spare capacity at the Exeter WWTF wil also be assessed.

6) Determining the balance of WWTF expansion improvements and I/I removal improvements in order to accommodate the increased flows from Stratham was not determined at the workshop. Kleinfelder will continue to assess how best to balance these improvements and will develop costs accordingly in preparation for the April Infrastructure Cost Workshop.

Next Meeting:

The Infrastructure Cost Workshop will be held on April 19, 2012 at 4:00 p.m. at the Stratham Municipal Complex. This workshop will focus on the costs associated with the

screened technical alternatives summarized above, with the goal of selecting the most viable water and wastewater alternative(s) to include in the subsequent economic analysis and model.

Attachments

List of Attendees

Handouts distributed at meeting listing Technical Feasibility Issues

PowerPoint slides shown at Meeting

ROCKINGHAM PLANNING COMMISSION

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Tel. 603-778-0885 ◆ Fax: 603-778-9183
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Exeter-Stratham Intermunicipal Water and Wastewater Study
Technical Workshop
March 15, 2012
4:00 pm
Stratham Municipal Complex
Bunker Hill Avenue
Stratham, NH

1. Review Key Discussion Items from Kick-off Meeting

2. Potable Water Infrastructure
    a. Stratham's Water System Improvements
        i. Proposed Phasing of Water System Expansion
        ii. Domestic Water Demands
        iii. Fire Flow Demands
    b. Exeter's water system demands and required infrastructure improvements
    c. Exeter's Available Potable Water Capacity
    d. Interconnection Options
    e. Impacts to Exeter's Water Distribution System
        i. Hydraulic modeling scenarios
        ii. Providing Fire Flows in Stratham
            1. Need for water storage tank
            2. Maintain separate Fire water system in initial phases
    f. Recommended Scenario for Evaluation

3. Wastewater Infrastructure
    a. Stratham's Wastewater System Improvements
        i. Proposed Phasing of wastewater system expansion
        ii. Wastewater system capacity needs
    b. Exeter's wastewater system demands and required infrastructure improvements
    c. Exeter's Available Wastewater Plant Capacity
        i. Feasibility of increased permitted capacity at the WWTF
            1. Effect of nitrogen removal permit limits
        ii. Feasibility of I/I removal to increase available capacity at the WWTF
    d. Interconnection Options
        i. Utilize existing Exeter Collection System/Main Sewage Pumping Station
        ii. Establish new interconnection directly to Exeter WWTP
    e. Impacts to Exeter's Wastewater Collection System
    f. Recommended Scenario for Evaluation

4. Next Steps

S E A

S E A CONSULTANTS INC.
Scientists/Engineers/Architects

CLIENT:	JOB NO:	PAGE:
PROJECT:	COMPTD BY:	DATE:
DETAIL:	OK'D BY:	DATE:

TECHNICAL WORKSHOP

March 15, 2012

Name	Organization	e-mail
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Cliff Sinnott	RPC	csinnott@rpc-nh.org
Paul Deschaine	Stratham	pdeschaine@strathamnh.gov

	Description	Potable Water Demand Projections	System Requirements
Phase 1	Provide interconnected fire protection system for existing commercial developments including Shaws, King Plaza, Staples, and Market Basket	Fire Flow Only	Fire Flow Only
Phase 2 - Assume for Fire Protection Only	Expansion of the system to the south to the Town Line.	Fire Flow Only	Fire Flow Only
Phase 1 + 2 Conversion to Potable Water	Convert Fire Protection System to Potable Water. Requires Implementation of Phase 3.	33,120 GPD estimated current demand[1] 518,350 GPD estimated at Build-out[1] Assume a total system demand of 150,000 GPD (average daily flow rate).	Max Day Flow 270,000 GPD at HGL of ≈ 230 feet. (PF = 1.8xADF)[1] Peak Hour Flow Rate = 281 GPM at HGL of ≈ 230 feet. (PF = 1.5xPDF)[1] Peak Fire Flow Rate = 3,500 GPM[1] at HGL of ≈ 195 feet
Phase 3	Expansion of System to Bunker Hill Avenue.	20,900 GPD estimated current demand[1] 188,860 GPD estimated at Build-out[1] Assume a total system demand of 350,000 GPD (average daily flow rate).	Max Day Flow 630,000 GPD at HGL of ≈ 230 feet. (PF = 1.8xADF)[1] Peak Hour Flow Rate = 655 GPM at HGL of ≈ 230 feet. (PF = 1.5xPDF)[1] Peak Fire Flow Rate = 3,500 GPM[1] at HGL of ≈ 195 feet
Phase 4	Expansion of System to Winnicut Road and the Town Center.	43,080 GPD estimated current demand[1] 70,070 GPD estimated at Build-out[1] Total Phases 1-4 = 777,280 GPD[1] Assume a total system demand of 600,000 GPD[3] (average daily flow rate).	Max Day Flow 1,080,000 GPD at HGL of ≈ 230 feet. (PF = 1.8xADF)[1] Peak Hour Flow Rate = 1,125 GPM at HGL of ≈ 230 feet. (PF = 1.5xPDF)[1] Peak Fire Flow Rate = 3,500 GPM[1] at HGL of ≈ 195 feet

	Assumed Infrastructure Improvements	Feasibility Assessment	Costs
Physical Interconnection With Exeter	None	N/A	
Potable Water Supply - Phase 1	None, Fire Protection Only	Feasible	
Potable Water Supply - Phase 2	None, Fire Protection Only	Feasible	
Potable Water Supply - Phase 3	Construct a well with required capacity. Likely sites include the Scamman and Goodrich sites.[2] Construct a water treatment plant to treat well water, pending water quality.	Groundwater supply for Stratham appears to be feasible based on hydrogeologic investigations to date.	
Potable Water Supply - Phase 4	Construct additional well(s) if additional capacity is required.	Appears feasible based on hydrogeologic investigations to date.	
Water Distribution - Phase 1	Interconnect existing fire water piping.	Feasible	
Water Distribution - Phase 2	Extend a 16" water main on 108 from Town line south of Route 101 (use pipe sleeve) To North extends to Honda Barn.[1]	Feasible	
Water Distribution - Phase 3	Extend a 16" water main from end of existing system to Bunker Hill Avenue. Include a 16" extension to new water storage tank and to new well and treatment plant.[1]	Feasible	
Water Distribution - Phase 4	Extend a 16" water main from end of existing system to Winnicut Road and the Town Center.[1]	Feasible	
Water Storage Phase 1	No potable water storage tank, use existing fire water ponds and reservoirs.	N/A	
Water Storage Phase 2	No potable water storage tank, use existing fire water ponds and reservoirs.	N/A	
Water Storage Phase 3	Build 1,000,000 gallon Storage Tank at 28 Bunker Hill.[2]	Feasible	
Water Storage Phase 4	No Additional storage proposed.	N/A	

Assumptions and Feasibility Analysis For Potable Water Cooperation – Exeter Works Independently

Description	Existing Plant Capacity	Potable Water Demand Projections
Satisfy current and future demands	Plant Nominal Capacity ≈ 2.3 mgd[4] Plant Actual Capacity: Summer 2.0 MGD[5] Winter 2.3 MGD2[5] Reservoir and River Safe Yield ≈ 2.6 MGD[4] Lary Lane Well: Current Estimated Capacity = 0.25 MGD[6] Stadium and Gilman Park wells not in service System HGL ≈ 230 feet	1.0 MGD current average day demand[6] 1.7 MGD current max day flow rate[6] 1.25 MGD projected future average day demand (from unnamed 2007 study). Assume 2.0 MGD projected future max day flow rate

	Assumed Infrastructure Improvements	Feasibility Assessment	Costs
Physical Interconnection With Stratham	None	N/A	
Potable Water Supply Upgrades - Project 1	Construct Groundwater WTP to diversify water supply	Feasible	
Potable Water Supply Upgrades - Project 2	Repairs and optimization of existing water supply infrastructure including WTP, river pump station, reservoir, and Skinner Wells.	Feasible	
Water Distribution Upgrades – Project 1	Replacement water meters for improved billing and reduced unaccounted for water.	Feasible	
Water Distribution Upgrades – Project 2	Replacement of water pipe in Jady Hill neighborhood.	On going	
Water Distribution Upgrades – Project 3	Future or ongoing water line rehabilitation.	Feasible	
Water Storage Upgrades	None, recently completed tank provides sufficient storage for for-seeable future.[5]	N/A	

Assumptions and Feasibility Analysis For Wastewater Cooperation – Stratham Works Independently

	Description	Wastewater Generation Projections	System Requirements
Phase 1	Provide sanitary sewer for existing commercial developments from Frying Pan Lane to the Stratham Town Line.	96,000 GPD estimated current demand[7] (This is high compared to estimated potable water use and based on acerage instead of customer counts). 395,000 GPD estimated at Build-out[7] 10,000 GPD estimated current industrial flows Potable water estimate = 150,000 GPD after Phase 1. Assume a total system demand of 180,000 GPD with the Industrial Park and 165,000 GPD without it[2] (ADF).	Max Daily Flow = 490,000 GPD (MDF = 2.7xADF)[9] Peak Hour Flow Rate = 610 GPM (PF = 4.9xADF)[9]
Phase 2	Expansion of Sewer System to Bunker Hill Avenue.	32,000 GPD estimated current demand[7] 132,000 GPD estimated at Build-out[7] 50,000 GPD estimated current industrial flows. Potable water estimate = 350,000 GPD after Phase 2. Assume a total system demand of 440,000 GPD with the Industrial Park and 390,000 GPD without it[8] (ADF).	Max Daily Flow = 1,060,000 GPD (MDF= 2.4xADF)[9] Peak Hour Flow Rate = 1,280 GPM (PF = 4.2xADF)[9]
Phase 3	Expansion of Sewer System to Winnicut Road and the Town Center.	47,500 GPD estimated current demand[7] 56,500 GPD estimated at Build-out[7] Potable water estimate = 600,000 GPD after Phase 2. Assume a total system demand of 715,000 GPD with the Industrial Park and 660,000 GPD without it[8] (ADF).	Max Daily Flow = 1,640,000 GPD (MDF = 2.3xADF)[9] Peak Hour Flow Rate = 1,990 GPM (PF = 4.0xADF)[9]

	Assumed Infrastructure Improvements	Feasibility Assessment	Costs
Physical Interconnection With Exeter	None	N/A	
Collection System - Phase 1	Install collection system in Phase 1 area (from Frying Pan Lane to the Town line) with a pump station pumping to new Stratham WWTF.[7]	Feasible – Will require a long force main.	
Collection System - Phase 2	Expand collection system from end of existing system to Bunker Hill Avenue.[7]	Feasible	
Collection System - Phase 3	Expand collection system from end of existing system to Winnicut Road and the Town Center. Construct new Pump Station at Town Center.[7]	Feasible	
Wastewater Treatment Capacity - Phase 1	Construct a Wastewater Treatment Facility at the Site of the Industrial Park as well as groundwater discharge with average day capacity of at least 180,000 GPD.	It will be challenging to permit this facility and expensive to construct.	
Wastewater Treatment Capacity - Phase 2	Expand Stratham Wastewater Treatment Facility and groundwater discharge infrastructure to an increased capacity of at least 440,000 GPD.	May be difficult to construct a large enough infiltration bed at the WWTP site to discharge the required capacity.	
Wastewater Treatment Capacity - Phase 3	Expand Stratham Wastewater Treatment Facility and groundwater discharge infrastructure to an increased capacity of approximately 715,000 GPD.	Likely not feasible to construct a large enough infiltration bed at the WWTP site to discharge the required capacity. Second site required.	

Assumptions and Feasibility Analysis For Wastewater Cooperation – Exeter Works Independently

Description	Existing Plant Capacity	Wastewater Generation Projections
Satisfy current and future demands	Plant Capacity: Average Daily Flow = 3.0 MGD[10] Allowable Flow per EPA = 2.4 MGD (80% of ADF per permit condition) Peak Flow = 7.5 MGD[10]	2.0 MGD current average day demand[11] 6.0 MGD current peak demand[11] (90th percentile of recent 2 years) No recent projected flow information available.

	Assumed Infrastructure Improvements	Feasibility Assessment	Costs
Physical Interconnection With Stratham	None	N/A	
Collection System Upgrades – Project 1	Replacement of pipe and I/I reduction in Jady Hill neighborhood.	On-going	
Collection System Upgrades – Project 2	Collection system improvements to remedy CSO.	Feasible	
Collection System Upgrades – Project 3	Ongoing sewer line rehabilitation and I/I removal.	Feasible	
Collection System Upgrades – Project 4	Ongoing pump station improvements	Feasible	
Wastewater Treatment Upgrades - Project 1	Facility Plan for Upgraded WWTF	Feasible	
Wastewater Treatment Upgrades - Project 2	New WWTF to meet nitrogen permit limit.	Feasible	

POTABLE WATER COLLABORATION

Key Findings of Feasibility Assessment

Potable Water Interconnection – Existing 24" steel sleeves are installed under Route 101 which will facilitate connection to the Exeter system.

Potable Water Supply – Exeter currently has approximately 150,000 GPD of available potable water supply (average daily flow) it could provide to Stratham until the proposed Groundwater Plant is constructed and the additional wells are redeveloped. Exeter will have significant additional capacity it could provide to Stratham after the proposed Groundwater plant is constructed.

Fire Water Supply – Exeter does not have sufficient distribution system capacity or storage volumes to provide fire flows to Stratham without addressing significant distribution system upgrades and making operational changes. Stratham could provide a separate fire control system or construct a water storage tank to provide fire protection.

Distribution Study – Exeter's distribution system has sufficient capacity to provide maximum day potable water needs to Stratham at buildout provided fire flow and peak hour flow needs are met with a storage tank in Stratham.

Water Storage – Stratham will need to construct a water storage tank to provide fire protection in initial project phases. Alternatively, Stratham could provide a separate fire control system for fire protection during initial phases of the project by using or interconnecting existing fire protection systems (cisterns, ponds, etc).

Recommended Technical Assumptions for Developing Costs for a Collaborative Approach

Determine the Following Capital Costs:

- Costs to install a distribution system in Stratham from the Exeter Town line to Bunker Hill (Phases 1-3). Use the existing 24 inch sleeves for the water line.
- Costs to construct a water interconnection and meter station with a total capacity of 750 GPM (to meet the projected peak hourly flow at build-out of 1,080,000 GPD).
- Costs to construct a 1,000,000 gallon ground storage tank on Bunker Hill.
- Costs to upgrade the infrastructure in Exeter to supply water at 150,000 GPD, 350,000 GPD, and 600,000 GPD.
- Costs to expand the distribution system to the Town Center in the future (Phase 4)

WASTEWATER COLLABORATION

Key Findings of Feasibility Assessment

Wastewater Collection System - Exeter's collection system at the northern part of Route 108 has capacity limitations at the Webster Ave pump station, Squamscott River crossing and the Main Pump Station and does not have excess capacity to handle flows from Stratham.

Wastewater Interconnection – Due to capacity limitations in the Exeter's existing collection system, the wastewater interconnection will need to consist of a pump station and dedicated forcemain directly to the WWTF.

Wastewater Supply – Exeter currently has approximately 200,000 GPD of available wastewater supply (average daily flow) it could provide to Stratham. However, Exeter has no available peak capacity. Thus, even at initial stages, some amount of infiltration and inflow (I/I) will need to be removed from Exeter's system prior to accepting flow from Stratham.

- If Stratham requests more than 200,000 GPD of wastewater capacity on an average daily basis, either the WWTF will need to be expanded or additional I/I will need to be removed from Exeter's collection system.
- Estimates for I/I in Exeter are approximately 900,000 to 1,000,000 GPD on an annual average basis.[12] If Exeter could successfully remove 40% to 50% of the I/I, Exeter could provide up to 400,000 GPD of capacity to Stratham on an average day basis.
- Additional I/I removal above the 40 to 50% level above would likely be expensive and is not considered a viable approach. If Stratham requests more than 400,000 GPD of wastewater capacity on an average daily basis, the WWTF will need to be expanded.

Recommended Technical Assumptions for Developing Costs for a Collaborative Approach

Determine the Following Capital Costs:

- Costs to install a wastewater collection system in Stratham from Route 101 to Bunker Hill (Phases 1&2).
- Costs to construct a wastewater interconnection with a total capacity of 1,830 GPM (to meet the projected max day flow at build-out).
    - Likely option is a pump station with dedicated forcemain pumping directly to the Exeter WWTF. Forcecmain to be installed using directional drilling or micro-tunneling approaches.
- Costs to upgrade the infrastructure in Exeter to manage the following additional wastewater flows from Stratham: 165,000 GPD, 390,000 GPD, and 660,000 GPD.
    - Two options are available; 1 – Reduce Infiltration and Inflow, and 2 – WWTF Expansion
- Costs to expand the wastewater collection system to the Town Center and construct an additional pump station at the Town Center in the future (Phase 3)

References

[1] As provided in the Town of Stratham Fire Suppression and Potable Water Study Report by Wright Pierce, dated May 2010.

[2] As provided in the Stratham Water System Investigations Memorandum by Wright Pierce, dated March 15, 2011.

[3] Flow projections at Build Out are very aggressive and assume 100% buildout. Per recommendations in the Wright Pierce Report and based on data in Stratham's Wastewater System Concept Plan Report, the ultimate potable water at buildout was limited at 600,000 GPD for this study.

[4] Exeter Water System Evaluation Study by CDM Smith, dated January 2002.

[5] Discussions with representatives from Town of Exeter

[6] Exeter Water Supply Alternatives Study by Weston and Sampson, dated January 2010.

[7] As provided in the Town of Stratham Wastewater Management Concept Plan Report by Wright Pierce, dated March 2011.

[8] Sum of potable water use + Industrial Zone Sanitary Projection + I/I (An I/I allowance of 10% over potable water flow was assumed).

[9] TR-16 – Guide for the Design of Wastewater Treatment Works, NEIWPCC, 1998 Edition.

[10] WWTF Capital Improvement Program Report by Underwood Engineers, February 2002

[11] 2010 and 2011 WWTF Operating Data

[12] Exeter Phase 1 Infiltration / Inflow Stud by CDM Smith, dated October 1997.

ROCKINGHAM PLANNING COMMISSION

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Exeter-Stratham Intermunicipal Water and Wastewater Study
Infrastructure Cost Workshop
April 19, 2012
4:00 pm
Stratham Municipal Complex
Bunker Hill Avenue
Stratham, NH

1. Review Key Discussion Items from Technical Workshop
    a. Potable Water Infrastructure Alternatives
    b. Wastewater Infrastructure Alternatives

2. Review Options for Treating Stratham Wastewater Flows at Exeter WWTF
    a. Current Exeter WWTF Capacity and Flow Contribution
    b. Discuss Options for Creating Additional Spare WWTF Capacity
        i. WWTF Expansion
        ii. Removal of I/I from Exeter System
        iii. Tap into EPA "20% Set Aside"
        iv. Combined, Balanced Approach
    c. Review Proposed Approach

3. Cost Analysis for Potable Water Alternatives
    a. Stratham Works Independently
    b. Exeter Works Independently
    c. Exeter Supplies Water to Stratham
    d. Comparison of Water Options

4. Cost Analysis for Wastewater Alternatives
    a. Stratham Works Independently
    b. Exeter Works Independently
    c. Exeter Supplies Water to Stratham
    d. Comparison of Wastewater Options

5. Next Steps
    a. Schedule Financial Collaboration Workshop

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MEETING MINUTES

DATE OF MEETING:	April 19, 2012
ATTENDEES:	See Attached Sign-in Sheet
RECORDED BY:	Kleinfelder / SEA
CC:	Attendees; file
SUBJECT:	Rockingham Planning Commission Exeter / Stratham Inter-Municipal Water and Wastewater Study Infrastructure Costs Workshop Meeting Minutes
S E A No.:	2012063.01-A

The Infrastructure Costs Workshop was held at 4:00 p.m. on April 19, 2012 at the Stratham Municipal Complex. The workshop was attended by representatives from Exeter, Stratham and the Rockingham Planning Commission to review the results of the Technical Alternatives Workshop and discuss costs for the feasible alternatives developed by Kleinfelder (see attached Infrastructure Cost Workshop Agenda, PowerPoint presentation, and Handouts). Key items of discussion from the workshop are summarized below:

1. Review of Key Discussion Items from Technical Workshop:

- Kleinfelder presented two PowerPoint slides at the workshop identifying the assumptions and summarizing the feasibility analysis for potable water and wastewater cooperation between both towns (refer to the attached PowerPoint presentation).
- Potable Water Infrastructure Alternatives: The proposed alternatives for water infrastructure were reviewed. This included the baseline alternative for Stratham working independently, the baseline alternative for Exeter working independently, and the most feasible collaborative approach agreed to at the Technical Workshop. The agreed upon collaborative approach consists of Stratham constructing a distribution system from Route 101 up to Bunker Hill Avenue, a new water tank on Bunker Hill, and a water interconnection under Route 101 using existing pipe sleeves on the east side of Route 108. Exeter would supply water from capacity that will be available after a new Groundwater Treatment Plant is constructed.

- Wastewater Infrastructure Alternatives: The proposed alternatives for wastewater infrastructure were reviewed. This included the baseline alternative for Stratham working independently, the baseline alternative for Exeter working independently, and the most feasible collaborative approach agreed to at the Technical Workshop. The agreed upon collaborative approach consists of Stratham constructing a wastewater collection system from Bunker Hill Avenue to Route 101 and a new pump station adjacent to Shaws pumping directly to the Exeter WWTF using a series of directional drills to cross Route 101 and the Squamscott River. Discussion of available capacity at the WWTF was deferred until the next agenda item.
- There was general consensus that the technical approaches presented represented a reasonable alternative for ongoing costs analysis and discussion.

2. Treating Stratham Wastewater Flows at the Exeter WWTF:

- Kleinfelder presented a series of PowerPoint slides at the workshop presenting available capacity at the Exeter WWTF (refer to attached PowerPoint presentation).
- Existing capacity at the Exeter WWTF was reviewed. Current wastewater flow is 1.0 MGD, and infiltration and inflow (I/I) is an additional 1.0 MGD. In addition, the Town of Exeter has expressed a preference to set aside up to 0.4 MGD for future development. Finally, Exeter's NPDES permit has an 80% threshold at which further evaluation is required. This EPA set aside, at 20% of the permitted flow rate, is equivalent to 0.6 MGD.
- Four ways of creating extra capacity at the existing Exeter WWTF were presented:
    1. Increase capacity of WWTF.
    2. Reduce Infiltration and Inflow.
    3. Tap into the 20% EPA set aside capacity.
    4. Combination of Items above.
- Increasing WWTF capacity is going to be very difficult to permit. Therefore, Kleinfelder proposed an approach for capacity sharing consisting of two phases. In Phase 1, Stratham would be provided with a plant capacity allotment of a certain flow (0.25 MGD was indicated). Plant capacity for this initial allotment would be provided by using the capacity in the EPA set aside and allowing flows at the WWTF to exceed the 80 percent threshold. In the future, as growth in Stratham

dictated, a second allotment would be provided (an additional 0.14 MGD at year 10 was assumed). Plant capacity for this second allotment would be provided by reducing I/I in the Exeter system. There was consensus among the attendees regarding this assumed phased approach.

- At the Technical Workshop, it was inferred that the plant capacity at the Exeter WWTF should be capped at 2.4 MGD, to preserve 0.6 MGD for the 20% set aside that EPA includes in all NPDES permits. However, that set aside is a threshold at which EPA may require a plant capacity study, and Exeter is not incumbent to cap plant flows to 2.4 MGD. Thus, it appears that Exeter does have some amount of available capacity for Stratham if it discharges wastewater to the Exeter WWTF.
- Discussion continued on growth in Exeter, current wastewater generation trends in Exeter, wastewater projections for Stratham, industry trends in water reduction and decreased per-capita wastewater generation. Based on the conversations, there was general agreement that a large change in per-capita wastewater flow is not anticipated.
- There was some concern that the I/I reduction needed to free up future capacity may be difficult to achieve. Several projects are on-going in Exeter, but to date there are no validated results. As I/I projects are undertaken and leaking pipes and structures are repaired, condition of other system infrastructure is getting worse. It is a continual process. Despite the uncertainty regarding the level of future I/I removal, there was agreement that the assumed phased approach to creating additional capacity at the Exeter WWTF was valid for the purposes of this study.
- An issue was raised whether Stratham, if it collaborated with Exeter, would fall under the proposed Adaptive Management Plan. This would require Stratham to actively engage in other projects to reduce nitrogen loading to the Great Bay from non-point sources. It was the general consensus that Stratham would be required to meet these other requirements if they collaborate. Representatives from Stratham did not think that such a requirement was a major impediment to a collaborative approach, particularly since other similar regulatory requirements could still be placed upon Stratham in the future.
- The workshop attendees then discussed the possibility of meeting with the EPA and DES to explore these WWTF permitting issues and the proposed collaboration in more detail. It was noted that the EPA may see it as an advantage for Stratham's wastewater infrastructure system to become regulated. It was agreed that a meeting with EPA should be planned before Exeter's final permit is issued.

- A related permitting issue was brought up regarding potable water supply and minimum stream flow requirements in the Exeter River. In general, with overall water use trending flat, this is not expected to be a significant hindrance to collaboration on potable water.

3. Costs Analysis for Potable Water Alternatives

- Kleinfelder provided handouts of tables at the workshop identifying the assumptions and summarizing the infrastructure capital and operating costs for the three potable water alternatives (Baseline Cost for Stratham to work alone, Baseline Cost for Exeter to work alone, and costs if the two towns collaborated). The handout also included a table that compared the costs of potable water options and calculated the savings of a collaborative approach (refer to attached handouts).
- There was general consensus that the capital and operating costs presented seem valid and sufficiently documented.
- Several attendees suggested that the costs as presented and summarized did not clearly demonstrate the costs and savings associated with a collaborative approach. A more granular presentation of the costs and savings of the collaborative approach was requested; one which eliminated all of the costs inherent to the two individual towns working alone and focusing on those costs specific to collaboration.
- Kleinfelder agreed to prepare an alternative method to present the costs for review and discussion.
- Several attendees asked how the benefits of the collaborative approach would be included in the analysis, such as the storage tank redundancy or mutual aid. It was noted that quantifying these items was not in the scope of the project, as addressing these issues typically involve additional technical analysis such as hydraulic computer modeling. However, these other potential benefits will be listed as non-financial benefits of collaboration in the report, but not included in the cost model.

4. Costs Analysis for Wastewater Alternatives

- Kleinfelder provided handouts of tables at the workshop identifying the assumptions and summarizing the infrastructure capital and operating costs for

the three wastewater alternatives (Baseline Cost for Stratham to work alone, Baseline Cost for Exeter to work alone, and costs if the two towns collaborated). The handout also included a table that compared the costs of wastewater options and calculated the savings of a collaborative approach (refer to attached handouts). Costs were presented assuming both a 8 mg/L and a 3 mg/L permit limit for Total Nitrogen at the Exeter WWTF.

- There was a question and concern that the assumed unit costs for future I/I removal were not accurate. The source of the assumed unit costs was the costs for the Jady Hill project. However, following additional discussion at the Workshop it was determined that it may not be fair or accurate to simply extrapolate those costs. Kleinfelder will further explore methods and prices for I/I reduction as the costs are finalized. Kleinfelder will also contact Paul Vlasich at the Town of Exeter to better understand the Jady Hill costs.
- Other than the I/I removal costs, the general consensus was that the capital and operating costs presented seem valid and sufficiently documented.
- As with the potable water costs, several attendees suggested that the wastewater alternative costs as presented and summarized did not clearly demonstrate the costs and savings associated with a collaborative approach. A more granular presentation of the costs and savings of the collaborative approach was requested; one which eliminated all of the costs inherent to the two individual towns working alone and focusing on those costs specific to collaboration.
- Kleinfelder agreed to prepare an alternative method to present the costs for review and discussion.

Next Meeting:

The Financial Collaboration Workshop will be held on May 17, 2012 at 4:00 p.m. at the Stratham Municipal Complex. This workshop will focus on reviewing non-cost qualitative factors associated with water and wastewater collaboration and a review of the various ownership alternatives to achieve collaboration.

Attachments:

List of Attendees
Meeting Agenda
PowerPoint slides shown at Meeting
Costs Analysis Handouts distributed at Meeting

S E A

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Scientists/Engineers/Architects

CLIENT:	JOB NO:	PAGE:
PROJECT:	COMPTD BY:	DATE:
DETAIL:	OK'D BY:	DATE:

Infrastructure Cost Workshop

Name	Organization	Phone
Rob McCoy	KLF/SEA	227-2312
David Canada	Stratham	775-5778
Jennifer Perry	Exeter	773-6157
Lincoln Daley	Stratham	772-7391
Paul Deschaine	Stratham	772-7391 x181
Theresa Walker	RPC	778-0885 x112
Donald Clement	Exeter	778-0238
Mark Thompson	SEA	
David Michelsen	KLF/SEA	227-2327
John Bosnert	Stratham	913-2328
Cliff Sinnott	RPC	
Russell Dean	Exeter	

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    d. Comparison of Wastewater Options

5. Next Steps
    a. Schedule Financial Collaboration Workshop

Exeter-Stratham Intermunicipal Water and Wastewater Study
Infrastructure Costs Workshop
April 19, 2012

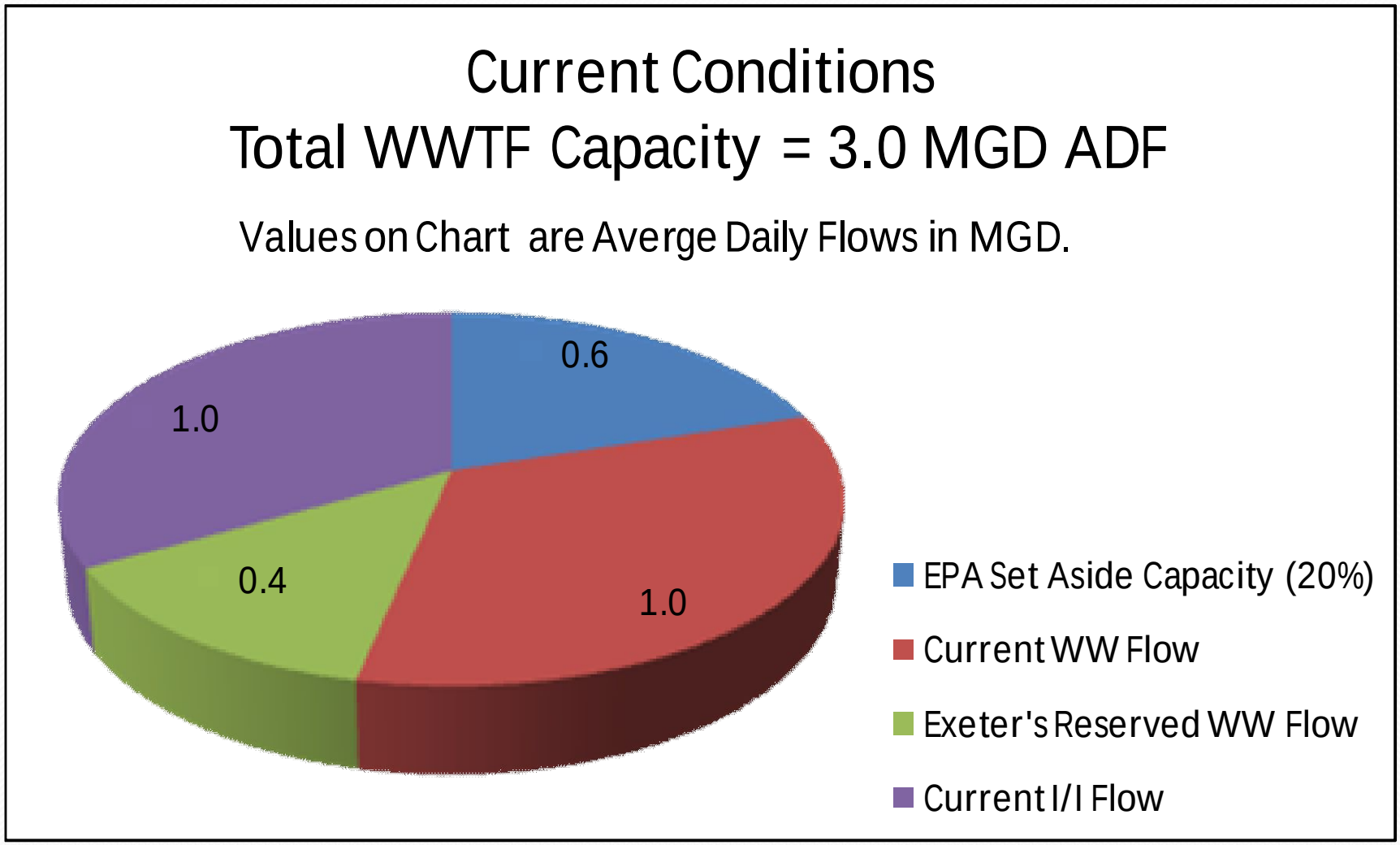
Summary of Technical Workshop

- Potable Water:
  - Exeter has spare production capacity to meet initial phases of Stratham water system expansion to Bunker Hill Ave. (150,000 GPD ADF).
  - With new GW treatment plant, Exeter should have further spare production capacity to help meet later phases of Stratham expansion, depending upon growth.
  - Costs for expansion beyond Bunker Hill Ave. will not be considered during this study since this will likely occur beyond 20-year planning period
  - Exeter system does not have hydraulic capacity to provide necessary fire flows to Stratham – Stratham expansion requires new 1.0 MG tank at Bunker Hill for fire/peak flows
  - Water interconnection to consist of meter vault (1.08 MGD capacity, or Stratham future max day) on east side of Rte 108 at Rte 101

Summary of Technical Workshop

- Wastewater:
  - Stratham initial wastewater system expansion in Rte 108 will generate 165,000 GPD ADF, increasing to 390,000 GPD when system is extended to Bunker Hill Ave.
  - Exeter WWTF currently has 400,000 GPD spare treatment capacity, which is assumed reserved for future growth in Exeter.
  - Exeter has I/I of approx. 1.0 MGD.
  - Exeter WWTF has available capacity to receive flow from Stratham for initial stage of its new collection system, but an increase in permitted plant capacity and/or removal of I/I from Exeter's system will be needed to receive further wastewater flow – the assumed approach not finalized at workshop.
  - Exeter facing forthcoming WWTF upgrade to achieve total nitrogen removal ranging from 3 mg/L to 8 mg/L.
  - Hydraulic capacity limitations in Exeter system will require a direct interconnection between Stratham and Exeter WWTF (pump station in Stratham and dedicated force main to WWTF).

Exeter WWTF Capacity



Exeter WWTF Capacity - Current

	ADF (MGD)	Peak Flow (MGD)	Comments
Total Plant Capacity	3.0	7.5	
EPA Set Aside Capacity (20%)	0.6	N/A	
Current WW Flow	1.0	1.8	Peaking Factor = 1.8
Exeter's Reserved WW Flow	0.4	1.4	Peaking Factor = 3.5
Current I/I Flow	1.0	4.2	
Unaccounted For Capacity	0.0	0.1	

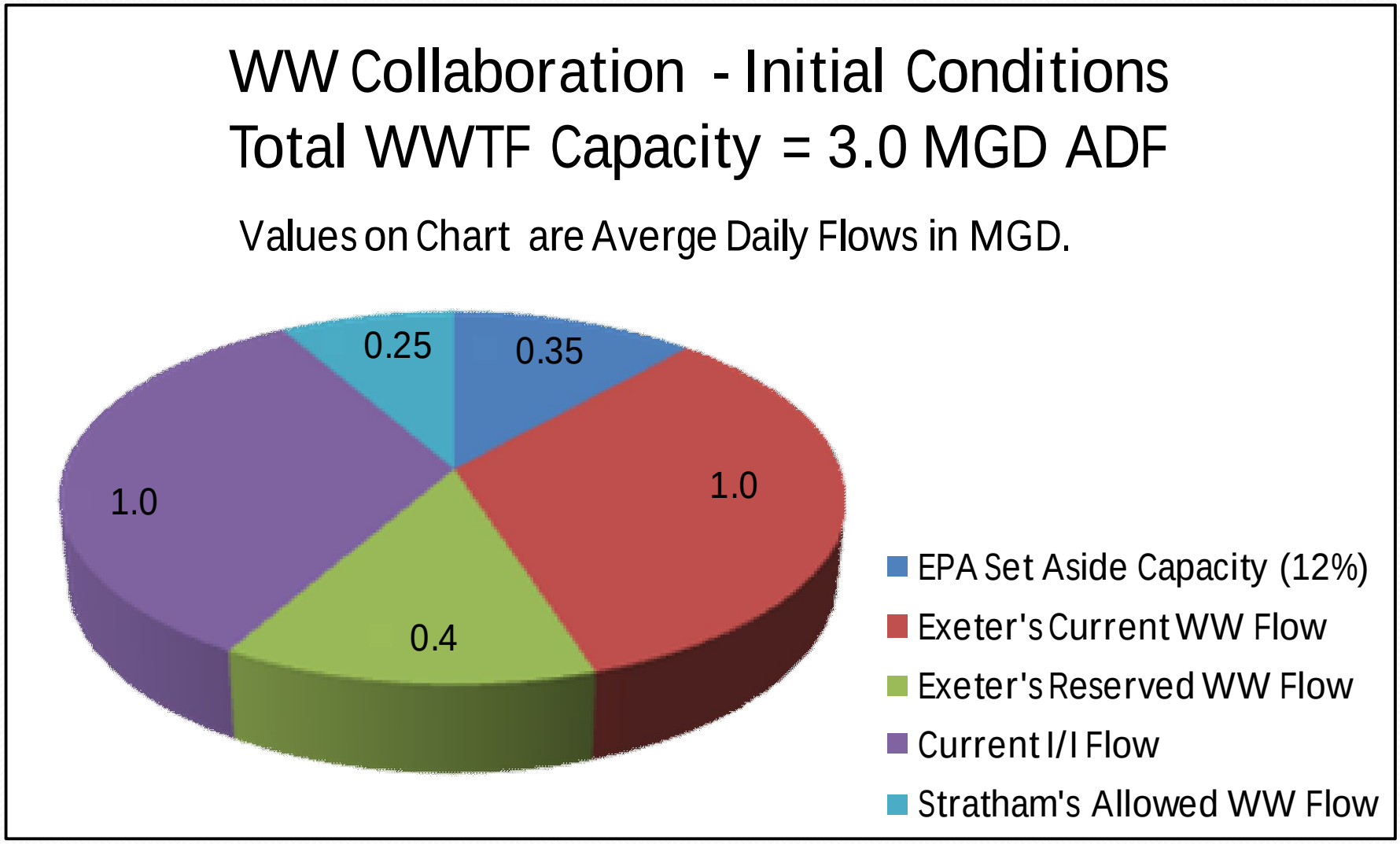
Creating Extra Plant Capacity

1. Increase capacity of WWTF.
2. Reduce Infiltration and Inflow.
3. Tap into the 20% EPA set aside capacity.
4. Combination of Items above.

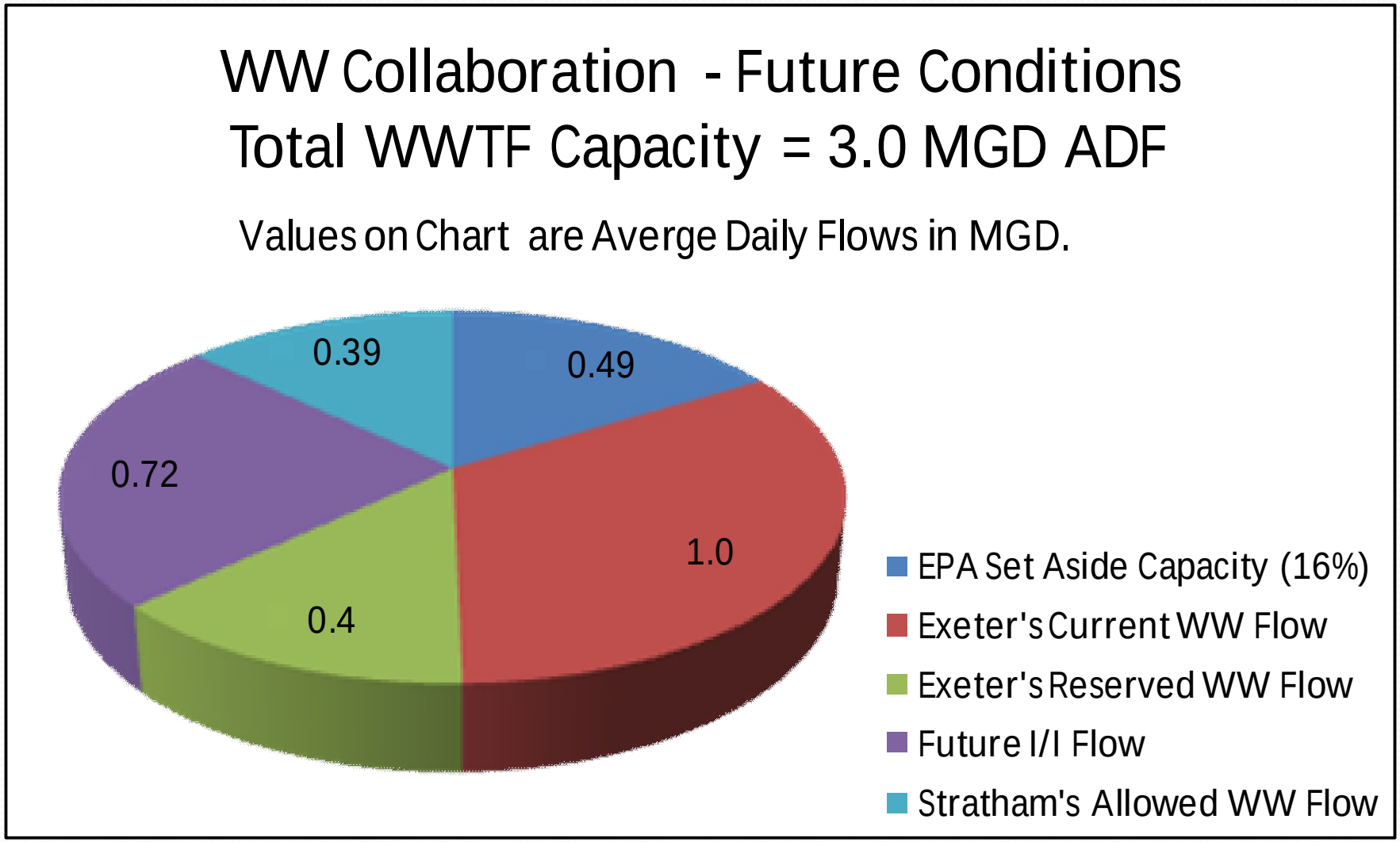
Proposed Collaborative Approach

- Initial Plant Capacity Activities:
  - Allow Stratham to discharge up to 250,000 GPD of wastewater (average daily flow).
  - Decrease the "EPA's 20% Set Aside" by same amount to accommodate increased flow.
- Future Plant Capacity Activities (assume at Year 10):
  - Reduce I/I in Exeter by 280,000 GPD (average daily basis).
  - Increase Stratham's allowable flow to 390,000 GPD of wastewater (average daily flow).

Collaborative Approach - Initial



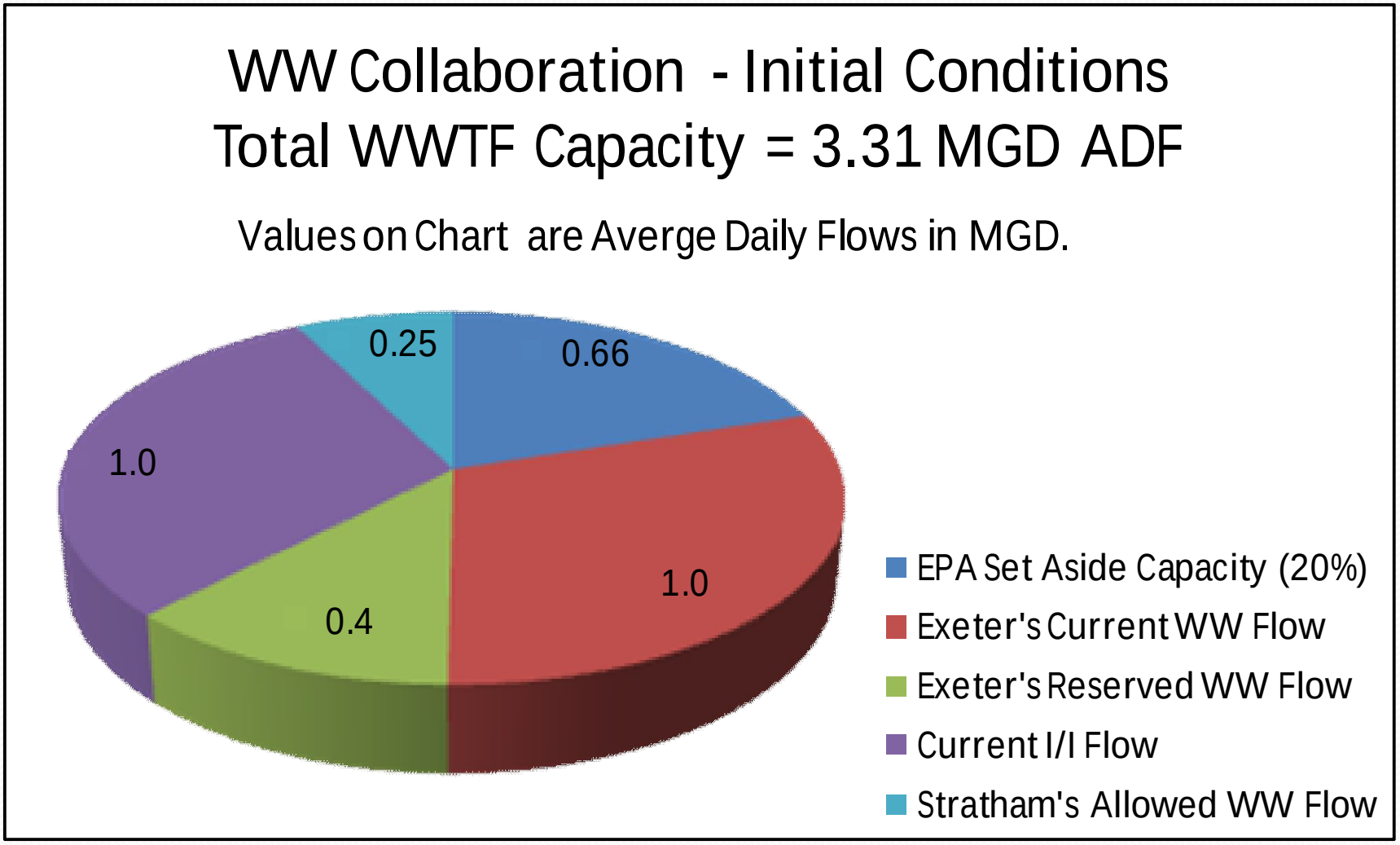
Collaborative Approach - Future



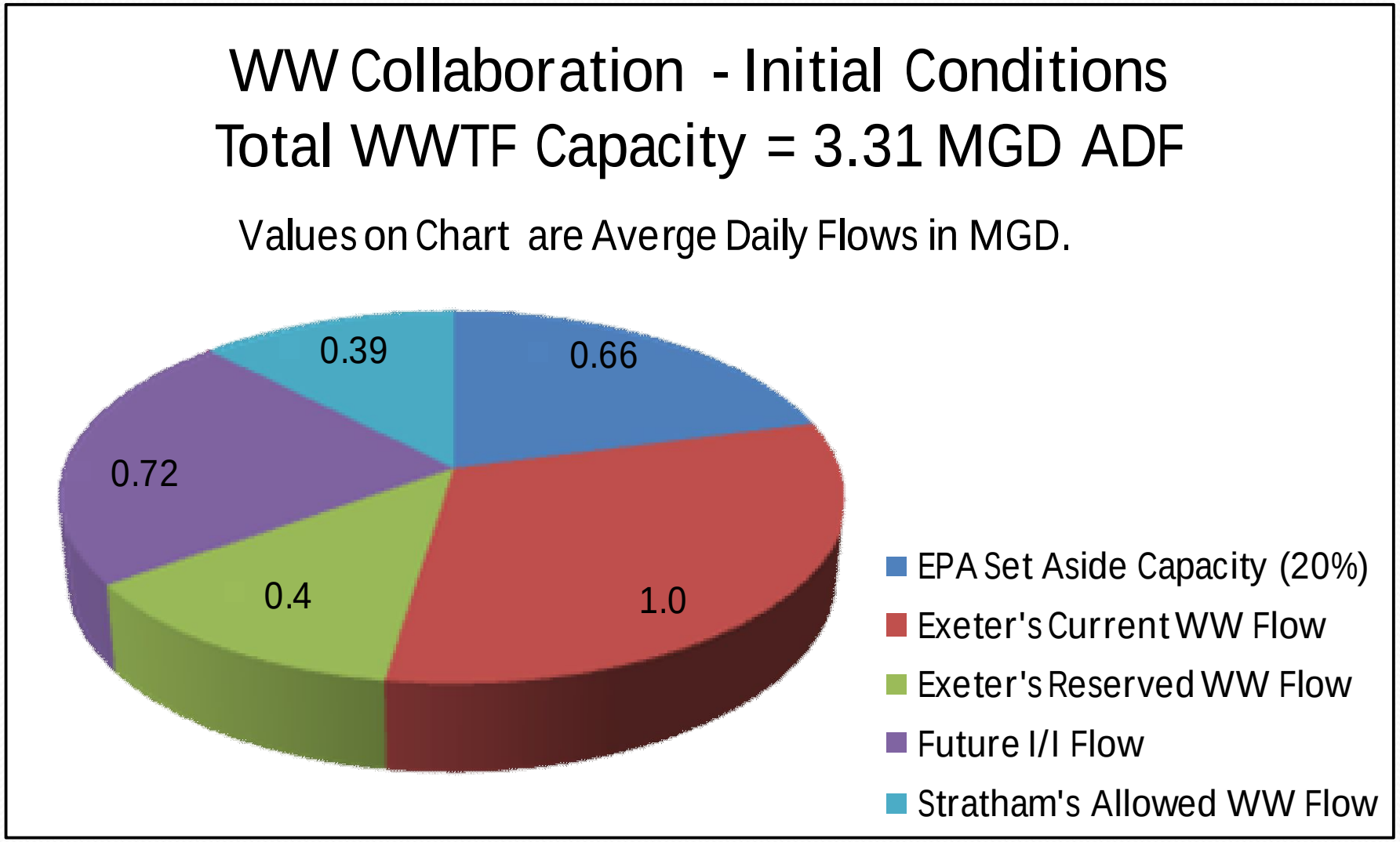
Exeter WWTF Capacity - Future

	ADF (MGD)	Peak Flow (MGD)	Comments
Plant Capacity	3.00	8.6	
EPA Set Aside Capacity (12%)	0.49	N/A	
Exeter's Current WW Flow	1.0	1.8	Peaking Factor = 1.8
Exeter's Reserved WW Flow	0.4	1.4	Peaking Factor = 3.5
Future Reduced I/I Flow	0.72	3.9	Reduce I/I 280,000 GPD
Stratham's Allowed WW Flow	0.39	1.7	Peaking Factor = 4.4

Collaborative Approach - Initial With Plant Expansion



Collaborative Approach – Future With Plant Expansion



Cost Analysis For Potable Water Cooperation – Stratham Works Independently

Summary of Work for Potable Water System in Stratham:

- Construct a potable water distribution system from Route 101 north to Bunker Hill Avenue.
- Build 1,000,000 gallon Storage Tank at 28 Bunker Hill Avenue.
- Construct a well with capacity of at least 350,000 GPD.
- Construct a water treatment plant to treat well water, pending water quality.
- In the future, expand distribution system to Town Center and add additional potable water supply (such as an additional well).

	Assumed Infrastructure Improvements	Comments or Assumptions	Capital Costs	Annual Operating Costs
Interconnection With Exeter	None	N/A	$0.0	$0.0
Potable Water Supply	Construct a well with required capacity. Likely sites include the Scamman and Goodrich sites.[2] Construct a water treatment plant to treat well water, pending water quality.	Operating Costs assumes 350,000 GPD at $2.0 / 1,000 gallons.	$4,230,000[1,13]	$256,000
Potable Water Distribution	Construct a 16" water main from Route 101 to Bunker Hill Avenue. Include a 16" extension to new water storage tank and to new well and treatment plant.	Operating Costs assumes 350,000 GPD at $1.40 / 1,000 gallons.	$3,840,000[1,13]	$179,000
Potable Water Storage	Construct a 1,000,000 gallon Storage Tank at 28 Bunker Hill.	1,000,000 gallons	$1,640,000[2,13]	$12,000
Summation of Costs			$9,710,000	$447,000
Net Present Value (Operating costs converted to present value assuming 20 years of costs at 4% rate)				$15,780,000

Cost Analysis For Potable Water Cooperation – Exeter Works Independently

Summary of Work for Potable Water System in Exeter:

- Water Supply Upgrades:
- Water Distribution Upgrades

	Assumed Infrastructure Improvements	Comments or Assumptions	Capital Costs	Annual Operating Costs
Interconnection With Stratham	None	N/A	$0.0	$0.0
Potable Water Supply Operating Costs	Operating costs associated with Surface Water Treatment Plant	Operating Costs assumes 550,000 GPD at $1.85/1000 gal[14]	N/A	$371,000
Potable Water Supply Upgrades - Project 1	Repairs and optimization of existing WTP and associated infrastructure.	Exeter CIP includes a line item for ongoing maintenance[15]	$492,000	$75,000
Potable Water Supply Upgrades - Project 2	Construct Groundwater WTP to diversify water supply	Operating Costs assumes 550,000 GPD at $1.25/1000 gal	$6,350,000	$251,000
Potable Water Distribution Operating Costs	Current, ongoing operating costs associated with Potable Water Distribution System.	Operating Costs assumes 1,100,000 GPD at $1.255/1000 gal[14]	N/A	$504,000
Water Distribution Upgrades – Project 1	Replacement water meters for improved billing and reduced unaccounted for water.	Included in approved warrant article.[17]	$750,000	N/A
Water Distribution Upgrades – Project 2	Replacement of water pipe in Jady Hill neighborhood.	Included in approved warrant article.[17]	$1,600,000	N/A
Water Distribution Upgrades – Project 3	Future or ongoing water line rehabilitation.	Exeter CIP maintains a line item for this at $1,400,000 / 2 years [15]	N/A	$700,000
Water Storage Upgrades	None, recently completed tank provides sufficient storage for for-seeable future.	N/A	$0.0	$0.0
Summation of Costs			$9,190,000	$1,901,000
Net Present Value (Operating costs converted to present value assuming 20 years of costs at 4% rate)				$35,030,000

Cost Analysis For Potable Water Cooperation - Exeter Supplies Water to Stratham

Summary of Work for Potable Water System for Potable Water Cooperation:

- Construct a Potable Water Interconnection.
- Construct a potable water distribution system in Stratham from the Town Line north to Bunker Hill Avenue.
- Build 1,000,000 gallon Storage Tank in Stratham at 28 Bunker Hill Avenue.
- Construct a Groundwater Treatment Plant in Exeter (required to have excess capacity for supplying Stratham).
- In the future, expand distribution system to Statham Town Center.

	Assumed Infrastructure Improvements	Comments or Assumptions	Capital Costs	Annual Operating Costs
Interconnection with Exeter	Above-grade valve station with a flow meter along Route 108 at the Town line as well as piping below Route 101 in Pipe Sleeve	Assume $1,000 / month for operation, maintenance, heat, etc.	$590,000	$12,000
Water Supply Operating Costs in Exeter	Operating costs associated with Surface Water Treatment Plant in Exeter	Operating Costs assumes 700,000 GPD at $1.85/1000 gal[14]	N/A	$473,000
Water Supply Upgrades in Exeter	Repairs and optimization of existing WTP and associated infrastructure.	Includes indentified projects and costs for ongoing maintenance in CIP[14,15]	$492,000	$75,000
Potable Water Supply	Construct Groundwater WTP in Exeter as recently approved in Town Elections.	Operating Costs assumes 750,000 GPD at $1.25/1000 gal	$6,350,000	$342,000
Water Distribution Operating Costs in Exeter	Current, ongoing operating costs associated with Potable Water Distribution System in Exeter	Operating Costs assumes 1,100,000 GPD at $1.255/1000 gal[14]	N/A	$504,000
Water Distribution in Stratham	Construct a 16" water main from Route 101 to Bunker Hill Avenue. Include a 16" extension to new water storage tank.	Operating Costs assumes 350,000 GPD at $1.40 / 1,000 gallons.	$3,840,000[1,13]	$179,000
Water Distribution Upgrades in Exeter	Replacement water meters for improved billing and reduced unaccounted for water; Replacement of water pipe in Jady Hill neighborhood; Future ongoing water line rehabilitation.	Included in warrant article.[17] Exeter CIP maintains a line item for water line rehab at $1,400,000 / 2 years [15]	$750,000 $1,600,000	$700,000
Potable Water Storage in Stratham	Construct a 1,000,000 gallon Storage Tank at 28 Bunker Hill.		$1,640,000[2,13]	$12,000
Summation of Costs			$15,260,000	$2,297,000
Net Present Value				$46,480,000

Comparison of Potable Water Options

Delivery Method	Capital Costs	Annual Operating Costs	Net Present Value
Stratham Working Independently	$9,710,000	$447,000	$15,780,000
Exeter Working Independently	$9,190,000	$1,901,000	$35,030,000
Combined for Both Towns Working Independently	$18,900,000	$2,348,000	$50,810,000
Collaborative Approach	$15,260,000	$2,297,000	$46,480,000
Savings with Collaborative Approach	$3,640,000	$51,000	$4,330,000
Savings with Collaborative Approach	19.3%	2.2%	8.5%

Cost Analysis For Wastewater Cooperation – Stratham Works Independently

Summary of Work for Wastewater Management System in Stratham:

- Construct a sanitary sewer collection system from Bunker Hill Avenue south to Route 101.
- Construct a pump station and force main pumping to Stratham's new Wastewater Treatment Facility.
- Construct a wastewater treatment facility and groundwater disposal field with capacity of at least 250,000 GPD.
- Construct an additional groundwater disposal field and expand plant as necessary to a total capacity of 390,000 GPD in Year 10.
- In the future, expand collection system to Town Center, construct an additional pump station, and further increase capacity of the WWTF.

	Assumed Infrastructure Improvements	Comments or Assumptions	Capital Costs	Annual Operating Costs
Interconnection With Exeter	None	N/A	$0.0	$0.0
Collection System Upgrades	Install collection system from Route 101 to Bunker Hill Avenue.	Operating Costs assumes 250,000 GPD at $0.75 / 1,000 gallons.	$1,740,000[7,13]	$68,000
Collection System Upgrades	Construct a pump station pumping and force main to the new Stratham WWTF.	Pump station operating costs includes pumping costs and $1,000 / month for O&M.	$2,050,000[7,13]	$17,000
Wastewater Treatment Upgrades	Construct a Wastewater Treatment Facility at the Site of the Industrial Park as well as groundwater discharge with average day capacity of at least 250,000 GPD.		$10,190,000[7,13]	$504,000[7,13]
Wastewater Treatment Upgrades Future Phases	Expand Wastewater Treatment Facility and construct an additional groundwater disposal fee for a total average day capacity of 390,000 GPD.	Assumed $2,500,000 cost in year 2022, which was brought back to 2012 dollars.	$1,689,000	Not included
Summation of Costs			$15,760,000	$589,000
Net Present Value (Operating costs converted to present value assuming 20 years of costs at 4% rate)				$23,670,000

Cost Analysis For Wastewater Cooperation – Exeter Works Independently

Summary of Work for Wastewater System in Exeter:

- Collection System Upgrades
- Wastewater Treatment Facility Upgrades

	Assumed Infrastructure Improvements	Comments or Assumptions	Capital Costs	Annual Operating Costs
Interconnection With Stratham	None	N/A	$0.0	$0.0
Wastewater Collection System Operating Costs	Current, ongoing operating costs associated with Wastewater Collection System.	Operating Costs assumes 2,100,000 GPD at $0.685/ 1000 gal[14]	N/A	$525,000
Collection Systems Costs	Other Budgeted Collection System and Pump Station Improvements	Based on Items in Exeter's Collection System Budget[14]	$95,000	N/A
Collection System Upgrades – Project 1	Replacement of pipe and I/I reduction in Jady Hill neighborhood (ongoing).	Included in approved warrant article.[17]	$3,900,000	N/A
Collection System Upgrades – Project 2	Water Street Interceptor Project to help remedy CSO issues (ongoing).	Unknown at this time. No money carried for this item.	$700,000	N/A
Collection System Upgrades – Project 3	Ongoing sewer line rehabilitation and I/I removal.	Exeter CIP maintains a line item for sewer line rehab at $850,000 / 2 years [15]	N/A	$425,000
Collection System Upgrades – Project 4	Future collection system improvements to meet the Long Term Control Plan and remedy CSO issues.	Unknown at this time. No money carried for this item.	N/A	N/A
Short-Term Wastewater Treatment Upgrades	Facility Plan for Upgraded WWTF Short Term WWTF Upgrades[15]	Based on Items in Exeter's WWTF Budget[14]	$375,000 $55,000	N/A N/A
Wastewater Treatment Upgrade	New 3.0 MGD WWTF to meet 8 mg/L nitrogen permit limit.	Construction and Operating Costs for 8 mg/L TN permit[16]	$37,580,000	$1,015,000
Wastewater Treatment Upgrade	New 3.0 MGD WWTF to meet 3 mg/L nitrogen permit limit.	Construction and Operating Costs for 3 mg/L TN permit[16]	$54,070,000	$2,187,000
Summation of Costs to Meet 8 mg/L Total Nitrogen Permit Limit			$42,710,000	$1,965,000
Net Present Value				$69,410,000
Summation of Costs to Meet 3 mg/L Total Nitrogen Permit Limit			$59,200,000	$3,137,000
Net Present Value				$101,830,000

Cost Analysis For Wastewater Cooperation – Stratham and Exeter Collaborate

Summary of Work for Wastewater Systems for Wastewater Cooperation:

- Construct a sanitary sewer collection system in Stratham from Bunker Hill Avenue south to Route 101.
- Construct a pump station and force main in Stratham pumping to Exeter's new Wastewater Treatment Facility.
- Upgrade Exeter's wastewater treatment facility to meet the final total nitrogen permit limit. Stratham's initial flow of 250,000 gpd will tap into EPA's 20%.
- Reduce infiltration and inflow in Exeter to create an additional 140,000 GPD WWTF capacity to accommodate growth in Stratham (at year 10).
- In the future, expand collection system to Stratham Town Center, construct an additional pump station, and develop method to treat the additional flow.

	Assumed Infrastructure Improvements	Comments or Assumptions	Capital Costs	Annual Operating Costs
Interconnection With Exeter	Construct a dedicated pump station with flow meter and a forcemain to Exeter WWTF.[7]	Pump station operating costs includes pumping costs and $1,500 / month for O&M.	$3,730,000	$22,000
Wastewater Collection System Operating Costs	Current, ongoing operating costs associated with Wastewater Collection System.	Operating Costs assumes 2,100,000 GPD at $0.685/ 1000 gal[14]	N/A	$525,000
Collection System Upgrades in Exeter	Other Budgeted Collection System and Pump Station Improvements Replacement of pipe and I/I reduction in Jady Hill neighborhood; Water Street Interceptor to remedy CSO issues; Ongoing sewer line rehabilitation and I/I removal.	Based on Items in Exeter's Collection System Budget[14] and warrant articles.[17] Exeter CIP maintains a line item for sewer line rehab at $850,000 / 2 years [15]	$95,000 $3,900,000 $700,000 N/A	N/A N/A N/A $425,000
Collection System Upgrades in Stratham	Install collection system from Route 101 to Bunker Hill Avenue.	Operating Costs assumes 350,000 GPD at $0.75 / 1,000 gallons.	$1,740,000[7,13]	$96,000
Short-Term Wastewater Treatment Upgrades	Facility Plan for Upgraded WWTF Short Term WWTF Upgrades[15]	Based on Items in Exeter's WWTF Budget[14]	$375,000 $55,000	N/A N/A
Wastewater Treatment Expansion & Upgrade	Upgrade WWTF to meet 8 mg/L nitrogen permit limit. Initial 250,000 GPD Capacity for Stratham from EPA 20%.	Construction and Operating Costs for 8 mg/L TN permit[16]	$37,580,000	$1,015,000
Wastewater Treatment Expansion & Upgrade	Upgrade WWTF to meet 3 mg/L nitrogen permit limit. Initial 250,000 GPD Capacity for Stratham from EPA 20%.	Construction and Operating Costs for 3 mg/L TN permit[16]	$54,070,000	$2,187,000
Reduce I/I in Exeter to Allow for Extra Capacity	Reduce Infiltration and Inflow from Exeter to create an additional 140,000 GPD WWTF treatment capacity.	Remove approximately 280,000 GPD system-wide infiltration.[18] Costs shown in 2012 dollars.	$5,180,000	N/A
Summation of Costs to Meet 8 mg/L Total Nitrogen Permit Limit			$53,360,000	$2,083,000
Net Present Value				$81,670,000
Summation of Costs to Meet 3 mg/L Total Nitrogen Permit Limit			$69,850,000	$3,255,000
Net Present Value				$114,090,000

Comparison of Wastewater Options

Wastewater Collaboration Assuming Total Nitrogen Permit Limit of 8 mg/L

Delivery Method	Capital Costs	Annual Operating Costs	Net Present Value
Stratham Working Independently	$15,670,000	$589,000	$23,670,000
Exeter Working Independently	$42,710,000	$1,965,000	$69,410,000
Combined for Both Towns Working Independently	$58,380,000	$2,554,000	$93,080,000
Collaborative Approach	$53,360,000	$2,083,000	$81,670,000
Savings with Collaborative Approach	$5,020,000	$471,000	$11,410,000
Savings with Collaborative Approach	8.6%	18.4%	12.3%

Wastewater Collaboration Assuming Total Nitrogen Permit Limit of 3 mg/L

Delivery Method	Capital Costs	Annual Operating Costs	Net Present Value
Stratham Working Independently	$15,670,000	$589,000	$23,670,000
Exeter Working Independently	$59,200,000	$3,137,000	$101,830,000
Combined for Both Towns Working Independently	$74,870,000	$3,726,000	$125,500,000
Collaborative Approach	$69,850,000	$3,255,000	$114,090,000
Savings with Collaborative Approach	$5,020,000	$471,000	$11,410,000
Savings with Collaborative Approach	6.7%	12.6%	9.1%

References

[1] As provided in the Town of Stratham Fire Suppression and Potable Water Study Report by Wright Pierce, dated May 2010.

[2] As provided in the Stratham Water System Investigations Memorandum by Wright Pierce, dated March 15, 2011.

[3] Flow projections at Build Out are very aggressive and assume 100% buildout. Per recommendations in the Wright Pierce Report and based on data in Stratham's Wastewater System Concept Plan Report, the ultimate potable water at buildout was limited at 600,000 GPD for this study.

[4] Exeter Water System Evaluation Study by CDM Smith, dated January 2002.

[5] Discussions with representatives from Town of Exeter

[6] Exeter Water Supply Alternatives Study by Weston and Sampson, dated January 2010.

[7] As provided in the Town of Stratham Wastewater Management Concept Plan Report by Wright Pierce, dated March 2011.

[8] Sum of potable water use + Industrial Zone Sanitary Projection + I/I (An I/I allowance of 10% over potable water flow was assumed).

[9] TR-16 – Guide for the Design of Wastewater Treatment Works, NEIWPCC, 1998 Edition.

[10] WWTF Capital Improvement Program Report by Underwood Engineers, February 2002

[11] 2010 and 2011 WWTF Operating Data

[12] Exeter Phase 1 Infiltration / Inflow Stud by CDM Smith, dated October 1997.

[13] Costs updated to April 2012 costs with Engineering News Records Construction Cost Index. All costs presented at an ENR Index of 9273.

[14] Town of Exeter FY 2012 Water and Wastewater Budget

[15] Town of Exeter Capital Improvement Plan 2012 - 2017

[16] Analysis of Nitrogen Loading Reductions for Wastewater Treatment Facilities and Non-Point Sources in the Great Bay Estuary Watershed, Appendix E, NH Department of Environmental Services, 2010

[17] Town of Exeter Warrants, 2010 and 2012.

[18] Jady Hill Utility Replacement Presentation on Private I/I Removal Costs, dated January 23, 2012.

ROCKINGHAM PLANNING COMMISSION

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Exeter-Stratham Intermunicipal Water and Wastewater Study
Financial Collaboration Workshop
May 17, 2012
4:00 pm
Stratham Municipal Complex
Bunker Hill Avenue
Stratham, NH

1. Summary of Prior Workshops
    a. Technical Workshop
    b. Infrastructure Cost Workshop
        i. Updated Cost Analysis

2. Evaluation of Non-Cost/Qualitative Factors
    a. Identify Desired Outcomes of Collaborative Approach
    b. Identify Potential Concerns of Collaborative Approach
    c. Identify Other Factors
        i. Technical
        ii. Regulatory
        iii. Economic
        iv. Environmental
        v. Political
    d. Identify Emergent Themes

3. Review Ownership Alternatives
    a. Stratham purchases water/wastewater services from Exeter on a "retail" basis
    b. Stratham invests in water/wastewater systems operated by Exeter in exchange for lower purchase rates and guaranteed access
    c. Stratham pays capital buy-in based on reserved capacity; Stratham pays O&M costs based on volumetric flow rates
    d. Develop jointly-owned water/wastewater district

4. Develop Key Assumptions for Economic Model

5. Next Steps
    a. Develop Economic Model
    b. Schedule Next Meeting to Review Economic Model Results

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MEETING MINUTES

DATE OF MEETING:	May 17, 2012
ATTENDEES:	See Attached Sign-in Sheet
RECORDED BY:	Kleinfelder / SEA
CC:	Attendees; file
SUBJECT:	Rockingham Planning Commission Exeter / Stratham Inter-Municipal Water and Wastewater Study Financial Collaboration Workshop
S E A No.:	2012063.01-A

The Financial Collaboration Workshop was held at 4:00 p.m. on May 17, 2012 at the Stratham Municipal Complex. The workshop was attended by representatives from Exeter, Stratham and the Rockingham Planning Commission to: review the results of the Technical Alternatives Workshop and Infrastructure Cost Workshop; evaluate non-cost and qualitative factors associated with a collaborative approach to water and wastewater service in the two towns; review, discuss and rank the various ownership alternatives; and develop key assumptions for the economic model (see attached Financial Collaboration Workshop Agenda and Handouts). Key items of discussion from the workshop are summarized below:

1. Summary of Prior Workshops:

- Kleinfelder provided a brief summary of the two first workshops (Technical Workshop and Infrastructure Cost Workshop). Consensus regarding the technical alternatives to achieve collaboration presented in the Technical Workshop and the capital and O&M costs for each of those improvements presented in the Infrastructure Cost Workshop was reiterated by attendees.
- During the Infrastructure Cost Workshop, several attendees suggested that the manner in which the capital and O&M costs for the technical alternatives were presented did not clearly demonstrate the cost savings associated with a collaborative approach. During the current workshop, Kleinfelder presented alternative tables (attached) showing water and wastewater capital and O&M cost comparisons for both towns assuming either an independent approach or a collaborative approach. Kleinfelder noted that the capital and O&M cost comparisons shown in the tables are intended for preliminary informational

purposes only. Attendees commented that the costs to date do not present the revenue side of the analysis. A more thorough assessment of cost impacts to each community – in terms of $/gallon – will be presented at a later date once the economic model has been developed for the most viable ownership alternatives.

2. Evaluation of Non-Cost/Qualitative Factors:

- Kleinfelder facilitated a brain-storming session designed to solicit feedback from workshop participants concerning other non-cost and qualitative factors that have a bearing on the feasibility of adopting a collaborative approach to water and wastewater service in both towns. The purpose of the brain-storming session, which was based on employing scenario planning techniques, was to identify broader emergent themes and principles that could then be used to aid in prioritizing or ranking the list of ownership alternatives. Participants were asked to identify desired outcomes of a collaborative approach and were also asked to identify potential concerns associated with a collaborative approach. Responses to those questions were recorded and are noted below:
- When requested to identify desired outcomes of the collaborative approach, the following responses were noted:
  - *Least long-term costs for both towns*
  - *Provide an adequate and reliable water supply long-term*
  - *Reduce capital and O&M costs long-term for both towns*
  - *Maintain transparency and accountability throughout the process*
  - *Achieve a measurable economy-of-scale benefit to rate payers through a collaborative approach*
  - *Reduce rates*
  - *Minimize risk by avoiding an inter-municipal agreement that is over-reaching in terms of initial scope (i.e. don't assume 'build it and they will come')*
  - *Provide incremental approach to collaboration*
  - *Broad community buy-in*
  - *Opportunity for water quality benefit by minimizing septic systems*
  - *Potential diversification of overall rate base*

- *Become a model for other communities interested in regionalization*

- When requested to identify potential concerns with the collaborative approach, the following responses were noted:
  - *Uncertainty of future conditions (e.g. costs, regulations, etc.)*
  - *Sensitivity of assumptions used in the study*
  - *Disproportionate development opportunities (collaboration resulting in one town achieving a benefit over another town)*
  - *Impact that management of one utility might have on the other utility/lack of control/governance issues*
  - *Ramifications of management inequities between two different utilities*
  - *Loss of Local Control*
  - E*quitable allocation of cost of service*
  - *Overly complex inter-municipal agreement (keep it simple)*
  - *Equitable apportionment of total capital cost savings amongst the two towns*

- The following summarizes the emergent themes resulting from the brain-storming session:
  - Collaborative approach should result in reducing/minimizing total overall infrastructure costs for both towns, lessen the burden on rate payers for both towns, and allocate cost savings in a manner that is equitable.
  - Collaborative approach should be structured in a way that allows for incremental implementation according to actual need – avoid an over-reaching agreement that unnecessarily exposes one or both towns to risk.
  - Maintain transparency during the planning and implementation stages in order to keep stakeholders and the public properly informed and to gauge acceptance.
  - Collaborative approach should be structured in a way that balances preserving local control while also minimizing disparate utility management practices among partnering towns that could lead to cost inefficiencies.

3. Review Ownership Alternatives

- The following four (4) ownership alternatives were reviewed and discussed in the context of non-cost and qualitative factors discussed in the first portion of the workshop:
  a) Stratham purchases water/wastewater services from Exeter on a 'retail' basis
  b) Stratham invests in water/wastewater systems operated by Exeter in exchange for lower purchase rates and guaranteed access
  c) Stratham pays capital buy-in based on reserved capacity; Stratham pays O&M costs based on volumetric flow rates
  d) Develop jointly-owned water/wastewater district

- It was acknowledged by the attendees that Option A was unlikely to gain widespread support. Under this option Exeter would essentially treat Stratham like any other utility customer, with little opportunity to distinguish the impacts such service would have on infrastructure capacity and operations in Exeter, leading to potential inequities in how cost savings would be allocated between the two communities. Further, it could trigger a review or oversight by the Public Utilities Commission (PUC). As a result, this ownership alternative was given a lower-priority ranking by the group.
- Discussion ensued regarding the differences between Options B and C. It was recognized that both options involve Stratham paying Exeter a capital payment(s) in some form in order to reserve/enhance infrastructure capacity and then paying on a volumetric basis for operating costs. Kleinfelder shall develop an economic model for such a framework that allocates capital costs to the two towns based on capacity and allocates operating costs based on flow.
- The advantage of Option D is that it would provide for centralized management of a regional water and/or wastewater utility. The disadvantage is the potential sensitivity to relinquishing local control. However, due to the success of other collaborative endeavors between the two towns (e.g. school district), it was agreed that this option holds merit. Further, it could allow for further spread of this cooperative approach to additional towns, such as to Newfields. Therefore, it was agreed that Kleinfelder shall develop an economic model for this option as well.

4. Develop Key Assumptions for Economic Model(s)

- It was noted that Exeter's water and wastewater policies require consideration of 'tax revenue sharing' when establishing a new inter-municipal water and/or wastewater connection. Workshop attendees acknowledged that the particulars of collaboration in this case did not lend itself to such an approach and it was agreed that the economic model(s) developed for this study will not address tax revenue sharing.
- Key assumptions for the economic model were discussed. The model for Option B/C shall allocate capital costs based on capacity and operating costs on a volumetric or flow basis. Allocating capital costs shall also consider alternatives to equitably allocate overall capital cost savings, either through economies-of-scale that may be realized through the construction of larger infrastructure necessary to accommodate both towns, or through other payment means that will create the necessary inducement for both towns to realize the economic benefits of collaboration.
- For Option B/C, it was suggested that Stratham could initially make payments for wastewater capacity to Exeter based on the depreciated value of the existing plant. In the future, those accumulated payments could then be applied toward future capital outlays, including a wastewater treatment plant upgrade. The basis and amount of any payments from Stratham to Exeter for capacity could be revisited and modified as future capital outlays are actually made.

Next Meeting:

The next meeting will be held on June 21, 2012 at 4:00 p.m. at the Stratham Municipal Complex. The purpose of the meeting will be to review the results of the economic model. Kleinfelder shall distribute a draft of the economic model findings approximately one week prior to the meeting.

Attachments:

List of Attendees
Meeting Agenda
Revised Costs Analysis Handouts distributed at Meeting

Sign in Sheet

Exeter / Stratham Intermunicipal Water / Wastewater
Financial Collaboration Workshop
May 17, 2012

Name	Affiliation
David Michelsen	Kleinfelder / SEA
Mark Thompson	Kleinfelder / SEA
Rob McCoy	Kleinfelder / SEA
Don Clement	Exeter
Theresa Walker	RPC
Russell Dean	Exeter
Jennifer Perry	Exeter
David Canada	Stratham
Paul Deschaine	Stratham
John Boisvert	Stratham
Lincoln Daley	Stratham

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Exeter-Stratham Intermunicipal Water and Wastewater Study
Financial Collaboration Workshop
May 17, 2012
4:00 pm
Stratham Municipal Complex
Bunker Hill Avenue
Stratham, NH

1. Summary of Prior Workshops
    a. Technical Workshop
    b. Infrastructure Cost Workshop
        i. Updated Cost Analysis

2. Evaluation of Non-Cost/Qualitative Factors
    a. Identify Desired Outcomes of Collaborative Approach
    b. Identify Potential Concerns of Collaborative Approach
    c. Identify Other Factors
        i. Technical
        ii. Regulatory
        iii. Economic
        iv. Environmental
        v. Political
    d. Identify Emergent Themes

3. Review Ownership Alternatives
    a. Stratham purchases water/wastewater services from Exeter on a "retail" basis
    b. Stratham invests in water/wastewater systems operated by Exeter in exchange for lower purchase rates and guaranteed access
    c. Stratham pays capital buy-in based on reserved capacity; Stratham pays O&M costs based on volumetric flow rates
    d. Develop jointly-owned water/wastewater district

4. Develop Key Assumptions for Economic Model

5. Next Steps
    a. Develop Economic Model
    b. Schedule Next Meeting to Review Economic Model Results

Exeter / Stratham Collaboration Feasibility Assessment
Opinions of Probable Costs
Comparison of Treatment and Interconnection Costs for Collaboration

Comparison of Treatment + Interconnection Costs for Towns - Water

	Independent Approach	Collaborative Approach
Town of Exeter Capital Costs for Water Plants Only	$6,842,000	$6,842,000
Town of Exeter Maintenance Costs for Surface Water Treatment Plant	$75,000	$75,000
Town of Exeter Operating Costs for Water Plants Only	$622,000	$815,000
Town of Stratham Capital Costs for Water Supply Only	$4,230,000	N/A
Town of Stratham Operating Costs for Water Supply Only	$256,000	N/A
Water Interconnection Capital Costs	N/A	$590,000
Water Interconnection Operating Costs	N/A	$12,000
Total Combined Capital Costs	$11,072,000	$7,432,000
Capital Cost Savings		$3,640,000
Capital Cost Savings (percent)		32.9%
Total Combined Operating and Maintenance Costs	$953,000	$902,000
Operating Cost Savings		$51,000
Operating Cost Savings (percent)		5.4%

Exeter / Stratham Collaboration Feasibility Assessment
Opinions of Probable Costs
Comparison of Treatment and Interconnection Costs for Collaboration

Comparison of Treatment + Interconnection Costs for Towns - Wastewater
(Future I/I reduction costs not included in analysis)

8 mg/l Total Nitrogen Permit for Exeter WWTF

	Independent Approach	Collaborative Approach
Town of Exeter Capital Costs for Wastewater Plant Only	$37,580,000	$37,580,000
Town of Exeter Operating Costs for Wastewater Plant Only	$710,000	$830,000
Town of Stratham Capital Costs for Wastewater Plant	$11,880,000	N/A
Town of Stratham Operating Costs for Wastewater Plant + Pump Station	$504,000	N/A
Stratham Pump Station Capital Costs (Interconnection or to WWTF)	$2,970,000	$3,730,000
Stratham Pump Station Operating Costs (Interconnection or to WWTF)	$17,000	$22,000
Total Combined Capital Costs	$52,430,000	$41,310,000
Capital Cost Savings		$11,120,000
Capital Cost Savings (percent)		21.2%
Total Combined Operating Costs	$1,231,000	$852,000
Operating Cost Savings		$379,000
Operating Cost Savings (percent)		30.8%

3 mg/l Total Nitrogen Permit for Exeter WWTF

	Independent Approach	Collaborative Approach
Town of Exeter Capital Costs for Wastewater Plant Only	$54,070,000	$54,070,000
Town of Exeter Operating Costs for Wastewater Plant Only	$1,530,000	$1,790,000
Town of Stratham Capital Costs for Wastewater Plant	$11,880,000	N/A
Town of Stratham Operating Costs for Wastewater Plant + Pump Station	$504,000	N/A
Stratham Pump Station Capital Costs (Interconnection or to WWTF)	$2,970,000	$3,730,000
Stratham Pump Station Operating Costs (Interconnection or to WWTF)	$17,000	$22,000
Total Combined Capital Costs	$68,920,000	$57,800,000
Capital Cost Savings		$11,120,000
Capital Cost Savings (percent)		16.1%
Total Combined Operating Costs	$2,051,000	$1,812,000
Operating Cost Savings		$239,000
Operating Cost Savings (percent)		11.7%