TOWN OF ROUND HILL

WATER AND SEWER
RATE STUDY

**Report of the
Round Hill Utility Committee**

ADOPTED VERSION

March 19, 2015

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1. Historical Background and Executive Summary

The current rate structure for the Town of Round Hill was set from the June 8, 2007 Water and Sewer Rate Study prepared by the Utility Committee of the Town. That 2007 study recommended a moderate (6.9%) water rate increase, a large (40.3%) sewer rate increase, and annual increases thereafter of 3% on both. It further recommended an additional $4.5M in bond financing to complete several capital projects, as the system faced a capital program of $7.6M with only $2.6M of bond money in hand.

In 2007, the financial position of the utility system was very weak. Inadequate user fees (set in a 2004 rate study) and rapidly escalating labor and energy costs had drained all reserves, and the system faced a regulatory deadline to perform costly Biological Nutrient Reduction (BNR) upgrades on the Wastewater Treatment Plant (WWTP). And while there was some evidence of slowing growth in 2007, the housing market was about to experience a historic crash. Leading up to 2007, the system was adding ~60 users per year (~7% annual growth). After the 2007 rate study, the utility system added fewer than 40 accounts total over the next five years. System growth resumed in 2013.

Despite few availability fees, the Town's financial position is much stronger today than it was back in 2007 because of a series of events and decisions listed below:
- Adopted the 2007 recommended rate increases
    - The Town began running an operating surplus instead of deficit, which provided some of the funds needed to pursue capital projects.
- Obtained permission from the VRA bonding authority to use the existing VRA Water Bond to pay for the WWTP upgrades
    - This allowed WWTP BNR upgrades and expansion to proceed without securing new debt.
- Refinanced the existing VRA bonds into a new bond issue that included several years of up-front principal "holidays"
    - This quickly rebuilt utility cash reserves by delaying bond payments
- Completed the WWTP BNR upgrades and expansion on schedule for a project cost of approximately $1.9M (vs. 2007 predicted cost of $3.2M)
    - Performing this project during a housing crash may have reduced bids.
- Cancelled plans to connect Stoneleigh wells into the Westlake Treatment plant, and to have the Town construct the Westlake Treatment plant with Round Hill Investors (RHI) cash contribution
    - This removed $1.7M in water capital projects, and left RHI with responsibility for construction of the Westlake Treatment plant.
- Delayed many capital projects, some due to Town decisions (Stoneleigh Storage, Small Reservoir, 719 Lift Station), others due to outside events (Hayman Lane)
- Held a firm line on operating expenses
    - Growth in operating expenses from 2007-2014 was ~3% per year (vs. 5% planned). Investment in SCADA equipment, low inflation and small pay increases all contributed.

The cumulative effect of all of the above decisions and events was to remove the need to secure $4.5M in new debt to finance the capital improvement plan. All of the above items played a significant role in improving the utility system finances. But none of them except the first item (user rates) was known or assumed in the previous rate study.

Thus, while a rate study provides a snapshot in time of the best rates for the system, it is deeply based on assumptions about the housing market, growth in operating expenses, inflation, the need for various capital projects, and other factors which as demonstrated cannot be predicted with accuracy. Sound annual management of the utility system is ultimately what matters.

In 2013, a draft update for this rate study was prepared but not completed. At that time the financial position of the system was much improved, but there was a large degree of uncertainty in upcoming capital projects as well as the housing market. The Town decided to postpone a full study until the completion of an in-progress engineering study on required water system projects, and to hold the FY13 rates for both FY14 and FY15 instead of the planned 3% annual increases.

After analyzing the current financial position of the system, reviewing a final draft of the 2015 Water System Planning Study prepared by the Town Engineer, generating a revised capital plan and reviewing various assumptions in the financial model, the Town of Round Hill Utility Committee is submitting this 2015 Water Rate Study. It recommends that user fees be set as shown in Table 1 until another rate study is performed, and that an update be prepared after no more than five years.

Water user rates are recommended to be held at their current levels for the next fiscal year, and sewer rates are recommended to be reduced 22.7%. Both are then recommended to increase at 3% annually thereafter. Water availability fees are recommended to increase substantially, and then both water and sewer availability fees are recommended to continue escalating at 3% per year from their current level.

Table 1. Recommended Usage and Availability Fees

In-Town Rates	Current	FY16 Proposed	% Increase	Annual Escalator	Out-of-Town Multiplier
Water Availability	$5,405	$7,500	38.8%	3%	1.5
Sewer Availability	$12,407	$11,600	-6.5%	3%	1.5
Combined Availability	$17,812	$19,100	7.2%		
Water Usage (per 1000 gal)	$7.60	$7.60	0.0%	3%	1.5
Sewer Usage (per 1000 gal)	$11.38	$8.80	-22.7%	3%	1.5
Combined Usage	$18.98	$16.40	-13.6%		

(1) Availability fees and user fees are recommended to increase 3% each year starting in FY17

These rates are based on a conservative growth model (35 new users/year). If user growth is substantially above or below this figure, or if other key assumptions are incorrect (such as the required capital program, or a change in town boundaries or service area), then it is recommended this study and the financial model be reviewed before five years.

A comparison of Round Hill's combined utility rate with other Loudoun systems for the current fiscal year (FY15), as well as the recommended FY16 rates, is shown below. The comparison is for a 140 gallon/day user, including any fixed charges, and pro-rated to a two-month period (Leesburg and Loudoun Water bill quarterly). Round Hill currently has the second lowest FY15 combined rate of the western towns (excluding Loudoun Water and Leesburg). The FY16 recommended rates are lower than the FY15 rates for all other western towns. At the bottom of the figure, the effective differential (difference between in-town and out-of-town bills) is shown for each system. For Loudoun Water, the rates charged to their users on community systems are used in place of the out-of-town rate.

Figure 1. Loudoun Utility Rates (Bi-Monthly Water & Sewer, 140 gallons/day)
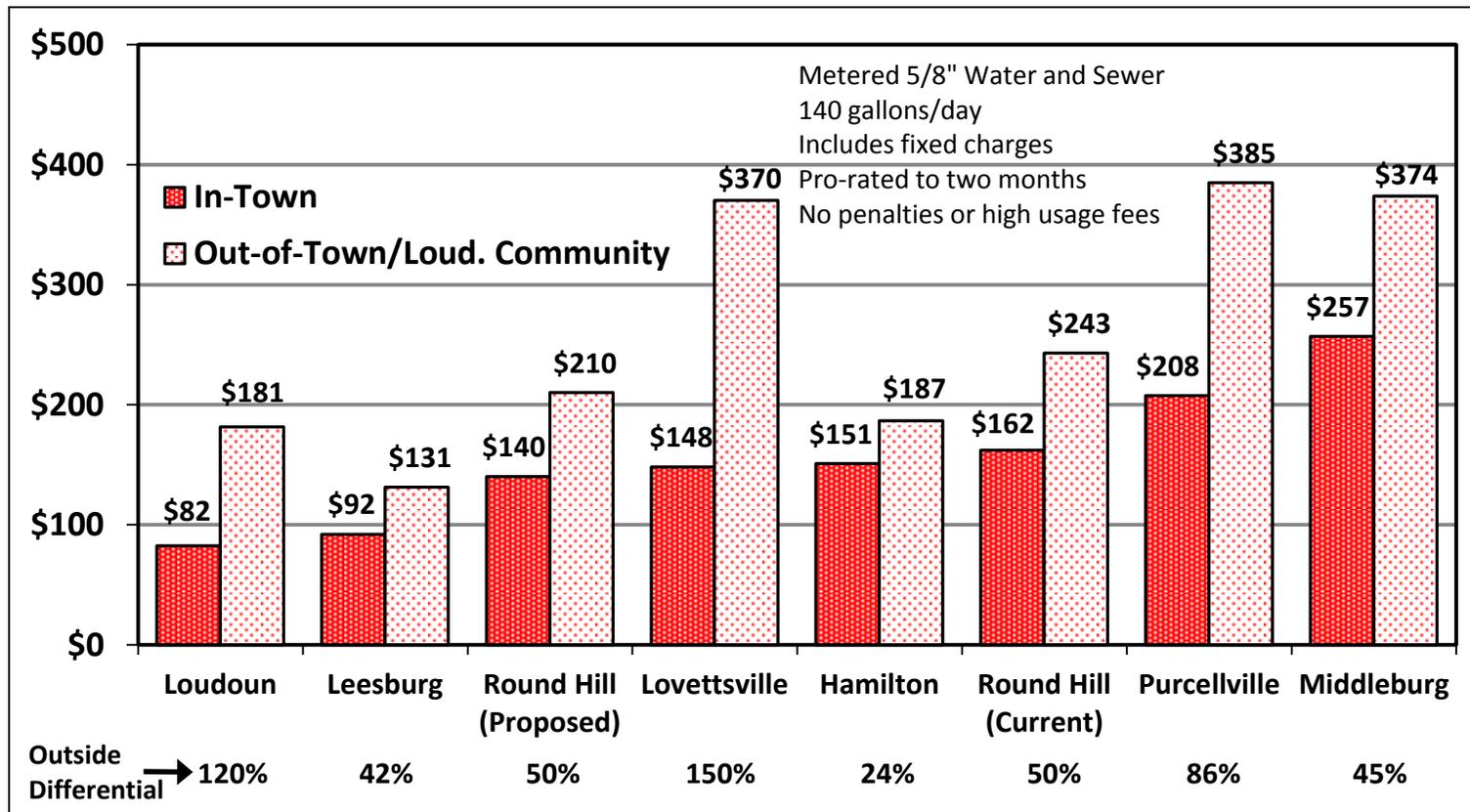
The remainder of this report is organized as follows:

Section 2 provides a general discussion of how rates and fees are computed. Several key terms are defined that will be used during this report.

Section 3 provides a review of the current and expected future system users, and introduces the two growth models used for this report (Slow and Fast).

Section 4 provides a review of the different kinds of utility revenues and how they were modeled.

Section 5 provides a review of utility expenses, including a review of the draft Utility Capital Improvements Plan and existing debt.

Section 6 provides an analysis of the cost of growth and computes availability fees under two different planning policies – one that pools all availability income together, and one that considers the share of availability income from non-consent-decree users.

Section 7 provides an analysis of the total system finances and computes user fees under an assumed availability fee.

Section 8 provides a discussion on the financial implications of the out-of-town rate multiplier. The cost per household of the multiplier is calculated.

Section 9 includes miscellaneous tables including recommended rate and fee schedules.

2. Overview of a Rate Study

2.1. Fiscal Year

The Town of Round Hill fiscal year begins on July 1 of each year. The year beginning July 1, 2015 (e.g. 2015-2016) is designated FY16. This report recommends new rates for FY16 and beyond. For the purpose of setting availability fees, projections are made for future expenses out to FY34, which is the last year of payments for current debt.

2.2. Virtual Water and Sewer Funds

Because there are some users who only receive sewer service, and some who only receive water service, the Town carries separate rates for each. This study will estimate all the expenses and revenues from sewer operations to set sewer rates, and from water operations to set water rates. While this report may sometimes refer to total utility system performance (such as during the cash flow analysis), there is a virtual water fund that is studied and a virtual sewer fund that is studied for the purposes of this report. However currently, all utility revenues and expenses are accounted in a single utility fund.

2.3. Present Worth Analysis

System revenue comes from two primary sources: bi-monthly fees based primarily on metered usage, and availability fees from new construction. The general approach for setting rates begins with determining "fair" availability fees that recover the anticipated cost of growth from new construction.

The cost of growth expenses and revenues do not balance exactly in every year, so a method of aggregating the surpluses and deficits across the years is necessary

The present worth of a dollar amount in a future year can be computed (i.e. represented in current dollars) by applying a present worth factor. A factor of 3% was used for this analysis. So $1M in 20 years is worth $554K in today's dollars ($554K x $(1.03)^{20}$ = $1M).

By adding up the present worth of projected expenses in future years over the duration of a planning period, a single present worth value of expenses can be obtained in present dollars. If this amount of money were available in cash today, and could be invested at 3% annual return, then all system growth costs could be paid from this pool of cash for the duration of the planning period. Using present worth analysis allows the comparison of the impact from various expenses even though they may occur in different years.

After determining fair availability fees, the bi-monthly user fees are then set so that adequate reserve levels are maintained using an annual cash-flow analysis.

2.4. System Growth Models

An important part of any rate study is an assumption about the user population and how it might grow. New users pay availability fees and increase the pool of users paying usage fees. If a system grows quickly to its total capacity, then it will collect earlier availability fees (which may be more valuable to build projects with), and will collect usage fees on a larger population for a longer period of time. If a system grows slowly and has unused capacity, then there is inadequate revenue to operate the system (as many system costs such as debt are related to total capacity more than current usage).

Round Hill receives different revenue from different users, so its growth model has to include the different categories of users:

- <u>In-Town Users</u>: In-Town users pay the nominal rates and fees.
- <u>Out-of-Town Users</u>: Out-of-Town users who are not part of the consent decree pay 1.5x the availability fees and 1.5x the usage fees of in-town users. The 1.5 factor is known as the "multiplier". Multipliers in other systems are as high as 2x, but other localities have no multiplier. There is a longer discussion of the multiplier later in this report. These users are often just referred to as Out-of-Town (even though Consent Decree users are also out-of-town).
- <u>Consent-Decree Users</u>: Round Hill Investors (RHI) and the Town of Round Hill entered into a 2000 legal agreement (the "consent decree") that sets asides a number of connections at pre-determined availability fees. These connections have been or will be established in the following areas: Villages of Round Hill, Mountain Valley, Greenwood Commons, Lake Point East, Lake Point West, and Upper Lakes. Consent-Decree users pay the 1.5x multiplied usage fees as currently all of them are outside town limits.

The rate study makes assumptions about how many new users from each category come on to the system each year, and what the total buildout (maximum number of connections) of each category will be. The buildout is based on a lot-by-lot analysis of the Round Hill service area. For commercial and civic users, an equivalent number of residential connections is allocated and included in the analysis.

Because estimating growth is difficult, this report carries two different growth models:

- <u>Slow Growth</u>: 3/7/25 new users per year (In/Out/Consent) to a buildout that is approximately 85% in-town, 85% out-of-town, and 100% consent.
- <u>Fast Growth</u>: 5/15/50 new users per year (In/Out/Consent) to a buildout that is 90% in-town, 90% out-of-town and 100% consent.

2.5. Operating vs. Capital Expenses

Operating and Maintenance (O&M in this report) expenses are used to perform the daily functions of the system – salaries for utility system employees, supplies to treat water and wastewater, electricity to operate the facilities, replacement parts for equipment which wears out or breaks, permit fees that are paid to the state, lab equipment and testing costs to verify water quality, and many other items. Often, usage fees (i.e. the bi-monthly bill)

are associated with operating expenses. In fact, usage fees are also used to cover capital expenses, especially those that are required to improve service for current users.

Capital expenses are costs used to design and construct new or upgraded treatment facilities and lines, and to service the debt from prior facilities construction. Availability fees (i.e. an upfront fee paid when a new connection is added to the system) are often associated with capital expenses. One way to view availability fees is as a "buy-in" to the existing assets of the utility system – to pay a share of the cost of system construction. Another way to view them is as pre-payment for a share of future upgrades required by the arrival of new users. This is the approach used in this and prior Round Hill studies.

2.6. Setting Availability Fees

The standard method used to compute availability fees is to compute the cost of growth and to recover that cost through anticipated availability fees. This can be done by evaluating each capital project and debt instrument and determining what portion of that project (or that bond issue) is due to new users (growth) instead of existing users. By adding up all the projected capital costs due to growth, a total cost of growth can be calculated, and availability fees can be set to recover this cost (see Figure 2 below).
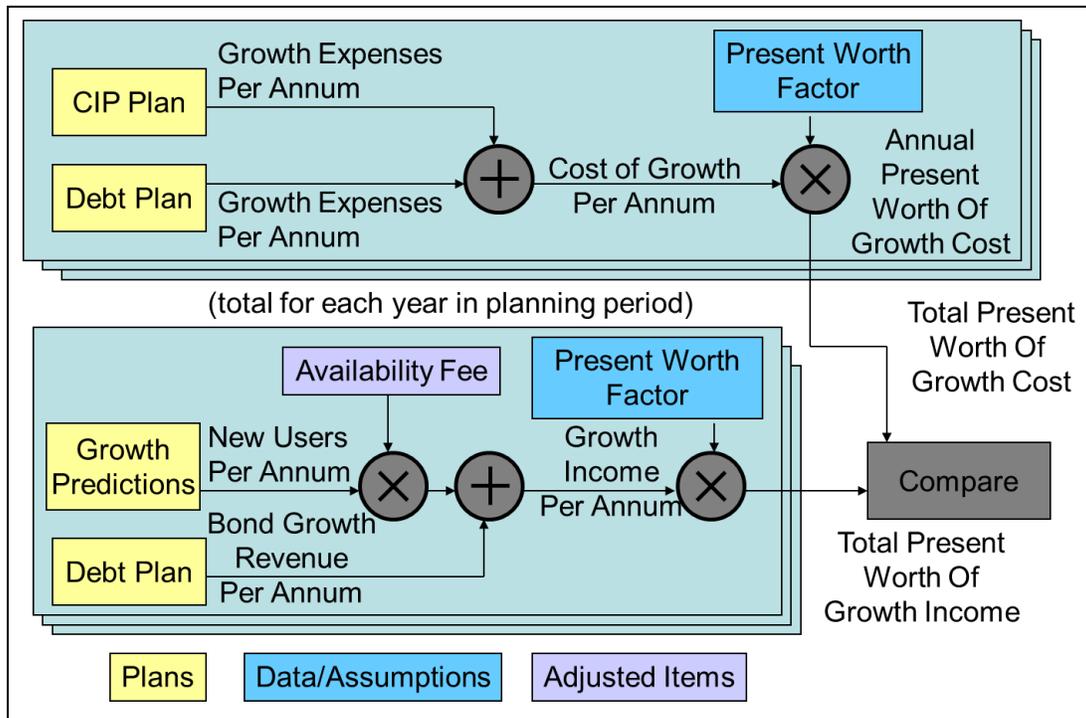
Figure 2. Setting Availability Fees

One difficulty with this approach is when it is repeated at different times during the lifecycle of a debt instrument or project, or when project costs change significantly after availability fees have been set.

For example, assume a new storage tank is budgeted for $500K to service a new neighborhood with 250 homes. The portion of the availability fee from this project is $2K (250 homes x $2K per home = $500K). After 125 homes are built and paid for, the storage tank goes out for bid, and the bids come back at $1M (unfortunately for the Town, this is not a hypothetical situation). If this had been known up front, the fee would have been set at $4K. If fees are now recomputed to balance out the capital budget, the next 125 homes will now pay fees of $6K (125 homes x $6K = $750K + $250K already collected = $1M). This disproportionately burdens later connections – the late users have to pay not only for their share, but for the uncollected share of earlier users who will also be benefiting from the project.

An alternative approach is to now call the project 50% growth – 50% existing (since half the homes are built in this example). Now $500K ($1M x 50% due to growth = $500K growth costs) needs to be raised from the remaining 125 homes, at $4K each (125 homes x $4K = $500K growth costs). While this is twice what the first 125 homes paid ($2K each), it is the "fair share". But the system now has a shortfall of $250K and cannot build the tank without raising rates on all the system users to satisfy overruns on a project required for growth. Also, each time fees are recomputed, the system has more existing users and fewer new users, and the "future" growth costs keep shrinking, so the "correct" fee under this methodology could change even if the costs did not. Continuing the prior example, if the tank were completed after 200 of the 250 homes were built, and fees were later recomputed to balance out future growth-related costs, the new costs would be zero from this project and thus no fees for the completed tank would be collected from the final 50 homes, even though prior fee computations assumed they would be collected.

As shown by this example, availability fee computation based on unknown future costs can be difficult, and the current accepted methodology does not account very well for recovering a fair share of prior paid costs from future users. A method for resolving both of these difficulties was beyond the scope of this study, which primarily is concerned with analyzing whether the projected revenues will adequately meet system costs.

In the case of Round Hill, the majority of future connections have a set availability fee due to the 2000 Consent Decree with Round Hill Investors. As a result of this agreement, as growth costs rise, there is no mechanism for the Town to recover these costs through increased availability fees on those connections. All cost increases or newly identified growth-related costs can only be offset by increasing user fees on all users, or increasing availability fees on the smaller set of future connections not covered by the consent decree.

As availability fees computed by this report will only apply to non-consent-decree users, the approach chosen was to set the availability fee by matching the non-consent portion of growth costs. This results in inadequate total availability fees (because consent decree availability fees are not adequate) that must be recovered through increased user fees. This second scenario was determined by the utility committee to be a more equitable distribution of system costs, and more importantly positions the utility system to rely on more stable revenue sources.

2.7. Setting Usage Fees

Usage fees are based on metered usage of water (sewer usage is billed at the metered water usage, and sewer-only users have meters installed on their wells or pay a flat rate). Usage fees are set to equalize total system costs with total system revenues (including growth costs and assumed availability fee income). This is depicted in Figure 3 below, where the connection income, the usage income and other income (minor) is balanced against O&M expenses, Capital Improvements Plan expenses, and debt expenses.
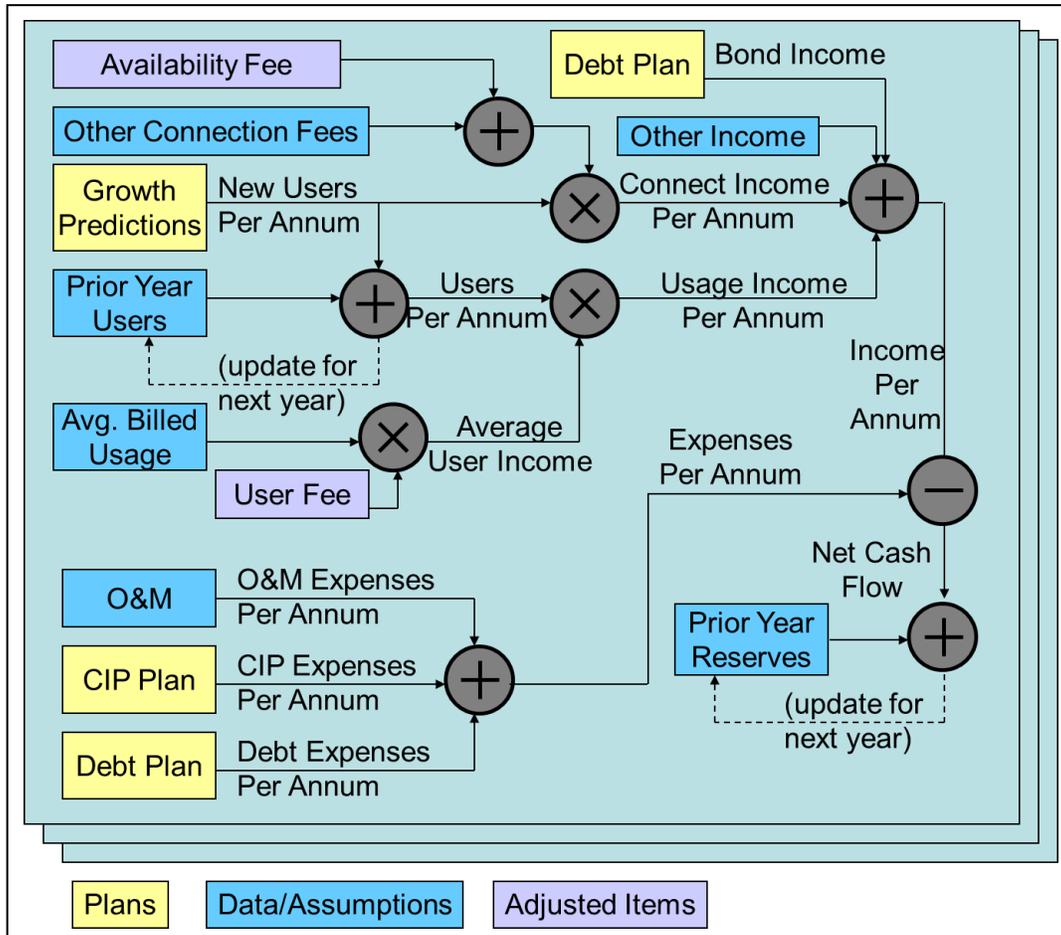
Figure 3. Setting Usage Fees

Because usage fees are set by considering total system finances, any projected shortfalls or surpluses in availability fee revenue are accounted for in the usage rate calculation.

3. System Users and Growth Model

The current system users as of November 2014, and the numbers expected at 100% buildout are shown in Table 2 below by neighborhood (new users off Airmont Road, West Loudoun Street, etc. are included in the Town Streets neighborhood even if they are out-of-town). The Town Streets value also includes 50 equivalent residential connections

for the Eastern Commercial District. Recall that both Out-of-Town and Consent Users pay out-of-town rates – the distinction is that Consent users pay reduced availability fees.

Note that as of November 2014, 84% of users were out-of-town, and 16% are in-town. At system buildout, this proportion will be nearly the same unless the Town were to enlarge via annexation or boundary line adjustments. A change in boundaries was not considered by this report, but would require a reevaluation of rates and fees.

The current values represent those lots which have been connected or paid availability fees as of November 2, 2014. Not all of them have begun usage. For the purposes of this report, it is assumed that all of these (and only these) users will be billed for water and sewer in FY2015-2016. New users are assumed to pay availability in year N and begin paying user fees in year N+1.

Table 2. System Users Current and Buildout By Neighborhood

11/2/2014	In-Town				Out-of-Town				Consent				Total			
	Current		Buildout		Current		Buildout		Current		Buildout		Current		Buildout	
	Wtr	Swr	Wtr	Swr	Wtr	Swr	Wtr	Swr	Wtr	Swr	Wtr	Swr	Wtr	Swr	Wtr	Swr
Totals By Neighborhood																
Town Streets	201	198	342	342	19	15	215	215	0	0	0	0	220	213	557	557
Hillwood Estates	19	19	19	19	70	47	76	76	0	0	0	0	89	66	95	95
Fallswood	0	0	0	0	45	45	45	45	0	0	0	0	45	45	45	45
Yatton	0	0	0	0	0	0	25	25	0	0	0	0	0	0	25	25
Stoneleigh	0	0	0	0	142	113	151	151	0	0	0	0	142	113	151	151
Villages	1	0	3	3	0	0	0	0	453	453	453	453	454	453	456	456
Mountain Valley	0	0	0	0	0	0	0	0	144	144	222	222	144	144	222	222
Greenwood Commons	0	0	0	0	0	0	0	0	39	39	40	40	39	39	40	40
Lake Point East	0	0	0	0	0	0	0	0	257	257	303	303	257	257	303	303
Lake Point West	0	0	0	0	0	0	0	0	0	0	77	77	0	0	77	77
Upper Lakes	0	0	0	0	0	0	0	0	0	0	87	87	0	0	87	87
Overall Total	221	217	364	364	276	220	512	512	893	893	1182	1182	1390	1330	2058	2058

Table 3. Growth Models

	New Users Per Year				Final Buildout			
	In-Town	Out-of-Town	Consent	Total	In-Town	Out-of-Town	Consent	Total
Slow Growth	3	7	25	35	313	419	1182	1914
Fast Growth	5	15	50	70	342	450	1182	1974

Under the slow growth model, the year for final buildout for consent decree homes is 2028, and under the fast growth model the year for final buildout is 2022. For non-consent-decree users, the years for final buildout are all after 2030 under either growth model.

In both models, the final buildout is assumed to be slightly below the theoretical buildout of 2058 total connections. The theoretical buildout assumes all lots in the service area are subdivided and built to their maximum allowable zoning density including those that have already been developed at a lower density. A more conservative assumption is that some of the lots will not be developed to their maximum density during the next 20 years.

4. Revenue Model

There are six categories of revenue that are covered by the current model:

Usage Fees: System users at the start of the fiscal year are each assumed to use 140 gal/day. All users are expected to pay their bills in full (bad debt is assumed to be offset by late fees and penalties). The consumption of 140 gal/day only represents the amount of system water that is billed. The water system must be able to generate more to allow for seasonal variations, system waste, fire suppression, and unmetered connections in addition to metered usage. The sewer system must also be able to treat more than billed usage to allow for seasonal variations, system infiltration, system return, and unmetered connections in addition to the metered usage.

Availability Fees: New users in a given fiscal year are assumed to pay the going availability fee and begin usage a year later. Consent decree users do not pay a water availability fee, and pay a sewer availability fee that is $6,724 in FY2016 and which increases by 1% each year thereafter. A maximum of 50 consent decree sewer availability fees is paid each year until 2020 (less may be paid if the total number of paid fees equals or exceeds the number of actual connections).

Connection Fees: All users will pay a water connection fee of $500 and a sewer connection fee of $825. These fees recover actual costs (such as purchasing a meter) incurred by the town to connect the user to the system. The model currently does not assume these amounts to increase over time – if they did increase it would be only to offset additional costs incurred by the Town.

Other Income: Excess late fees and penalties, as well as accrued interest on balances result in additional income which is relatively minor each year. This is assumed at $20,000 per year for each fund (water and sewer) and increasing at 3% per year.

Balance Forward: These are the existing cash reserves of the utility fund, totaling approximately $2.9M, as projected for the end of the current fiscal year. Any annual surplus adds to these reserves, and annual deficits draw from them. Approximately $1M of this reserve balance was assigned as a starting water fund balance, and $1.9M as the starting sewer fund balance. The sewer fund currently runs a significant surplus and thus most of the existing balance came from sewer users.

Bond Revenue: This report assumes a new 30-year $2.5M water bond is obtained in FY17 in order to fund construction of the Southern Water Tank project. For conservative reasons, an interest rate of 5% is assumed, though current lending rates are lower.

Availability fees only contribute about 20% of system revenue, with another 75% coming from user fees and 5% from other sources (not including one-time bond proceeds). User fees are a more reliable source of income than availability fees.

5. Expenses

There are three categories of utility expenses for both the water and sewer fund: O&M costs, CIP expenses, and debt expenses. CIP expenses can be further subdivided into specified CIP (named projects) and unspecified CIP (unnamed projects).

5.1. O&M Costs

Projected FY16 O&M costs are approximately $530,000 for water and $830,000 for sewer, neglecting transfers to and from reserves. These costs are assumed to increase at 4% per year. The importance of containing O&M costs is illustrated in Table 4 below, which shows the present worth impact of various cost growth rates over a 10-year period.

Currently, 55% of O&M costs are salaries and benefits for utility system employees and time spent by general fund staff on utility matters. Another 10% are energy costs. The remaining 35% are primarily supplies and equipment, but also include testing and lab costs, postage and other administrative expenses.

Table 4. O&M Cost vs. Cost Growth Rate

O&M Cost Growth	Present Worth O&M Costs 2016-2025
3%	$15.4M
4%	$16.1M
5%	$16.8M
6%	$17.6M
7%	$18.4M

5.2. Capital Improvements Plan (CIP) Costs

The projects in the Utility Capital Improvements Plan are listed in Table 5 below:

Table 5. Capital Improvements 5-Year Plan Project List

Project ID	Abbreviation	Water Project
Water 2015-A	SrcXplore	Ground Water Source Explore and Develop
Water 2015-B	WellRehab	Rehabilitation of Existing Wells
Water 2015-E	LgReservoir	Large Reservoir Study and Rehabilitation
Water 2015-K	SthrnTank	New Storage Tank in Southern Zone
Water 2015-M	YattonLoop	Yatton Road Loop (and Well 12 Raw Line)
Water 2015-Q	SCADA	SCADA system upgrades
Water 2015-S	719Connect	Connect Well 719 to Treatment Plant
Water 2015-V	Vehicles	Replacement vehicles
Water 2015-U	Unspecified	Miscellaneous or unspecified CIP
Project ID	**Abbreviation**	**Sewer Project**
Sewer 2015-A	SCADA	SCADA system upgrades
Sewer 2015-B	WWUpg	Upgrades to WWTP (Filter replacements)
Sewer 2015-I	INI	Inflow and infiltration abatement
Sewer 2015-V	Vehicles	Replacement vehicles
Sewer 2015-U	Unspecified	Miscellaneous or unspecified CIP

The costs for each fiscal year used for this report are shown in Table 6 below. The percentage value is the portion of the cost attributable to growth. This growth cost is used to calculate availability fees.

Table 6. Capital Project Costs By Year

Project ID	Abbreviation	%Growth	Total	Estimated 2015	Projected 2016	Projected 2017	Projected 2018	Projected 2019	Projected 2020
Water 2015-A	SrcXplore	80%	$ 231,000	$ 70,000	$ 161,000				
Water 2015-B	WellRehab	50%	$ 29,000	$ 29,000					
Water 2015-E	LgReservoir	50%	$ 280,000		$ 30,000			$ 125,000	$ 125,000
Water 2015-K	SthrnTank	60%	$ 2,486,000		$ 372,900	$1,615,900	$ 497,200		
Water 2015-M	YattonLoop	50%	$ 733,000			$ 366,500	$ 366,500		
Water 2015-Q	SCADA	50%	$ 115,000				$ 29,000	$ 43,000	$ 43,000
Water 2015-S	719Connect	50%	$ 77,000		$ 77,000				
Water 2015-V	Vehicles	50%	$ 100,000		$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000
Water 2015-U	Unspecified	50%	$ 180,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000
Water 2015	**Total**	**58%**	**$ 4,231,000**	**$ 129,000**	**$ 690,900**	**$2,032,400**	**$ 942,700**	**$ 218,000**	**$ 218,000**
Water 2015	Growth	100%	$ 2,433,400	$ 85,500	$ 431,040	$1,177,790	$ 521,070	$ 109,000	$ 109,000
Project ID	**Abbreviation**	**%Growth**	**Total**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Sewer 2015-A	SCADA	50%	$ 60,000		$ 12,000	$ 12,000	$ 12,000	$ 12,000	$ 12,000
Sewer 2015-B	WWUpg	50%	$ 140,000		$ 90,000	$ 50,000			
Sewer 2015-I	INI	50%	$ 200,000			$ 100,000	$ 100,000		
Sewer 2015-V	Vehicles	50%	$ 100,000		$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000
Sewer 2015-U	Unspecified	50%	$ 180,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000
Sewer 2015	**Total**	**50%**	**$ 680,000**	**$ 30,000**	**$ 152,000**	**$ 212,000**	**$ 162,000**	**$ 62,000**	**$ 62,000**
Sewer 2015	Growth	100%	$ 340,000	$ 15,000	$ 76,000	$ 106,000	$ 81,000	$ 31,000	$ 31,000

Total = Total CIP spending in a given fiscal year
Growth = Portion of CIP spending in a given fiscal year attributable to new users (growth)

In addition to the named projects, there are unspecified CIP expenses for years beyond that shown in the Tables above. For the water fund, unspecified CIP expenses were estimated at $300K/year starting in 2021. This accounts for developing new water sources as needed, replacement and upgrading of water lines and treatment facilities, and other unknown future capital costs. For the sewer fund, unspecified CIP expenses were estimated at $250K/year starting in 2021. This accounts for future treatment plant upgrades, replacing major equipment, and building a reserve to prepare for the end of the wastewater treatment plant's expected useful life in 20 years. For unspecified CIP costs, the portion attributable to growth is estimated at 50% for water projects, and 50% for sewer projects.

To keep the value of these allocations from eroding over time, they are assumed to increase at 4%/year for the duration of the planning period.

5.3. Debt Costs

The costs to service debt are the third major expense category. The town currently has one outstanding utility bond, which was a restructured bond from two separate earlier bonds (2001 VRA in the amount of $5.5M and 2003 VRA in the amount of $2.6M, which 2003 VRA bond included debt from an even earlier GMAC sewer bond). The Town has applied to refinance this bond at an expected rate of 2.5-3.0%. For the purposes of this rate study, it is assumed the bond will be refinanced at 3% beginning in FY16. In addition, a new bond is assumed beginning in 2017.

- <u>2009 VRA Bond</u>: Originally a $6.9M loan, with annual payments of approximately $500K/year until 2034. The assumed refinance will reduce those payments to approximately $420K/year. The current balance is approximately $6M. This bond is the blending of three original bonds (a small GMAC sewer bond, the 2001 VRA sewer bond, and the 2003 VRA water bond). The bulk of the 2003 VRA water bond monies were repurposed (with VRA concurrence) for WWTP improvements, and combined with the GMAC and 2001 sewer bond loans, makes this single merged bond 85% sewer/15% water. This split is relevant as it determines to which pool of users (sewer vs. water) the interest payments are charged.
- <u>2017 New Water Bond</u>: Proposed $2.5M loan, with projected annual payments of approximately $170K/year. This bond will be used primarily to pay for construction of the Southern Water Tank project, which cannot be paid from existing reserves without reducing them below target levels.

The payment schedule for these bonds is included in Section 9.

6. Availability Fee Analysis

These calculations are done using a present worth analysis as described earlier in this report. The present worth of all costs attributable to growth over the planning period are compared to the present worth of anticipated availability fees.

Calculations are first performed treating all users in a single pool. Then calculations are shown for the method determined to be more fair by the Utility Committee, which is to treat consent decree and non-consent decree users as separate pools, as the availability fees calculated herein can only be levied on non-consent decree users.

6.1. Water Availability Fee

The water expenses attributable to growth are calculated in Table 24 and summarized in Table 7 below. These are totals over FY16 through FY34.

Table 7. Summary Water Expenses Attributable to Growth

Spec CIP	Unspec CIP	Debt	Total Present Worth
$2,262,279	$1,930,355	$1,480,459	$5,673,094

The water "growth" revenue (availability fee income + bond income attributable to growth) using the escalated current fee is summarized in Table 8. As shown in the table, there is a deficit of over $2M in unmet growth expenses using the current fee.

Table 8. Single Pool Water Growth Net – Escalated Current Fee ($5,567)

	Expenses	Income	Balance	Net
Slow Growth - Existing Fees	($5,673,094)	$2,856,341	$0	**($2,816,754)**
Fast Growth - Existing Fees	($5,673,094)	$3,410,360	$0	**($2,262,734)**

Considering a single pool of growth costs and fees, to match the cost of growth with anticipated availability and other growth income requires an escalating water availability fee of $16,600 (around 3x the current fee) with a 3% increase each year. The results with this much higher hypothetical availability fee are shown in Table 9 below.

Table 9. Single Pool Water Growth Net – Single Pool Fee ($16,600)

	Expenses	Income	Balance	Net
Slow Growth - Single Pool Fees	($5,673,094)	$5,685,842	$0	**$12,748**
Fast Growth - Single Pool Fees	($5,673,094)	$7,337,502	$0	**$1,664,408**

Such a large increase would be needed because consent decree users do not pay water availability fees (as part of the consent decree, RHI agreed to provide wells, a water storage tank, and other infrastructure to the Town). As costs rise on water projects, there is no way to spread that cost increase to those connections covered by the consent decree, so those increases concentrate on the smaller pool of users not part of the consent decree.

Referring back to Table 2 and Table 3, under the slow growth model there are 92 future town connections, 143 future out-of-town connections, and 289 future consent-decree

connections, for a total of 524 future water connections. Only 45% of those 524 connections will pay water availability fees.

As in the 2007 rate study, the recommended approach to computing availability fees is to allocate future growth costs to two pools of future users – consent decree and non-consent decree. The non-consent decree availability fees are then set based on their portion of growth costs. The consent decree portion of growth costs that is not met by the lower consent availability fees is recovered through system wide user fees.

The results of this approach are summarized in Table 10. The "N-C Expenses" column shows the share of growth expenses remaining after removing bond revenues, and allocating the remainder to the proportion of future non-consent decree user connections (both in-town and out-of-town). The "N-C Income" column shows the amount of availability fee income from non-consent-decree connections, and the "Non-Con Net" shows the net balance. The final column shows the underpayment of availability fees from consent decree users that must be recovered through higher user fees system-wide.

As shown in the table, the water availability fee is recommended to increase to $7,500 for FY16, which is a 39% increase. This large increase is due to the significant increase in water-related capital projects identified in the revised CIP plan, most prominently the new Southern Water Tank.

Table 10. Non-Consent Decree Water Growth Net – Recommended Fee ($7,500)

	Non-Consent Water Due to Growth			
	N-C Expenses	N-C Income	Non-Con Net	Consent Net
Slow Growth - Recommended Fees	($1,904,177)	$1,924,343	**$20,165**	**($2,341,733)**
Fast Growth - Recommended Fees	($2,144,766)	$2,670,541	**$525,774**	**($2,101,144)**

Under this scenario, there will be a substantial deficit in growth costs of over $2M, as shown in Table 10. This deficit will be considered when setting user fees.

The recommended availability fee schedule is shown in Table 26. The income for both slow and fast growth models using recommended fees is shown in Table 27 and Table 28.

6.2. Sewer Availability Fee

The sewer expenses attributable to growth are calculated in Table 25 and summarized in Table 11 below. The specified CIP amount for sewer has reduced substantially since the 2007 rate study due to the completion of the WWTP expansion.

Table 11. Summary Sewer Expenses Attributable to Growth

Spec CIP	Unspec CIP	Debt	Total Present Worth
$311,175	$1,608,629	$3,963,820	$5,883,625

The sewer "growth" revenue (availability fee income + bond income attributable to growth) using the current fees is summarized in Table 12.

Table 12. Single Pool Sewer Growth Net – Escalated Current Fee ($12,779)

	Sewer Due to Growth			
	Expenses	Income	Balance	Net
Slow Growth - Existing Fees	($5,883,625)	$5,034,043	$0	**($849,582)**
Fast Growth - Existing Fees	($5,883,625)	$7,027,906	$0	**$1,144,281**

Considering a single pool of growth costs and fees, to match the cost of growth with anticipated availability and other growth income requires an escalating sewer availability fee of $15,800 (about 1.2x the current escalated $12,779), with a 3% increase each year. The results for this increased fee are shown in Table 13 below.

Table 13. Single Pool Sewer Growth Net – Hypothetical Raised Fee ($16,100)

	Sewer Due to Growth			
	Expenses	Income	Balance	Net
Slow Growth - Single Pool Fees	($5,883,625)	$5,885,822	$0	**$2,197**
Fast Growth - Single Pool Fees	($5,883,625)	$8,489,082	$0	**$2,605,457**

While consent decree users do pay sewer availability fees, these are currently only $6,724 for FY16 and may only increase at 1% per year. This is significantly less than the going rate of over $18K for out-of-town sewer connections. Referring back to Table 2 and Table 3, under the slow growth model there are 96 future town connections, 199 future out-of-town connections, and 289 future consent-decree connections, for a total of 584 future sewer connections. Under the current rates, consent-decree users make up 50% of all future connections and pay a reduced availability fee.

As done for water availability, the recommended approach to computing availability fees is to calculate non-consent decree availability fees based on their portion of growth costs. The consent decree growth costs that are not met by consent availability fees (about $1.1M as shown in Table 14) is recovered through user fees. The results are summarized in Table 14, whose columns have the same meaning as discussed for Table 10.

As shown in the table, the recommended sewer availability fee for FY16 is $11,600, which represents a reduction of approximately 6%.

Table 14. Non-Consent Decree Sewer Growth Net – Recommended Fee ($11,600)

	Non-Consent Sewer Due to Growth			
	N-C Expenses	N-C Income	Non-Con Net	Consent Net
Slow Growth - Recommended Fees	($2,972,037)	$2,976,272	**$4,236**	**($1,156,078)**
Fast Growth - Recommended Fees	($3,243,303)	$5,105,284	**$1,861,982**	**($785,603)**

The recommended availability fee schedule is shown in Table 26. The income for both slow and fast growth models using recommended fees is shown in Table 27 and Table 28.

7. Usage Fee Analysis

After setting availability fees, usage fees are set based on a cash-flow analysis to ensure that targets for reserve levels are met. This analysis covers a 5-year window, a 10-year window, and beyond.

The primary target is the reserve ratio, which is the ratio of the end-of-year cash reserves of the system relative to its operating costs plus debt servicing costs. This report targets an operating reserve of 12 months, which is a reserve ratio of 1.0. Another target is the debt coverage ratio, which is the ratio of the surplus cash flow available to service debt relative to the actual debt servicing costs. This report targets a debt coverage ratio of 1.5. For example, if debt servicing costs in a fiscal year were $500K, then the target is to budget a cash surplus (excluding debt) of $750K.

Both of these targets (1.0 reserve ratio and 1.5 debt coverage ratio) are very conservative, and thus do not need to be treated as absolutes. If the cash-flow analysis shows that in the long-term the goals are being met, then short-term deviations are tolerable, especially in later years where there is ample opportunity for correction.

7.1. Historical Cash Flow Analysis

The cash flow analysis from the previous three audited fiscal years, along with estimates for the current fiscal year is shown in Table 15 below.

Table 15. Historical Cash Flow Analysis

	Actual 2012	Actual 2013	Actual 2014	Estimate 2015
Operating Receipts	$ 1,549,400	$ 1,701,792	$ 1,829,482	$ 1,948,717
Operating Payments	$ (1,109,259)	$ (1,118,810)	$ (1,119,782)	$ (1,296,722)
Operating Surplus/(Deficit)	$ 440,141	$ 582,982	$ 709,700	$ 651,995
Total Debt Service (P+I)	$ (360,544)	$ (249,050)	$ (392,657)	$ (496,938)
Cash-funded capital	$ (164,883)	$ (314,167)	$ (266,781)	$ (270,806)
Availability fees	$ 342,635	$ 374,870	$ 332,893	$ 450,000
Non-Operating Surplus/(Deficit)	$ (182,792)	$ (188,347)	$ (326,545)	$ (317,743)
Total Cash Surplus/(Deficit)	$ 257,349	$ 394,635	$ 383,155	$ 334,251
Water Cash Reserves	$ 929,801	$ 930,054	$ 999,539	$ 1,000,754
Sewer Cash Reserves	$ 877,469	$ 1,271,851	$ 1,585,521	$ 1,918,557
Total Cash Reserves	$ 1,807,270	$ 2,201,906	$ 2,585,063	$ 2,919,314
Reserve Target (Op Pmts + Debt)	$ 1,469,803	$ 1,367,860	$ 1,512,439	$ 1,793,660
Reserve Ratio (>1)	1.23	1.61	1.71	1.63
Income Available for Debt Service	$ 782,776	$ 957,852	$ 1,042,593	$ 1,101,995
Debt Coverage Ratio (>1.5)	2.17	3.85	2.66	2.22
Total Debt	$ 6,715,000	$ 6,665,000	$ 6,470,000	$ 6,270,000
Pro-Rata Debt	$ 1,141,550	$ 1,133,050	$ 1,035,200	$ 1,003,200
Debt vs. Assessments (<2%)	1.8%	1.7%	1.5%	1.4%

Operating Receipts: Income from usage fees, connection fees, and other operations.
Operating Payments: Payments to employees, suppliers, contractors, etc. for operations.
Total Debt Service: Total principal and interest paid on debt.
Cash-funded Capital: Non-operating costs paid from cash reserves.
Availability Fees: Income from availability fees paid by new users.
Water Cash Reserves: Portion of cash reserves attributed to the virtual water fund.
Sewer Cash Reserves: Portion of cash reserves attributed to the virtual sewer fund.
Total Cash Reserves: Unassigned fund balances, including certificates of deposit. Does not include escrow accounts or customer deposits.
Reserve Target: 12 months operating costs plus debt service costs.
Reserve Ratio: Cash reserves divided by reserve target.
Income available for debt service: Operating surplus/deficit plus availability fee income.
Debt Coverage Ratio: Income available for debt service divided by total debt service.
Total Debt: Principal value of outstanding debt.
Pro-Rata Debt: Total debt pro-rated to the in-town user population.
Debt vs. Assessments: Ratio of Pro-rata debt to the in-town property assessment valuation. A value of 2% is considered low-debt.

As shown above, the utility system has healthy reserve and debt coverage ratios, and a consistent cash surplus of approximately $350K/year recently. This surplus has been primarily in the virtual sewer fund. The utility system has excess cash reserves of approximately $1.1M and a significant operating surplus in the virtual sewer fund.

7.2. Recommended Water and Sewer Fees

Based on the existing virtual sewer fund surplus, and the lack of significant CIP projects planned for sewer in the next 5 years, the existing sewer user rate can be lowered significantly. It is the recommendation of this report that they be lowered approximately 23% for FY16, and then raised 3% per year thereafter.

There are insufficient water fund reserves to construct the near-term Southern Tank Project using cash. Even if water rates were increased substantially, the construction would need to be delayed several years. It is recommended that this project be amortized over 30 years, and after factoring in a $2.5M new water bond to fund the Southern Tank, the current water fees are adequate, and it is recommended they be held the same (no increase or decrease) for FY16, then raised 3% per year thereafter.

The recommended fees would lower the combined rate for water and sewer users by 14%. The projections for the impact of the recommended rates will be shown.

Alternate fees were calculated under the fast growth scenario. These are a reduction of 14% in water fees and a 39% reduction in sewer fees, with a combined rate decrease of 29%. This illustrates the sensitivity of user fees on which growth scenario is accurate. While this level of growth has occurred the past two years, it is unlikely to be sustained over the long term. Long term cash flow projections for this scenario will also be shown.

7.3. Five-Year Forecast (Slow Growth)

Using the recommended availability fees and water and sewer user fees already presented, the five-year cash-flow forecast is shown in Table 16 below:

Table 16. Five-Year Cash Flow Forecast (Slow Growth)

Slow Growth - Recommended Fees	Projected 2016	Projected 2017	Projected 2018	Projected 2019	Projected 2020
	5-year Projection				
Operating Receipts	$ 1,661,513	$ 1,754,791	$ 1,852,751	$ 1,955,552	$ 2,061,167
Operating Payments	$ (1,360,000)	$ (1,414,400)	$ (1,470,976)	$ (1,529,815)	$ (1,591,008)
Operating Surplus/(Deficit)	$ 301,513	$ 340,391	$ 381,775	$ 425,737	$ 470,159
Total Debt Service (P+I)	$ (421,442)	$ (421,442)	$ (584,071)	$ (584,071)	$ (584,071)
Cash-funded capital	$ (472,481)	$ (649,147)	$ (612,242)	$ (277,911)	$ (277,893)
Availability fees	$ 425,950	$ 435,367	$ 445,043	$ 454,979	$ 465,176
Non-Operating Surplus/(Deficit)	$ (467,973)	$ (635,223)	$ (751,270)	$ (407,003)	$ (396,788)
Total Cash Surplus/(Deficit)	$ (166,460)	$ (294,833)	$ (369,495)	$ 18,733	$ 73,371
Water Cash Reserves	$ 971,165	$ 850,441	$ 581,097	$ 574,776	$ 597,450
Sewer Cash Reserves	$ 1,781,687	$ 1,607,578	$ 1,507,426	$ 1,532,481	$ 1,583,178
Total Cash Reserves	$ 2,752,854	$ 2,458,022	$ 2,088,527	$ 2,107,260	$ 2,180,631
Reserve Target (Op Pmts + Debt)	$ 1,781,442	$ 1,835,842	$ 2,055,047	$ 2,113,886	$ 2,175,079
Reserve Ratio (>1)	1.55	1.34	1.02	1.00	1.00
Income Available for Debt Service	$ 727,463	$ 775,757	$ 826,818	$ 880,716	$ 935,335
Debt Coverage Ratio (>1.5)	1.73	1.84	1.42	1.51	1.60
Total Debt	$ 6,036,658	$ 8,296,315	$ 8,011,133	$ 7,716,643	$ 7,412,529
Pro-Rata Debt	$ 972,079	$ 1,320,274	$ 1,260,493	$ 1,200,952	$ 1,141,529
Debt vs. Assessments (<2%)	1.3%	1.7%	1.6%	1.5%	1.4%

As shown in the five-year forecast, system reserves are projected to slowly decrease from the current $2.9M down to $2.2M by 2020, bringing the reserve ratio down to the target of 1.0, and in effect returning excess reserves back to users in the form of reduced sewer user fees.

Due to the issuance of a new $2.5M bond in 2017, the debt coverage ratio dips down to 1.4, but recovers quickly back above the target 1.5.

7.4. Ten-Year Forecast (Slow Growth)

The forecast is shown extended out to ten years in Table 17 below:

Table 17. Ten-Year Forecast (Slow Growth)

Slow Growth - Recommended Fees	10-year Projection				
	Projected 2021	Projected 2022	Projected 2023	Projected 2024	Projected 2025
Operating Receipts	$ 2,171,830	$ 2,287,698	$ 2,408,926	$ 2,535,672	$ 2,668,092
Operating Payments	$ (1,654,648)	$ (1,720,834)	$ (1,789,667)	$ (1,861,254)	$ (1,935,704)
Operating Surplus/(Deficit)	$ 517,182	$ 566,864	$ 619,259	$ 674,418	$ 732,388
Total Debt Service (P+I)	$ (584,071)	$ (584,071)	$ (584,071)	$ (584,071)	$ (584,071)
Cash-funded capital	$ (547,819)	$ (569,958)	$ (592,939)	$ (616,795)	$ (641,559)
Availability fees	$ 475,646	$ 486,390	$ 497,422	$ 508,755	$ 520,390
Non-Operating Surplus/(Deficit)	$ (656,245)	$ (667,639)	$ (679,588)	$ (692,111)	$ (705,241)
Total Cash Surplus/(Deficit)	$ (139,063)	$ (100,776)	$ (60,329)	$ (17,692)	$ 27,147
Water Cash Reserves	$ 568,745	$ 560,177	$ 572,959	$ 608,325	$ 667,538
Sewer Cash Reserves	$ 1,472,820	$ 1,380,613	$ 1,307,501	$ 1,254,442	$ 1,222,377
Total Cash Reserves	$ 2,041,568	$ 1,940,793	$ 1,880,463	$ 1,862,771	$ 1,889,918
Reserve Target (Op Pmts + Debt)	$ 2,238,719	$ 2,304,905	$ 2,373,738	$ 2,445,325	$ 2,519,775
Reserve Ratio (>1)	0.91	0.84	0.79	0.76	0.75
Income Available for Debt Service	$ 992,828	$ 1,053,254	$ 1,116,681	$ 1,183,173	$ 1,252,778
Debt Coverage Ratio (>1.5)	1.70	1.80	1.91	2.03	2.14
Total Debt	$ 7,098,461	$ 6,774,100	$ 6,439,094	$ 6,093,077	$ 5,735,670
Pro-Rata Debt	$ 1,082,111	$ 1,022,587	$ 962,855	$ 902,816	$ 842,373
Debt vs. Assessments (<2%)	1.3%	1.1%	1.0%	1.0%	0.9%

As shown in the ten-year forecast, system reserves continue to slowly dwindle until at the end of ten years there are 9 months of reserve instead of the target 12 months. Rates may need to be raised slightly in five years, or some other adjustment to utility finances, if this projection is accurate.

7.5. Five-Year Forecast (Fast Growth – Recommended Fees)

Using the recommended availability fees and water and sewer user fees already presented (e.g. using the fees calculated under a slow growth assumption), the five-year cash-flow forecast for the utility system is shown in Table 18 below under the fast growth scenario (70 new users/year vs. 35 new users/year):

Table 18. Five-Year Cash Flow Forecast (Fast Growth – Recommended Fees)

Fast Growth - Recommended Fees	5-year Projection				
	Projected 2016	Projected 2017	Projected 2018	Projected 2019	Projected 2020
Operating Receipts	$ 1,707,888	$ 1,845,640	$ 1,990,813	$ 2,143,720	$ 2,302,284
Operating Payments	$ (1,360,000)	$ (1,414,400)	$ (1,470,976)	$ (1,529,815)	$ (1,591,008)
Operating Surplus/(Deficit)	$ 347,888	$ 431,240	$ 519,837	$ 613,905	$ 711,276
Total Debt Service (P+I)	$ (421,442)	$ (421,442)	$ (584,071)	$ (584,071)	$ (584,071)
Cash-funded capital	$ (472,481)	$ (648,665)	$ (611,224)	$ (276,299)	$ (275,625)
Availability fees	$ 861,450	$ 880,570	$ 900,218	$ 920,395	$ 941,101
Non-Operating Surplus/(Deficit)	$ (32,473)	$ (189,538)	$ (295,077)	$ 60,025	$ 81,405
Total Cash Surplus/(Deficit)	$ 315,415	$ 241,702	$ 224,760	$ 673,930	$ 792,681
Water Cash Reserves	$ 1,093,665	$ 1,119,438	$ 1,021,976	$ 1,214,391	$ 1,464,100
Sewer Cash Reserves	$ 2,141,062	$ 2,356,991	$ 2,679,212	$ 3,160,728	$ 3,703,699
Total Cash Reserves	$ 3,234,729	$ 3,476,431	$ 3,701,191	$ 4,375,121	$ 5,167,803
Reserve Target (Op Pmts + Debt)	$ 1,781,442	$ 1,835,842	$ 2,055,047	$ 2,113,886	$ 2,175,079
Reserve Ratio (>1)	1.82	1.89	1.80	2.07	2.38
Income Available for Debt Service	$ 1,209,338	$ 1,311,810	$ 1,420,055	$ 1,534,300	$ 1,652,377
Debt Coverage Ratio (>1.5)	2.87	3.11	2.43	2.63	2.83
Total Debt	$ 6,036,658	$ 8,296,315	$ 8,011,133	$ 7,716,643	$ 7,412,529
Pro-Rata Debt	$ 972,079	$ 1,320,274	$ 1,260,493	$ 1,200,952	$ 1,141,529
Debt vs. Assessments (<2%)	1.3%	1.7%	1.6%	1.5%	1.4%

As shown in the five-year fast growth forecast, system reserves rapidly escalate above $5M by 2020. If growth is at this level for more than a year or two, then rates should be adjusted downward without waiting for a full 5-year interval.

7.6. Five-Year Forecast (Fast Growth – Fast Fees)

The five-year fast growth forecast using significantly reduced fees (29% average decrease) is shown in Table 19 below. These are the fees that would be recommended if the 70 users/year growth rate is assumed.

Table 19. Five-Year Cash Flow Forecast (Fast Growth – Fast Fees)

	5-year Projection				
Fast Growth - Fast Fees	**Projected 2016**	**Projected 2017**	**Projected 2018**	**Projected 2019**	**Projected 2020**
Operating Receipts	$ 1,428,426	$ 1,541,968	$ 1,661,988	$ 1,787,634	$ 1,919,107
Operating Payments	$ (1,360,000)	$ (1,414,400)	$ (1,470,976)	$ (1,529,815)	$ (1,591,008)
Operating Surplus/(Deficit)	$ 68,426	$ 127,568	$ 191,012	$ 257,819	$ 328,099
Total Debt Service (P+I)	$ (421,442)	$ (421,442)	$ (584,071)	$ (584,071)	$ (584,071)
Cash-funded capital	$ (472,481)	$ (648,945)	$ (612,045)	$ (277,690)	$ (277,616)
Availability fees	$ 861,450	$ 642,876	$ 660,147	$ 677,924	$ 696,205
Non-Operating Surplus/(Deficit)	$ (32,473)	$ (427,511)	$ (535,968)	$ (183,837)	$ (165,481)
Total Cash Surplus/(Deficit)	$ 35,953	$ (299,943)	$ (344,956)	$ 73,982	$ 162,618
Water Cash Reserves	$ 987,723	$ 898,731	$ 677,235	$ 734,853	$ 839,786
Sewer Cash Reserves	$ 1,967,541	$ 1,756,591	$ 1,633,130	$ 1,649,494	$ 1,707,179
Total Cash Reserves	$ 2,955,267	$ 2,655,325	$ 2,310,368	$ 2,384,350	$ 2,546,968
Reserve Target (Op Pmts + Debt)	$ 1,781,442	$ 1,835,842	$ 2,055,047	$ 2,113,886	$ 2,175,079
Reserve Ratio (>1)	1.66	1.45	1.12	1.13	1.17
Income Available for Debt Service	$ 929,876	$ 770,445	$ 851,160	$ 935,742	$ 1,024,305
Debt Coverage Ratio (>1.5)	2.21	1.83	1.46	1.60	1.75
Total Debt	$ 6,036,658	$ 8,296,315	$ 8,011,133	$ 7,716,643	$ 7,412,529
Pro-Rata Debt	$ 972,079	$ 1,320,274	$ 1,260,493	$ 1,200,952	$ 1,141,529
Debt vs. Assessments (<2%)	1.3%	1.7%	1.6%	1.5%	1.4%

This scenario illustrates system cash flow if growth is fast (70 users/year) and rates are reduced substantially in anticipation of that growth (29% average reduction). Cash reserves slowly drop to around $2.5M as a steady influx of availability fees and rising user population counteracts the sharp one-time reduction in rates.

7.7. Five-Year Forecast (Slow Growth – Fast Fees)

The five-year slow growth forecast using significantly reduced fees (29% average decrease) is shown in Table 20 below:

Table 20. Five-Year Cash Flow Forecast (Slow Growth – Fast Fees)

	5-year Projection				
Slow Growth - Fast Fees	**Projected 2016**	**Projected 2017**	**Projected 2018**	**Projected 2019**	**Projected 2020**
Operating Receipts	$ 1,382,051	$ 1,458,856	$ 1,539,874	$ 1,624,177	$ 1,711,885
Operating Payments	$ (1,360,000)	$ (1,414,400)	$ (1,470,976)	$ (1,529,815)	$ (1,591,008)
Operating Surplus/(Deficit)	$ 22,051	$ 44,456	$ 68,898	$ 94,362	$ 120,878
Total Debt Service (P+I)	$ (421,442)	$ (421,442)	$ (584,071)	$ (584,071)	$ (584,071)
Cash-funded capital	$ (472,481)	$ (649,427)	$ (612,818)	$ (278,801)	$ (279,114)
Availability fees	$ 425,950	$ 435,367	$ 445,043	$ 454,979	$ 465,176
Non-Operating Surplus/(Deficit)	$ (467,973)	$ (635,503)	$ (751,846)	$ (407,893)	$ (398,010)
Total Cash Surplus/(Deficit)	$ (445,922)	$ (591,047)	$ (682,947)	$ (313,531)	$ (277,132)
Water Cash Reserves	$ 865,223	$ 632,576	$ 245,164	$ 113,375	$ 4,079
Sewer Cash Reserves	$ 1,608,166	$ 1,249,766	$ 954,231	$ 772,489	$ 604,653
Total Cash Reserves	$ 2,473,392	$ 1,882,345	$ 1,199,398	$ 885,867	$ 608,735
Reserve Target (Op Pmts + Debt)	$ 1,781,442	$ 1,835,842	$ 2,055,047	$ 2,113,886	$ 2,175,079
Reserve Ratio (>1)	1.39	1.03	0.58	0.42	0.28
Income Available for Debt Service	$ 448,001	$ 479,822	$ 513,941	$ 549,341	$ 586,053
Debt Coverage Ratio (>1.5)	1.06	1.14	0.88	0.94	1.00
Total Debt	$ 6,036,658	$ 8,296,315	$ 8,011,133	$ 7,716,643	$ 7,412,529
Pro-Rata Debt	$ 972,079	$ 1,320,274	$ 1,260,493	$ 1,200,952	$ 1,141,529
Debt vs. Assessments (<2%)	1.3%	1.7%	1.6%	1.5%	1.4%

This scenario illustrates system cash flow if growth is slow (35 users/year) but rates were reduced substantially in anticipation of faster growth (29% average reduction). Cash reserves dwindle rapidly down to 3 months of operating costs by 2020. To avoid this possibility, the more modest reduction in rates (14% average) is recommended under the 35 new users/year scenario.

7.8. Cash-Flow Analysis Summary

The reserve levels for each scenario are shown in the Figures below, and a more detailed cash flow analysis for the baseline scenario are on the following pages.

Figure 4. Reserve Levels by Scenario
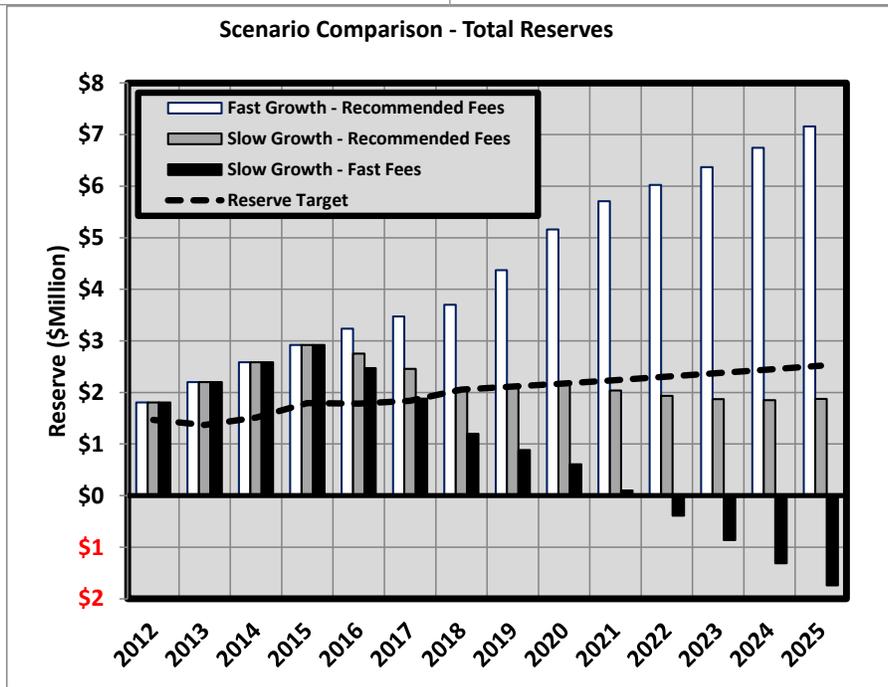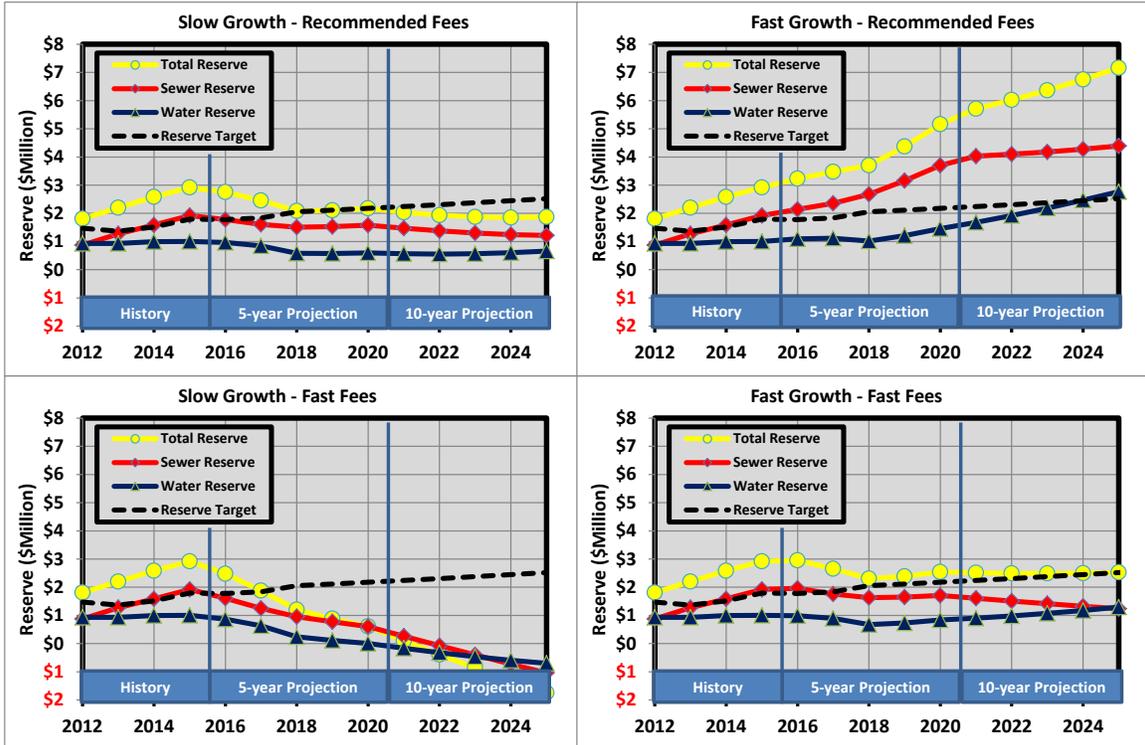
Figure 5. Cash-Flow 5-Year Detail – Slow Growth and Recommended Fees

	Historical				5-year Projection				
	Actual	Actual	Actual	Estimate	Projected	Projected	Projected	Projected	Projected
Slow Growth - Recommended Fees	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Water Operating Receipts	$ 644,513	$ 703,799	$ 756,104	$ 804,303	$ 784,317	$ 827,929	$ 873,801	$ 922,011	$ 971,524
Sewer Operating Receipts	$ 904,887	$ 997,993	$ 1,073,378	$ 1,144,414	$ 877,196	$ 926,862	$ 978,950	$ 1,033,541	$ 1,089,643
Operating Receipts	**$ 1,549,400**	**$ 1,701,792**	**$ 1,829,482**	**$ 1,948,717**	**$ 1,661,513**	**$ 1,754,791**	**$ 1,852,751**	**$ 1,955,552**	**$ 2,061,167**
Water Operating Payments	$ (353,673)	$ (391,314)	$ (407,867)	$ (523,949)	$ (530,000)	$ (551,200)	$ (573,248)	$ (596,178)	$ (620,025)
Sewer Operating Payments	$ (755,586)	$ (727,496)	$ (711,915)	$ (772,773)	$ (830,000)	$ (863,200)	$ (897,728)	$ (933,637)	$ (970,983)
Operating Payments	**$ (1,109,259)**	**$ (1,118,810)**	**$ (1,119,782)**	**$ (1,296,722)**	**$ (1,360,000)**	**$ (1,414,400)**	**$ (1,470,976)**	**$ (1,529,815)**	**$ (1,591,008)**
Operating Surplus/(Deficit)	**$ 440,141**	**$ 582,982**	**$ 709,700**	**$ 651,995**	**$ 301,513**	**$ 340,391**	**$ 381,775**	**$ 425,737**	**$ 470,159**
Water Debt Service (P+I)	$ (54,082)	$ (37,358)	$ (58,899)	$ (74,541)	$ (63,216)	$ (63,216)	$ (225,845)	$ (225,845)	$ (225,845)
Sewer Debt Service (P+I)	$ (306,462)	$ (211,693)	$ (333,758)	$ (422,397)	$ (358,226)	$ (358,226)	$ (358,226)	$ (358,226)	$ (358,226)
Total Debt Service (P+I)	**$ (360,544)**	**$ (249,050)**	**$ (392,657)**	**$ (496,938)**	**$ (421,442)**	**$ (421,442)**	**$ (584,071)**	**$ (584,071)**	**$ (584,071)**
Water Cash-funded Capital	$ (72,958)	$ (274,874)	$ (219,853)	$ (244,598)	$ (321,940)	$ (438,524)	$ (451,471)	$ (216,956)	$ (216,946)
Sewer Cash-funded Capital	$ (91,925)	$ (39,293)	$ (46,928)	$ (26,207)	$ (150,540)	$ (210,624)	$ (160,771)	$ (60,956)	$ (60,946)
Cash-funded capital	**$ (164,883)**	**$ (314,167)**	**$ (266,781)**	**$ (270,806)**	**$ (472,481)**	**$ (649,147)**	**$ (612,242)**	**$ (277,911)**	**$ (277,893)**
Availability fees	**$ 342,635**	**$ 374,870**	**$ 332,893**	**$ 450,000**	**$ 425,950**	**$ 435,367**	**$ 445,043**	**$ 454,979**	**$ 465,176**
Non-Operating Surplus/(Deficit)	**$ (182,792)**	**$ (188,347)**	**$ (326,545)**	**$ (317,743)**	**$ (467,973)**	**$ (635,223)**	**$ (751,270)**	**$ (407,003)**	**$ (396,788)**
Water Surplus/Deficit (Cash Flow)	$ 163,801	$ 253	$ 69,485	$ 1,215	$ (29,590)	$ (120,724)	$ (269,344)	$ (6,322)	$ 22,675
Sewer Surplus/Deficit (Cash Flow)	$ 93,548	$ 394,382	$ 313,670	$ 333,036	$ (136,870)	$ (174,109)	$ (100,151)	$ 25,055	$ 50,696
Total Cash Surplus/(Deficit)	**$ 257,349**	**$ 394,635**	**$ 383,155**	**$ 334,251**	**$ (166,460)**	**$ (294,833)**	**$ (369,495)**	**$ 18,733**	**$ 73,371**
Water Cash Reserves	$ 929,801	$ 930,054	$ 999,539	$ 1,000,754	$ 971,165	$ 850,441	$ 581,097	$ 574,776	$ 597,450
Sewer Cash Reserves	$ 877,469	$ 1,271,851	$ 1,585,521	$ 1,918,557	$ 1,781,687	$ 1,607,578	$ 1,507,426	$ 1,532,481	$ 1,583,178
Total Cash Reserves	**$ 1,807,270**	**$ 2,201,906**	**$ 2,585,063**	**$ 2,919,314**	**$ 2,752,854**	**$ 2,458,022**	**$ 2,088,527**	**$ 2,107,260**	**$ 2,180,631**
Reserve Target (Op Pmts + Debt)	$ 1,469,803	$ 1,367,860	$ 1,512,439	$ 1,793,660	$ 1,781,442	$ 1,835,842	$ 2,055,047	$ 2,113,886	$ 2,175,079
Reserve Ratio (>1)	**1.23**	**1.61**	**1.71**	**1.63**	**1.55**	**1.34**	**1.02**	**1.00**	**1.00**
Income Available for Debt Service	$ 782,776	$ 957,852	$ 1,042,593	$ 1,101,995	$ 727,463	$ 775,757	$ 826,818	$ 880,716	$ 935,335
Debt Coverage Ratio (>1.5)	**2.17**	**3.85**	**2.66**	**2.22**	**1.73**	**1.84**	**1.42**	**1.51**	**1.60**
Total Debt	**$ 6,715,000**	**$ 6,665,000**	**$ 6,470,000**	**$ 6,270,000**	**$ 6,036,658**	**$ 8,296,315**	**$ 8,011,133**	**$ 7,716,643**	**$ 7,412,529**
Assessed Property	$63,217,117	$67,520,000	$69,872,740	$72,497,910	$74,672,847	$76,913,033	$79,220,424	$81,597,036	$84,044,948
Debt Ratio (no pro-rating)	10.6%	9.9%	9.3%	8.6%	8.1%	10.8%	10.1%	9.5%	8.8%
%Customers In-Town	17%	17%	16%	16%	16%	16%	16%	16%	15%
Pro-Rata Debt	$ 1,141,550	$ 1,133,050	$ 1,035,200	$ 1,003,200	$ 972,079	$ 1,320,274	$ 1,260,493	$ 1,200,952	$ 1,141,529
Debt vs. Assessments (<2%)	**1.8%**	**1.7%**	**1.5%**	**1.4%**	**1.3%**	**1.7%**	**1.6%**	**1.5%**	**1.4%**

Figure 6. Cash Flow 10-Year Detail – Slow Growth and Recommended Fees

Slow Growth - Recommended Fees	5-year Projection					10-year Projection				
	Projected 2016	Projected 2017	Projected 2018	Projected 2019	Projected 2020	Projected 2021	Projected 2022	Projected 2023	Projected 2024	Projected 2025
Water Operating Receipts	$ 784,317	$ 827,929	$ 873,801	$ 922,011	$ 971,524	$ 1,023,479	$ 1,077,955	$ 1,135,030	$ 1,194,781	$ 1,257,288
Sewer Operating Receipts	$ 877,196	$ 926,862	$ 978,950	$ 1,033,541	$ 1,089,643	$ 1,148,351	$ 1,209,742	$ 1,273,896	$ 1,340,891	$ 1,410,804
Operating Receipts	**$ 1,661,513**	**$ 1,754,791**	**$ 1,852,751**	**$ 1,955,552**	**$ 2,061,167**	**$ 2,171,830**	**$ 2,287,698**	**$ 2,408,926**	**$ 2,535,672**	**$ 2,668,092**
Water Operating Payments	$ (530,000)	$ (551,200)	$ (573,248)	$ (596,178)	$ (620,025)	$ (644,826)	$ (670,619)	$ (697,444)	$ (725,342)	$ (754,355)
Sewer Operating Payments	$ (830,000)	$ (863,200)	$ (897,728)	$ (933,637)	$ (970,983)	$ (1,009,822)	$ (1,050,215)	$ (1,092,223)	$ (1,135,912)	$ (1,181,349)
Operating Payments	**$ (1,360,000)**	**$ (1,414,400)**	**$ (1,470,976)**	**$ (1,529,815)**	**$ (1,591,008)**	**$ (1,654,648)**	**$ (1,720,834)**	**$ (1,789,667)**	**$ (1,861,254)**	**$ (1,935,704)**
Operating Surplus/(Deficit)	**$ 301,513**	**$ 340,391**	**$ 381,775**	**$ 425,737**	**$ 470,159**	**$ 517,182**	**$ 566,864**	**$ 619,259**	**$ 674,418**	**$ 732,388**
Water Debt Service (P+I)	$ (63,216)	$ (63,216)	$ (225,845)	$ (225,845)	$ (225,845)	$ (225,845)	$ (225,845)	$ (225,845)	$ (225,845)	$ (225,845)
Sewer Debt Service (P+I)	$ (358,226)	$ (358,226)	$ (358,226)	$ (358,226)	$ (358,226)	$ (358,226)	$ (358,226)	$ (358,226)	$ (358,226)	$ (358,226)
Total Debt Service (P+I)	**$ (421,442)**	**$ (421,442)**	**$ (584,071)**	**$ (584,071)**	**$ (584,071)**	**$ (584,071)**	**$ (584,071)**	**$ (584,071)**	**$ (584,071)**	**$ (584,071)**
Water Cash-funded Capital	$ (321,940)	$ (438,524)	$ (451,471)	$ (216,956)	$ (216,946)	$ (298,910)	$ (310,979)	$ (323,510)	$ (336,519)	$ (350,026)
Sewer Cash-funded Capital	$ (150,540)	$ (210,624)	$ (160,771)	$ (60,956)	$ (60,946)	$ (248,910)	$ (258,979)	$ (269,430)	$ (280,276)	$ (291,533)
Cash-funded capital	**$ (472,481)**	**$ (649,147)**	**$ (612,242)**	**$ (277,911)**	**$ (277,893)**	**$ (547,819)**	**$ (569,958)**	**$ (592,939)**	**$ (616,795)**	**$ (641,559)**
Availability fees	**$ 425,950**	**$ 435,367**	**$ 445,043**	**$ 454,979**	**$ 465,176**	**$ 475,646**	**$ 486,390**	**$ 497,422**	**$ 508,755**	**$ 520,390**
Non-Operating Surplus/(Deficit)	**$ (467,973)**	**$ (635,223)**	**$ (751,270)**	**$ (407,003)**	**$ (396,788)**	**$ (656,245)**	**$ (667,639)**	**$ (679,588)**	**$ (692,111)**	**$ (705,241)**
Water Surplus/Deficit (Cash Flow)	$ (29,590)	$ (120,724)	$ (269,344)	$ (6,322)	$ 22,675	$ (28,705)	$ (8,568)	$ 12,783	$ 35,366	$ 59,213
Sewer Surplus/Deficit (Cash Flow)	$ (136,870)	$ (174,109)	$ (100,151)	$ 25,055	$ 50,696	$ (110,357)	$ (92,207)	$ (73,112)	$ (53,059)	$ (32,066)
Total Cash Surplus/(Deficit)	**$ (166,460)**	**$ (294,833)**	**$ (369,495)**	**$ 18,733**	**$ 73,371**	**$ (139,063)**	**$ (100,776)**	**$ (60,329)**	**$ (17,692)**	**$ 27,147**
Water Cash Reserves	$ 971,165	$ 850,441	$ 581,097	$ 574,776	$ 597,450	$ 568,745	$ 560,177	$ 572,959	$ 608,325	$ 667,538
Sewer Cash Reserves	$ 1,781,687	$ 1,607,578	$ 1,507,426	$ 1,532,481	$ 1,583,178	$ 1,472,820	$ 1,380,613	$ 1,307,501	$ 1,254,442	$ 1,222,377
Total Cash Reserves	**$ 2,752,854**	**$ 2,458,022**	**$ 2,088,527**	**$ 2,107,260**	**$ 2,180,631**	**$ 2,041,568**	**$ 1,940,793**	**$ 1,880,463**	**$ 1,862,771**	**$ 1,889,918**
Reserve Target (Op Pmts + Debt)	$ 1,781,442	$ 1,835,842	$ 2,055,047	$ 2,113,886	$ 2,175,079	$ 2,238,719	$ 2,304,905	$ 2,373,738	$ 2,445,325	$ 2,519,775
Reserve Ratio (>1)	**1.55**	**1.34**	**1.02**	**1.00**	**1.00**	**0.91**	**0.84**	**0.79**	**0.76**	**0.75**
Income Available for Debt Service	$ 727,463	$ 775,757	$ 826,818	$ 880,716	$ 935,335	$ 992,828	$ 1,053,254	$ 1,116,681	$ 1,183,173	$ 1,252,778
Debt Coverage Ratio (>1.5)	**1.73**	**1.84**	**1.42**	**1.51**	**1.60**	**1.70**	**1.80**	**1.91**	**2.03**	**2.14**
Total Debt	**$ 6,036,658**	**$ 8,296,315**	**$ 8,011,133**	**$ 7,716,643**	**$ 7,412,529**	**$ 7,098,461**	**$ 6,774,100**	**$ 6,439,094**	**$ 6,093,077**	**$ 5,735,670**
Assessed Property	$74,672,847	$76,913,033	$79,220,424	$81,597,036	$84,044,948	$86,566,296	$89,163,285	$91,838,183	$94,593,329	$97,431,129
Debt Ratio (no pro-rating)	8.1%	10.8%	10.1%	9.5%	8.8%	8.2%	7.6%	7.0%	6.4%	5.9%
%Customers In-Town	16%	16%	16%	16%	15%	15%	15%	15%	15%	15%
Pro-Rata Debt	$ 972,079	$ 1,320,274	$ 1,260,493	$ 1,200,952	$ 1,141,529	$ 1,082,111	$ 1,022,587	$ 962,855	$ 902,816	$ 842,373
Debt vs. Assessments (<2%)	**1.3%**	**1.7%**	**1.6%**	**1.5%**	**1.4%**	**1.3%**	**1.1%**	**1.0%**	**1.0%**	**0.9%**

8. Multiplier Analysis

The Town currently has a 1.5x multiplier for calculating out-of-town rates and fees. While this report has not studied the justifications for the existing multiplier, rationales include: uncompensated subsidies from the Town general fund, the use of the Town general fund to "float" utility system balances when reserves are low, the additional risk to the Town associated with securing debt for the system (utility bonds, while repaid by usage revenues, are general obligation bonds that are guaranteed by the town taxing authority), the inadequate availability fees that can be recovered from consent-decree users, and the increased costs to deliver service to dispersed out-of-town areas.

The Utility Committee recommends that the Town maintain the current 1.5 multiplier for now, but that the Town reevaluate periodically. This report contributes an analysis of the average household cost of the multiplier, as in the 2007 report, as well as an analysis of the multiplier from the standpoint of an enterprise rate of return to the in-town owners.

For FY2016, the projected user revenue is approximately $1.6M. Using the current proportion of in-town to out-of-town plus consent decree users, the usage revenue from each pool can be calculated, as shown in the first row of Table 21 below.

The rates that would be required to raise the same amount of revenue for each value of the multiplier is also shown. For example, while the combined rate is $16.40 with a 1.5x multiplier, if the multiplier were eliminated the combined rate would need to be increased to $23.28 to produce the same revenue. Thus while all users would pay the same rate, that rate would be very close to the existing out-of-town rate.

As shown below, eliminating the multiplier would cause a one-time reduction in out-of-town rates of 5.4% and a one-time increase in in-town rates of 42%. The total dollar value of the multiplier (in shifting revenues from one pool of users to another) is shown in the right-hand column. For next fiscal year, the multiplier raises an additional $77K from out-of-town users and reduces in-town revenues by the same amount. Averaging this value across the number of current households in each pool gives an average annual household cost of the multiplier of $67 per out-of-town household ($11/bi-monthly bill), and a $351 benefit per in-town household ($58/bi-monthly bill).

Table 21. Out-of-Town Multiplier Financial Impact

	In-town		Out-of-town		In-town	Out-of-Town	Change	Multiplier
	Combined	%	Combined	%	Annual	Annual	Annual	Cost
Multiplier	Rate	Change	Rate	Change	Revenue	Revenue	Revenue	%
1.50	$16.40	0.0%	$24.60	0.0%	$183,225	$1,431,913	$0	5.4%
1.40	$17.43	6.3%	$24.40	-0.8%	$194,734	$1,420,404	$11,510	4.6%
1.30	$18.60	13.4%	$24.18	-1.7%	$207,787	$1,407,351	$24,562	3.7%
1.20	$19.93	21.6%	$23.92	-2.8%	$222,715	$1,392,424	$39,490	2.7%
1.10	$21.48	31.0%	$23.63	-4.0%	$239,953	$1,375,185	$56,729	1.5%
1.00	$23.28	41.9%	$23.28	-5.4%	$260,085	$1,355,053	$76,860	0.0%

1) This table assumes for simplicity 219 combined town users and 1141 combined out-of-town users – there are actually slightly more water users and slightly fewer sewer users in each pool.

The final column in Table 21 takes the benefit that accrues to in-town users in the form of below-normalized rates ($77K at the current 1.5x multiplier) and expresses it as a ratio of out-of-town user revenues. This can be viewed as the rate of return of the utility system when viewed as an enterprise fund, where the return is calculated as a commission on out-of-town revenues and realized in the form of the multiplier. In the case of the 1.5x multiplier, the $77K annual benefit corresponds to a return to in-town users of only 5.4% as a percentage of out-of-town revenues. An alternate method of calculation might be a return on investment calculation that would be based on the value of utility system assets after depreciation, debt and operating expenses are accounted for, but it would be far more complex to produce accurately and difficult to understand.

If a system had a small number of out-of-town users and a 2x multiplier, the return on out-of-town users is nearly 100% (e.g. out-of-town users are paying twice the average cost of service). However, because Round Hill has a relatively small number of in-town users who benefit from the smaller rate (and because our multiplier is only 1.5x), the ratio of out-of-town revenues that funds the in-town multiplier is very small (5.4%). Stated another way, of the payments made by out-of-town users, 94.6% are for an equal share of operating and capital costs, and 5.4% are used to fund the multiplier (e.g. lower in-town rates) and recompense in-town users who assume ownership risk of the system, guarantee the general obligation bonds, and take responsibility for managing the system.

9. Reference Tables

Table 22. Projected User Population at Start of Each Fiscal Year

| Year | Slow Growth (35 new/year) | | | | | | | | Fast Growth (70 new/year) | | | | | | | |
| | Water | | | | Sewer | | | | Water | | | | Sewer | | | |
	In	Out	Con	Tot	In	Out	Con	Tot	In	Out	Con	Tot	In	Out	Con	Tot
2016	221	276	893	1390	217	220	893	1330	221	276	893	1390	217	220	893	1330
2017	224	283	918	1425	220	227	918	1365	226	291	943	1460	222	235	943	1400
2018	227	290	943	1460	223	234	943	1400	231	306	993	1530	227	250	993	1470
2019	230	297	968	1495	226	241	968	1435	236	321	1043	1600	232	265	1043	1540
2020	233	304	993	1530	229	248	993	1470	241	336	1093	1670	237	280	1093	1610
2021	236	311	1018	1565	232	255	1018	1505	246	351	1143	1740	242	295	1143	1680
2022	239	318	1043	1600	235	262	1043	1540	251	366	1182	1799	247	310	1182	1739
2023	242	325	1068	1635	238	269	1068	1575	256	381	1182	1819	252	325	1182	1759
2024	245	332	1093	1670	241	276	1093	1610	261	396	1182	1839	257	340	1182	1779
2025	248	339	1118	1705	244	283	1118	1645	266	411	1182	1859	262	355	1182	1799
2026	251	346	1143	1740	247	290	1143	1680	271	426	1182	1879	267	370	1182	1819
2027	254	353	1168	1775	250	297	1168	1715	276	441	1182	1899	272	385	1182	1839
2028	257	360	1182	1799	253	304	1182	1739	281	450	1182	1913	277	400	1182	1859
2029	260	367	1182	1809	256	311	1182	1749	286	450	1182	1918	282	415	1182	1879
2030	263	374	1182	1819	259	318	1182	1759	291	450	1182	1923	287	430	1182	1899
2031	266	381	1182	1829	262	325	1182	1769	296	450	1182	1928	292	445	1182	1919
2032	269	388	1182	1839	265	332	1182	1779	301	450	1182	1933	297	450	1182	1929
2033	272	395	1182	1849	268	339	1182	1789	306	450	1182	1938	302	450	1182	1934
2034	275	402	1182	1859	271	346	1182	1799	311	450	1182	1943	307	450	1182	1939

In = in-town users, Out = out-of-town non-consent-decree, Con = out-of-town consent-decree

Figure 7. User Growth by Scenario
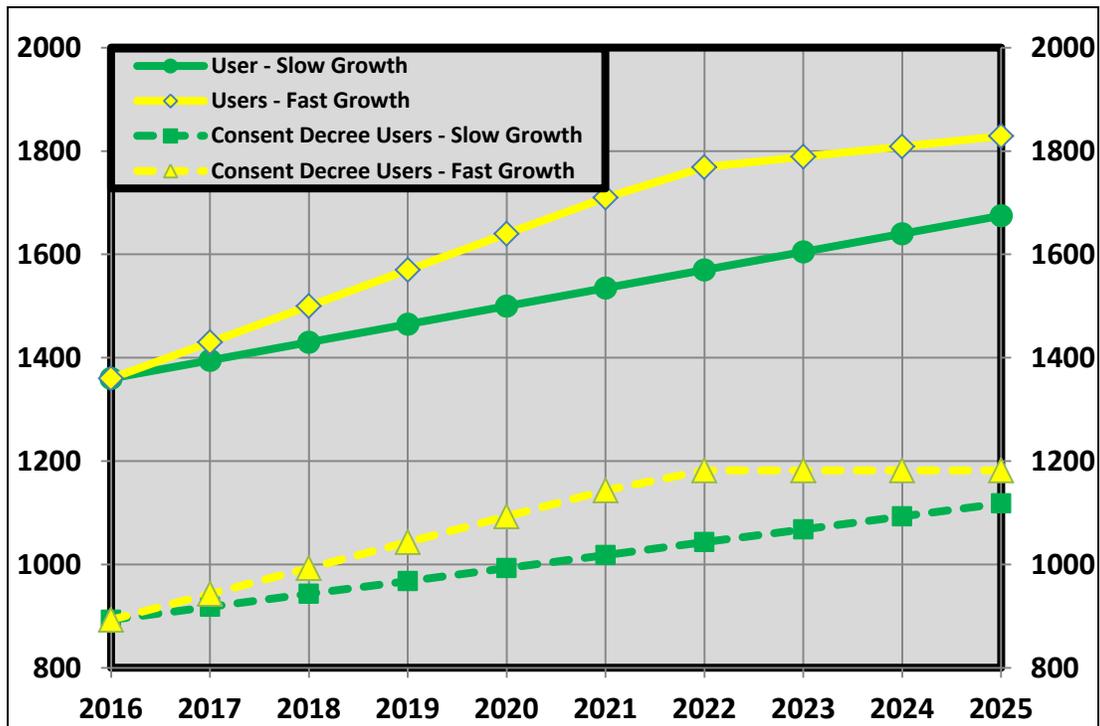
Table 23. Projected Debt Expenses with Allocations to Water/Sewer and Growth

FY	Water Debt			Sewer Debt			Total
	Growth	Non-Growth	Total	Growth	Non-Growth	Total	Service
2016	$15,804	$47,412	$63,216	$268,670	$89,557	$358,226	$421,442
2017	$15,804	$47,412	$63,216	$268,670	$89,557	$358,226	$421,442
2018	$113,381	$112,464	$225,845	$268,670	$89,557	$358,226	$584,071
2019	$113,381	$112,464	$225,845	$268,670	$89,557	$358,226	$584,071
2020	$113,381	$112,464	$225,845	$268,670	$89,557	$358,226	$584,071
2021	$113,381	$112,464	$225,845	$268,670	$89,557	$358,226	$584,071
2022	$113,381	$112,464	$225,845	$268,670	$89,557	$358,226	$584,071
2023	$113,381	$112,464	$225,845	$268,670	$89,557	$358,226	$584,071
2024	$113,381	$112,464	$225,845	$268,670	$89,557	$358,226	$584,071
2025	$113,381	$112,464	$225,845	$268,670	$89,557	$358,226	$584,071
2026	$113,381	$112,464	$225,845	$268,670	$89,557	$358,226	$584,071
2027	$113,381	$112,464	$225,845	$268,670	$89,557	$358,226	$584,071
2028	$113,381	$112,464	$225,845	$268,670	$89,557	$358,226	$584,071
2029	$113,381	$112,464	$225,845	$268,670	$89,557	$358,226	$584,071
2030	$113,381	$112,464	$225,845	$268,670	$89,557	$358,226	$584,071
2031	$113,381	$112,464	$225,845	$268,670	$89,557	$358,226	$584,071
2032	$113,381	$112,464	$225,845	$268,670	$89,557	$358,226	$584,071
2033	$113,381	$112,464	$225,845	$268,670	$89,557	$358,226	$584,071
2034	$113,381	$112,464	$225,845	$268,670	$89,557	$358,226	$584,071

Table 24. Water Expenses Attributable to Growth

	PW	Water Growth Expenses				
	Factor	Spec CIP	Unspec CIP	Debt	Tot	PW
2016	1.000	$431,040	$0	$15,804	$446,844	$446,844
2017	0.971	$1,177,790	$0	$15,804	$1,193,594	$1,158,829
2018	0.943	$521,070	$0	$113,381	$634,451	$598,031
2019	0.915	$109,000	$0	$113,381	$222,381	$203,510
2020	0.888	$109,000	$0	$113,381	$222,381	$197,583
2021	0.863	$0	$150,000	$113,381	$263,381	$227,195
2022	0.837	$0	$156,000	$113,381	$269,381	$225,603
2023	0.813	$0	$162,240	$113,381	$275,621	$224,105
2024	0.789	$0	$168,730	$113,381	$282,111	$222,701
2025	0.766	$0	$175,479	$113,381	$288,860	$221,387
2026	0.744	$0	$182,498	$113,381	$295,879	$220,162
2027	0.722	$0	$189,798	$113,381	$303,179	$219,023
2028	0.701	$0	$197,390	$113,381	$310,771	$217,969
2029	0.681	$0	$205,285	$113,381	$318,667	$216,996
2030	0.661	$0	$213,497	$113,381	$326,878	$216,105
2031	0.642	$0	$222,037	$113,381	$335,418	$215,292
2032	0.623	$0	$230,918	$113,381	$344,299	$214,556
2033	0.605	$0	$240,155	$113,381	$353,536	$213,895
2034	0.587	$0	$249,761	$113,381	$363,142	$213,308

PW = present worth (3%/year), CIP = Capital Improvement Plan

Table 25. Sewer Expenses Attributable to Growth

	PW	Sewer Growth Expenses				
	Factor	Spec CIP	Unspec CIP	Debt	Tot	PW
2016	1.000	$76,000	$0	$268,670	$344,670	$344,670
2017	0.971	$106,000	$0	$268,670	$374,670	$363,757
2018	0.943	$81,000	$0	$268,670	$349,670	$329,597
2019	0.915	$31,000	$0	$268,670	$299,670	$274,240
2020	0.888	$31,000	$0	$268,670	$299,670	$266,253
2021	0.863	$0	$125,000	$268,670	$393,670	$339,583
2022	0.837	$0	$130,000	$268,670	$398,670	$333,880
2023	0.813	$0	$135,200	$268,670	$403,870	$328,383
2024	0.789	$0	$140,608	$268,670	$409,278	$323,088
2025	0.766	$0	$146,232	$268,670	$414,902	$317,988
2026	0.744	$0	$152,082	$268,670	$420,751	$313,078
2027	0.722	$0	$158,165	$268,670	$426,834	$308,354
2028	0.701	$0	$164,491	$268,670	$433,161	$303,810
2029	0.681	$0	$171,071	$268,670	$439,741	$299,442
2030	0.661	$0	$177,914	$268,670	$446,584	$295,244
2031	0.642	$0	$185,031	$268,670	$453,700	$291,213
2032	0.623	$0	$192,432	$268,670	$461,101	$287,343
2033	0.605	$0	$200,129	$268,670	$468,799	$283,631
2034	0.587	$0	$208,134	$268,670	$476,804	$280,072

PW = present worth (3%/year), CIP = Capital Improvement Plan

Table 26. Availability Fee Schedule – Recommended Fees

	In-town Water Avail:			$	7,500	
	In-Town Sewer Avail:			$	11,600	
	Rate Multiplier:				1.5	
	Annual Increase:				3%	
	Recommended Availability Fee					
	Water			Sewer		
	In	Out	Con	In	Out	Con
2016	$ 7,500	$ 11,250	$ -	$ 11,600	$ 17,400	$ 6,724
2017	$ 7,725	$ 11,588	$ -	$ 11,948	$ 17,922	$ 6,791
2018	$ 7,957	$ 11,936	$ -	$ 12,307	$ 18,461	$ 6,859
2019	$ 8,196	$ 12,294	$ -	$ 12,677	$ 19,016	$ 6,928
2020	$ 8,442	$ 12,663	$ -	$ 13,058	$ 19,587	$ 6,997
2021	$ 8,696	$ 13,044	$ -	$ 13,450	$ 20,175	$ 7,067
2022	$ 8,957	$ 13,436	$ -	$ 13,854	$ 20,781	$ 7,138
2023	$ 9,226	$ 13,839	$ -	$ 14,270	$ 21,405	$ 7,209
2024	$ 9,503	$ 14,255	$ -	$ 14,699	$ 22,049	$ 7,281
2025	$ 9,789	$ 14,684	$ -	$ 15,140	$ 22,710	$ 7,354
2026	$ 10,083	$ 15,125	$ -	$ 15,595	$ 23,393	$ 7,427
2027	$ 10,386	$ 15,579	$ -	$ 16,063	$ 24,095	$ 7,502
2028	$ 10,698	$ 16,047	$ -	$ 16,545	$ 24,818	$ 7,577
2029	$ 11,019	$ 16,529	$ -	$ 17,042	$ 25,563	$ 7,653
2030	$ 11,350	$ 17,025	$ -	$ 17,554	$ 26,331	$ 7,729
2031	$ 11,691	$ 17,537	$ -	$ 18,081	$ 27,122	$ 7,806
2032	$ 12,042	$ 18,063	$ -	$ 18,624	$ 27,936	$ 7,884
2033	$ 12,404	$ 18,606	$ -	$ 19,183	$ 28,775	$ 7,963
2034	$ 12,777	$ 19,166	$ -	$ 19,759	$ 29,639	$ 8,043

In = in-town users, Out = out-of-town non-consent-decree, Con = out-of-town consent-decree

Table 27. Projected Availability Revenue($K) – Slow Growth – Recommended Fees

	Water				Sewer			
	In	Out	Con	Tot	In	Out	Con	Tot
2016	$22.50	$78.75	$0.00	$101.25	$34.80	$121.80	$168.10	$324.70
2017	$23.18	$81.11	$0.00	$104.29	$35.84	$125.45	$169.78	$331.08
2018	$23.87	$83.55	$0.00	$107.42	$36.92	$129.22	$171.48	$337.62
2019	$24.59	$86.06	$0.00	$110.65	$38.03	$133.11	$173.19	$344.33
2020	$25.33	$88.64	$0.00	$113.97	$39.17	$137.11	$174.93	$351.21
2021	$26.09	$91.31	$0.00	$117.40	$40.35	$141.23	$176.67	$358.25
2022	$26.87	$94.05	$0.00	$120.92	$41.56	$145.47	$178.44	$365.47
2023	$27.68	$96.87	$0.00	$124.55	$42.81	$149.84	$180.23	$372.87
2024	$28.51	$99.78	$0.00	$128.29	$44.10	$154.34	$182.03	$380.46
2025	$29.37	$102.78	$0.00	$132.15	$45.42	$158.97	$183.85	$388.24
2026	$30.25	$105.87	$0.00	$136.12	$46.79	$163.75	$185.69	$396.22
2027	$31.16	$109.05	$0.00	$140.21	$48.19	$168.66	$105.02	$321.88
2028	$32.09	$112.33	$0.00	$144.42	$49.64	$173.72	$0.00	$223.36
2029	$33.06	$115.70	$0.00	$148.76	$51.13	$178.94	$0.00	$230.07
2030	$34.05	$119.18	$0.00	$153.23	$52.66	$184.32	$0.00	$236.98
2031	$35.07	$122.76	$0.00	$157.83	$54.24	$189.85	$0.00	$244.09
2032	$36.13	$126.44	$0.00	$162.57	$55.87	$195.55	$0.00	$251.42
2033	$37.21	$130.24	$0.00	$167.45	$57.55	$201.42	$0.00	$258.97
2034	$38.33	$134.16	$0.00	$172.49	$59.28	$207.47	$0.00	$266.75

In = in-town users, Out = out-of-town non-consent-decree, Con = out-of-town consent-decree

Table 28. Projected Availability Revenue($K) – Fast Growth – Recommended Fees

	Water				Sewer			
	In	Out	Con	Tot	In	Out	Con	Tot
2016	$37.50	$168.75	$0.00	$206.25	$58.00	$261.00	$336.20	$655.20
2017	$38.63	$173.81	$0.00	$212.44	$59.74	$268.83	$339.56	$668.13
2018	$39.79	$179.03	$0.00	$218.82	$61.54	$276.91	$342.96	$681.40
2019	$40.98	$184.41	$0.00	$225.39	$63.39	$285.23	$346.39	$695.00
2020	$42.21	$189.95	$0.00	$232.16	$65.29	$293.81	$349.85	$708.95
2021	$43.48	$195.66	$0.00	$239.14	$67.25	$302.63	$275.61	$645.49
2022	$44.79	$201.53	$0.00	$246.32	$69.27	$311.72	$0.00	$380.99
2023	$46.13	$207.59	$0.00	$253.72	$71.35	$321.08	$0.00	$392.43
2024	$47.52	$213.82	$0.00	$261.33	$73.50	$330.73	$0.00	$404.22
2025	$48.95	$220.25	$0.00	$269.20	$75.70	$340.65	$0.00	$416.35
2026	$50.42	$226.87	$0.00	$277.28	$77.98	$350.89	$0.00	$428.86
2027	$51.93	$140.21	$0.00	$192.14	$80.32	$361.42	$0.00	$441.73
2028	$53.49	$0.00	$0.00	$53.49	$82.73	$372.26	$0.00	$454.99
2029	$55.10	$0.00	$0.00	$55.10	$85.21	$383.45	$0.00	$468.66
2030	$56.75	$0.00	$0.00	$56.75	$87.77	$394.97	$0.00	$482.74
2031	$58.46	$0.00	$0.00	$58.46	$90.41	$135.61	$0.00	$226.01
2032	$60.21	$0.00	$0.00	$60.21	$93.12	$0.00	$0.00	$93.12
2033	$62.02	$0.00	$0.00	$62.02	$95.92	$0.00	$0.00	$95.92
2034	$63.89	$0.00	$0.00	$63.89	$98.80	$0.00	$0.00	$98.80

In = in-town users, Out = out-of-town non-consent-decree, Con = out-of-town consent-decree

Table 29. Projected Usage Revenue ($K) – Recommended Fees

	Water				Sewer			
	In	Out	Con	Tot	In	Out	Con	Tot
2016	$86	$161	$520	$767	$98	$148	$602	$848
2017	$90	$170	$551	$810	$102	$158	$638	$898
2018	$94	$179	$583	$856	$107	$168	$676	$950
2019	$98	$189	$617	$905	$111	$178	$715	$1,005
2020	$102	$200	$652	$954	$116	$189	$756	$1,061
2021	$106	$210	$689	$1,006	$121	$200	$798	$1,119
2022	$111	$222	$728	$1,060	$127	$212	$843	$1,181
2023	$116	$234	$768	$1,118	$132	$224	$889	$1,245
2024	$121	$246	$810	$1,177	$138	$237	$937	$1,312
2025	$126	$259	$854	$1,240	$144	$250	$988	$1,382
2026	$132	$272	$900	$1,304	$150	$264	$1,041	$1,455
2027	$137	$286	$947	$1,371	$156	$279	$1,096	$1,531
2028	$143	$301	$988	$1,431	$163	$294	$1,142	$1,599
2029	$149	$316	$1,017	$1,483	$170	$310	$1,177	$1,656
2030	$155	$332	$1,048	$1,535	$177	$326	$1,212	$1,715
2031	$162	$348	$1,080	$1,590	$185	$344	$1,249	$1,778
2032	$169	$365	$1,113	$1,647	$192	$362	$1,287	$1,841
2033	$176	$383	$1,146	$1,705	$200	$380	$1,326	$1,907
2034	$183	$401	$1,181	$1,765	$209	$400	$1,366	$1,975

In = in-town users, Out = out-of-town non-consent-decree, Con = out-of-town consent-decree

Table 30. User Fee Schedule – Recommended Fees (per 1,000 gallons)

	Water		Sewer	
	In	Out	In	Out
2016	$7.60	$11.40	$8.80	$13.20
2017	$7.83	$11.75	$9.07	$13.61
2018	$8.07	$12.11	$9.35	$14.03
2019	$8.32	$12.48	$9.64	$14.46
2020	$8.57	$12.86	$9.93	$14.90
2021	$8.83	$13.25	$10.23	$15.35
2022	$9.10	$13.65	$10.54	$15.81
2023	$9.38	$14.07	$10.86	$16.29
2024	$9.67	$14.51	$11.19	$16.79
2025	$9.97	$14.96	$11.53	$17.30
2026	$10.27	$15.41	$11.88	$17.82
2027	$10.58	$15.87	$12.24	$18.36
2028	$10.90	$16.35	$12.61	$18.92
2029	$11.23	$16.85	$12.99	$19.49
2030	$11.57	$17.36	$13.38	$20.07
2031	$11.92	$17.88	$13.79	$20.69
2032	$12.28	$18.42	$14.21	$21.32
2033	$12.65	$18.98	$14.64	$21.96
2034	$13.03	$19.55	$15.08	$22.62

In = in-town users, Out = out-of-town users

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