SERCAP, INC.

Rate Analysis Report
For
The Town of

-1686-
Snow Hill
MARYLAND

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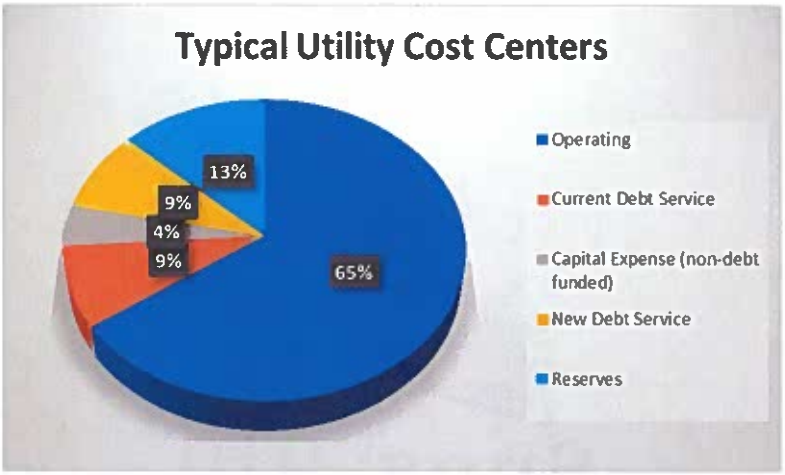
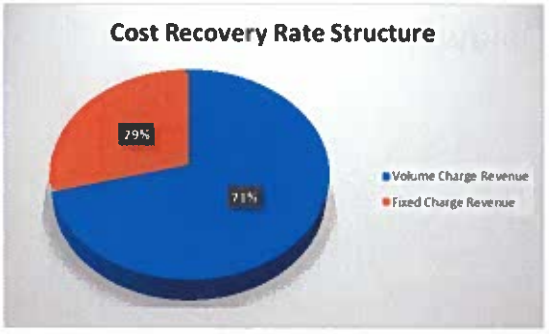
SERCAP, INC.

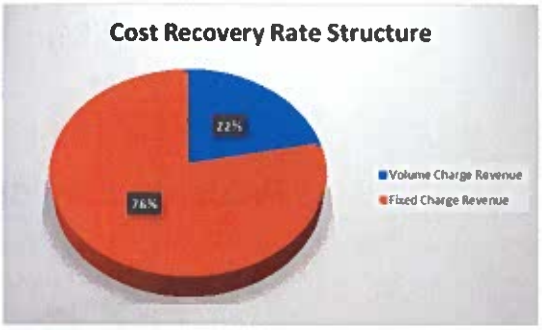
Rate Setting and Cost Recovery Principles:

The goal of any sustainable utility is to fully recover its costs of operation, including capital expenditures, both self- and debt-funded, reasonable reserves and general overhead. The way in which these various costs may be recovered is embedded in the rate structure. The level of charges for fixed and variable costs is generally known as "the rates". If the full costs of owning and operating the utility are viewed as a pie, the rate structure and subsequent charges reflect how that pie is sliced. What doesn't change in any of these scenarios is the size of the pie itself. What is not in one piece will be in the other, but the pie remains the same. This is illustrated in the figure below.



These costs of operations, "the pie," can be recovered through fixed charges or volume charges that reflect what each customer uses. Usually it is with a combination of both, with fixed charges covering the utility's fixed costs, and volumetric charges covering the variable costs that change according to the amount of water (or sewer) used, but again, what isn't in one piece must be in the other as the two figures below illustrate.





Either structure will recover the utility's costs, but the structure used will determine *where* the money comes from, how and when it is received.

Three Things to Do BEFORE a Rate Change:

1. If there is a gallon allowance included in a minimum bill, consider reducing or eliminating those gallons, making them subject to the volume charge. If that is politically or practically not feasible, then make sure the charge that includes those gallons is not less than the base cost to produce those gallons. No gallon allowance is preferred, however, if there must be a quantity of water included in a minimum charge it should be as low as possible and not more than 3,000 gallons per month or 9,000 gallons per quarter. If your gallon allowance is too high you may be giving away water in that minimum bill as well as encouraging people to waste water rather than conserve it.

2. Get a handle on non-revenue water. That is water your system produces and which costs to produce, but for which there is no revenue coming back to cover costs. There will always be a certain amount of water than doesn't get billed or paid for, after all, unlike sewer pipes, water pipes hold water all the time. There may also be connections you don't charge for water service, such as your own town buildings or the fire department. Those buildings should still be metered even if you choose not to charge them as a matter of policy. If they are not, consider installing meters and reading them without billing. Otherwise, there is no way to tell how much water is lost or un-billable. A simple calculation or two can give you an idea of how much is non-revenue water. Subtracting billed gallons from gallons produced during the same period, whether month or quarter, will give you a non-revenue figure. That can then be reduced further by deducting know losses, leaks, fire flows, filter backwash, hydrant flushing, etc. When everything has been accounted for, the difference between production and know water consumption should be less than 15%. If it is higher than 15% an evaluation of meters and leak detection may be in order, or at least a more in-depth water audit to drill down on the amount of water not being billed.

3. Get a grip on collections. You should be collecting at least 95% of what you're billing before the next bill is sent out. You can measure that as 95% of the $$ billed or 95% of the total number of bills sent, but if you have more than 5% in arrears when the next bill is due, your paying customers are paying more than their share of the operating costs for the system

These three things are stated in relation to a water utility but, with the possible exception of #2 above, the principles are the same for water or sewer. The difference with a sewer system would be if you see your system is treating more than its average daily flow or substantially more than the water that is produced whenever it rains, there may be an inflow and infiltration problem. That can mean you're treating water that isn't really sewage but runoff. That said, if your sewer charges are based on metered water usage, non-revenue water will also affect sewer revenue.

A Word About General Overhead/General Government:

If you are a municipal system and have other services that are offered from your main office or town hall, it's important to measure the proportion of those general services that are directly related to the water and/or sewer utilities. The cost of a clerk who provides customer service

daily, the cost of a town clerk/treasurer, the cost of a town manager/administrator, care and maintenance of the building, insurance, telephone, electricity, etc. are all services that may be applied to all the town's services, and the costs of these should be allocated in some way to the utility if it is to recover its full cost of operation. Even if the governing body chooses deliberately to forego these costs and let them be paid by the General Fund, there should be some calculation to indicate how much those costs actually are.

A Word about Reserves:

Many systems, small systems in particular, tend to think of reserves as something that is either a "paper number" and a nice thing to have or that should be accumulated outside of the rate structure for a rainy day. Reserves are, in fact, an actual cost of operation and, as such, should be included in whole or in part in the calculation of a *full* cost recovery rate structure. Including reserves as a cost of operation reflects two basic philosophies: 1) current users should pay for the cost to serve them rather than putting the cost burden on future users; and 2) current users should bear some of the costs of the system's eventual replacement as they are the ones causing it to wear out currently by receiving service. That is not to say that every user currently connected should pay a portion of the cost to install the system when it was brand new, but that current users should pay a fair share of the debt service on that installation cost and any upgrades since as long as they remain customers.

In addition to bearing some share of the costs of system installation and repairs in a reserve, users should also pay for accumulating some level of reserve for emergencies. What that level is can be a matter of policy or a matter of simple arithmetic, but some reserve for contingencies is strongly recommended. Also, most lenders require some level of reserve to cover debt service in the event that there's an un-expected drop in revenue or loss of large portions of the customer base. The amount of that reserve depends on the lender and whatever is specified in the loan instruments and conditions but a minimum of 10% per year or one year's debt service payment is required.

In Summary:

These principles have been used in the course of analyzing your system's rate structure and offering options and recommendations for your consideration. The usual rules of thumb used by our analysis may have been altered or adjusted based on direction from your management team before this final report was presented. Changes from standard procedure, if any, will be duly noted in the applicable section's narrative.

EXECUTIVE SUMMARY:

The current water and sewer rates do not appear to be based on full-cost recovery principles as explained above. The Sewer System is being operated at a serious deficit, and appears to have been in a deficit position for at least a few years. It's important to understand that a zero balanced budget does not mean a utility is fully recovering its costs of operation, if it does not cover reasonable reserves and/or allocable costs of general government. This appears to be the case with the sewer with a projected deficit of $595,242 for the test year of FY 2023. The Water Utility is better shape but a deficit of $67,981 is still projected for the same test year. The water utility does not have any current debt service, so any future improvements or upgrades that incur debt will likely worsen that position. Neither the Water or the Sewer utility is financially sustainable under the present rates and rate structure, and cannot continue without substantial subsidy from the General Fund and tax revenues. While this may eliminate a short-term deficit, it is not a financially sustainable solution for the long term.

The average cost of producing 1,000 gallons of water is $8.16 and the average revenue collected per 1,000 gallons produced is $7.30. While some of the costs of the water system are recovered through the base charge, this still represents a gap in the average unit cost vs. revenue. The town also has a moderately high level of non-revenue water at 21.1%. AWWA standard is 10% and SERCAP's is 15%. Addressing the non-revenue water level through meter replacement would likely narrow that gap substantially. While average costs per 1,000 is not the best or the only basis for rate setting, it is a useful figure when evaluating the overall costs of operation.

Average cost of collecting and treating wastewater is $20.30, while the average revenue collected is $10.51 per 1,000 gallons collected, a much wider gap of almost $10.00. The gap is even wider when compared to the present rate of $5.69 per 1,000 gallons indicating that the sewer rate is much too low to recover the costs of operation. Moreover, the wastewater utility costs about twice as much to operate as the water utility so the current lower rate per 1,000 gallons is not based on costs or realistic financial projection. Failing to address this will put the utility farther in the red and seriously jeopardize any attempt at securing funding for future upgrades or expansion. It is most unusual for a wastewater utility to charge less than a water utility, and in light of the significantly higher costs, it would appear that this rate has been "upside down" for some time, regardless of how and when it was derived.

Rate scenarios have been prepared with three options for each utility. Option 1 in each utility shows a volumetric charge beginning with 0 gallons included in the base and Option 2 shows the volumetric charge beginning at 4,000 gallons, while Option 3 begins at the present level of 6,000 gallons. It is SERCAP's opinion that a customer charge plus a volume charge beginning with the first gallon is the most equitable rate structure. That is the best way to guarantee that each customer is paying for only the water they use or sewer they discharge, while giving the town a sure revenue stream to cover its own fixed costs. However, the other scenarios are presented in response to the management team's request. All are still calculated to yield a cost recovery rate plus a "cushion" that is necessary in either case since all figures are based on a

single test year and estimates of costs and inflation. The actual surplus/(deficit) may vary in actual cost/expense real time.

Above all, it is important to remember that although the rate options presented are a starting point for further consideration they *ARE* based on the town's own budget, production and billing figures. There is virtually no "wiggle room" included in any of the figures, and political considerations aside, the costs must be recovered somehow, from somewhere, if not directly through the rate structures. If the town chooses to artificially set rates that aren't based on full cost recovery, it is strongly recommended that it strives toward that cost recovery rate structure within 1-2 years in order to protect its eligibility for funding programs and to sustain the utility in a financially sound manner. Continued reliability on transfers from the General Fund is not sustainable and is also inequitable for the tax payers who don't use water or sewer.

It is also suggested that the mandated 5% per year increase in rates be either suspended or eliminated until the town reaches the full cost recovery rate levels. Increasing automatically is a good concept when the utility is already recovering costs. When that is not the case as it is here, a flat % increase is not enough to cover the level of expense actually incurred and will just continue or exacerbate a deficit situation. For these reasons, SERCAP is recommending a suspension or elimination of the 5% per year increase for both water and sewer until such time as rates are fully recovering all allocable costs.

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The discussions in each section regarding affordability and average user bills are based on industry practices unless otherwise stated. The rule of thumb to calculate an average bill is what it costs a 5,000-gallon per month/15,000 gallon per quarter user. That cost is then compared with the Median Household Income for the area and/or comparable rates for the area. A discussion of affordability follows each utility's rate section. Further observations and conclusions are listed at the end of each utility's analysis. More detailed recommendations for both utilities are listed at the end of the report.

WATER ANALYSIS

System Costs and Cost Projection:

Costs were calculated with 2022-23 Budget as the base year and projected out for four additional years after the base. A rate of 5% was used in most projections with a higher percentage for fuel, electricity and health insurance as those are the line items most likely to increase at a greater rate. The table below represents the 5-year estimate of system operations costs.

Cost Center	Base Year	Year 2	Year 3	Year 4	Year 5
Personnel	$214,971	$225,720	$237,006	$248,856	$261,299
Operations	$375,874	$396,768	$419,021	$442,749	$468,081
Debt Service & Reserves	$56,381	$59,200	$62,160	$65,268	$68,532
TOTAL COSTS	**$647,226**	**$681,687**	**$718,187**	**$756,873**	**$797,911**

It is important to note here that these projections assume costs, including salaries, will rise at the rate of inflation used in the calculations and that may or may not turn out to be the case in reality. These projections also assume that there will be no new debt service, and if there is need for debt in subsequent years, the numbers will obviously change accordingly.

Part of the rate analysis includes calculating the average cost of producing 1,000 gallons of water. The first 1,000 gallons produced costs much more than the last 1,000 gallons due to economies of scale, and the cost of system start up being higher than for a system already in operation. There is an average cost per 1,000-gallon unit that reflects the overall cost of system operations, including all cost centers. Snow Hill's average cost per 1,000 gallons of water produced is $8.16. The current rate of $5.90 per 1,000 gallons after 6,000 gallons used is over $2.00 less than that average cost. That is *not* to say that the town should charge $8.16 at minimum, but it is a useful figure to compare different rate scenarios when making budgetary and rate decisions. It is also a useful figure to consider when evaluating the cost of non-revenue water, which will be discussed later in this report.

System Revenue and Revenue Requirement Projection:

Like the costs, system revenues were projected using the 22-23 budget as a base year, but with only a 2.5% rate of inflation in order to be safely conservative in revenue estimation. The table below represents the five-year projection for revenues AND the revenues that must be collected from water rates alone.

Revenue	Base Year	Year 2	Year 3	Year 4	Year 5
Total Anticipated Revenue	$590,745	$605,514	$620,651	$636,168	$652,072
LESS Restricted Revenues	($11,500)	($11,788)	($12,082)	($12,384)	($12,694)
EQUALS Rate Revenue	$579,245	$593,726	$608,569	$623,784	$639,378

Again, these subsequent year projections are based on minimal growth and a conservative inflation estimate. Changes in growth, additional sources of revenues and other developments may change these future year projections accordingly. The town's level of non-revenue water will also factor into the costs per 1,000 gallons, but this will be discussed further in the section of this report on Non-revenue water. Again, these are useful figures to keep in mind when considering rate changes.

Surplus/Deficit 5-year Projections:

The table below shows Cost and Revenue projections together, and it is readily apparent that the current rates and rate structures are sufficient to fully recover the costs of operating the water system, for now, with no current debt service. The table below summarizes the current and projected position of the water system based on current rates and rate structure.

	Base Year	Year 2	Year 3	Year 4	Year 5
Rate Revenue Projected	$579,245	$593,726	$608,569	$623,784	$639,378
System Costs	($647,226)	($681,687)	($718,187)	($756,873)	($797,911)
Surplus/(Deficit)	**$67,981**	**$87,961**	**$109,617**	**$133,090**	**$158,533**

Observations and Comments on Costs/Revenues Analysis:

The water utility is in a precarious financial situation, at present, even if rates do not change. The town is not recovering its average cost of producing 1,000 gallons of water at $8.16 when the average revenue per 1,000 gallons produced is only $10.51. That said, some of those costs are recovered through the fixed, per EDU charge, rather than through the volumetric rate. Regardless, it must be emphasized again that any decision to change rates should be viewed in the long term and the effect of any change on long term sustainability of the utility.

The figures presented for years after the base year are estimates and should be viewed as such, given the assumptions stated in the previous sections about debt service, inflation, customer growth and salary increase levels. Moreover, the rate scenarios presented later in this report for both Water and Sewer utilities should be viewed as **starting points**, not necessarily end results. There are other considerations that go into rate making that should be fully examined before any final decision is made on new rates or a rate structure.

Water Production and Non-Revenue Water:

As outlined in page 2 of this report, a part of all rate analyses should be an examination of the amount of non-revenue water the system is experiencing. That is, water that is produced at a cost to the town vs. the amount of water that is actually sold and for which revenue is received. Some non-revenue water is inevitable, since water pipes always contain a certain volume all the time, and there is a need to flush hydrants and provide occasional fire protection. AWWA recommends that the level of non-revenue water not exceed 10% of the volume produced. For a small system such as Snow Hill, SERCAP recommends no more than 15% of production. There is a sort of break-even point in attempting to recover non-revenue water where the cost to ferret out the losses exceeds the revenue that would be recovered, and 15% is a reasonable goal for small systems.

Snow Hill's current level of non-revenue water is 21.1% for the test year. While 6% more than SERCAP's recommendation may not seem like a lot, it is important to put that in the perspective of lost revenue, rather than just lost water. 21.1% of production represents 16,715,468 gallons. At the present rate of $5.90 per 1,000 gallons that equates to a loss of $98,621 just for water. Since sewer charges are based on water use, that revenue loss is exacerbated for sewer revenue loss.

Realistically, not all of the 21.1% is recoverable, but reducing the non-revenue level to an acceptable 15% level equates to a less dramatic volume of 11,894,551 gallons, with a revenue loss of $70,178 for the water utility. Reducing that loss to 10% of production still equates to lost revenue of $46,785. This non-revenue water can be due to a variety of reasons, including old meters, meters that only register in 1,000-gallon increments, underground losses that aren't apparent from the surface, free water for some, or clerical and administrative errors in transferring readings to billings. Regardless of the source this non-revenue water should be examined carefully and kept to an absolute minimum to avoid revenue loss for both water and sewer. The dollar loss for the sewer utility will be discussed in that section of this report.

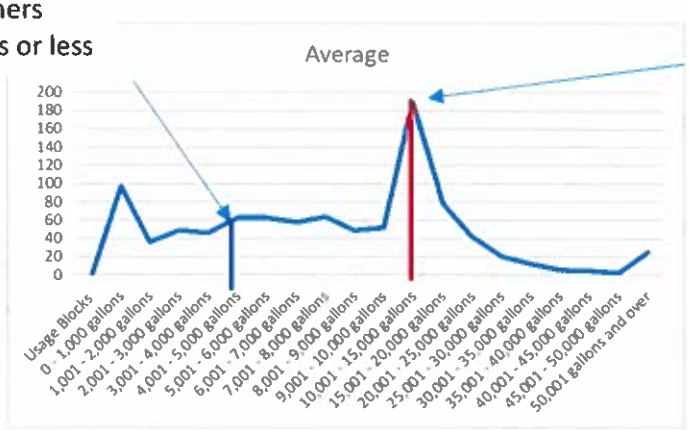
User Blocks and Average Users per Billing Period:

SERCAP examined quarterly billing records for all classes of customers to determine the average number of users in each 1,000-gallon block and the amount used by that block in an average quarter. These averages were then used to project revenues for each rate scenario offered here. The averages were also used to develop a usage curve that helps to identify where the majority of users fall in considering the impact of any proposed rate on the majority of customers. The table below represents the average users and total usage in each block.

AVERAGES - QUARTERLY BILLING		
Usage Blocks	Average # in Block	Average Gallons Used
0 - 1,000 gallons	98	20,623
1,001 - 2,000 gallons	36	54,148
2,001 - 3,000 gallons	49	123,028
3,001 - 4,000 gallons	47	165,518
4,001 - 5,000 gallons	63	268,725
5,001 - 6,000 gallons	63	349,950
6,001 - 7,000 gallons	58	373,398
7,001 - 8,000 gallons	64	480,368
8,001 - 9,000 gallons	49	419,760
9,001 - 10,000 gallons	52	488,260
10,001 - 15,000 gallons	189	2,304,230
15,001 - 20,000 gallons	79	1,356,533
20,001 - 25,000 gallons	43	945,963
25,001 - 30,000 gallons	21	556,033
30,001 - 35,000 gallons	13	403,920
35,001 - 40,000 gallons	6	214,660
40,001 - 45,000 gallons	5	189,058
45,001 - 50,000 gallons	3	118,500
50,001 gallons and over	26	6,812,708
EXCESS EDU'S	71	--
AVERAGE QUARTERLY	1,030	15,645,378
AVERAGE ANNUALLY		62,581,510

28.4% of Customers
use 4,000 gallons or less

74.4% of customers
Use 15,000 gallons or less



Nearly ¾ of the water customers use an average of 15,000 gallons or fewer per quarter. This helps to identify the impacts of any change in rates or rate structure, but it is also important to note that almost 30% of customers use 4,000 gallons per quarter or less. That figure will be significant in the outline of the different rate scenarios offered for both water and sewer.

This usage curve also indicates that the town's 6,000-gallon allowance included in the minimum bill may be higher that it should be. SERCAP usually recommends no gallon allowance at all, believing that to be the most equitable way to charge for usage. With a zero gallon allowance every customer pays for what they, themselves use and nothing more. When a volume of water is included in a minimum bill, some lower use customers may be paying for gallons they don't actually use, while higher use customers are getting some gallons they're not specifically paying for, beyond the minimum charge.

As discussed in the early pages of this report, a "Customer Charge" aka the town's minimum bill, should reflect the recovery of fixed charges that the town has to cover with or without any volume sales. Typically, these fixed charges are debt service and reserves that represent the costs of installing the system and making service available to all users, as well as some contribution to reserves for replacing equipment as it wears out. The customers connected to the system at any given time are contributing to that equipment's wearing out and should be paying some fair share of those costs. Including a gallon allowance in this customer charge, aka "Availability Charge" means that, in theory, the customer is getting a number of gallons without paying the volumetric unit charge.

In consultation with the Town's management team, SERCAP was asked to present three options for rate structure and what will in effect be a rate RE-structuring. The options presented for both water and sewer will show volumetric charge beginning at 0 gallons, at 4,000 gallons and at 6,000 gallons included in the customer charge. SERCAP continues to recommend starting at 0 gallons as being the most equitable, but the political and public relations concerns may dictate retaining some level of gallons included in the base charge. It is important to note that the figures presented in the options are meant to be starting points and the town should not hesitate to consider rounding up or adding to the figures presented. The effect on typical customers using 15,000 gallons per quarter is shown for each scenario.

Rate Scenario #1:

Customer Charge per EDU: $50.00
Gallon Allowance: 0
Usage Rate per 1,000 gallons: $7.20

Typical Bill at 15,000 gallons:
Quarterly - $158.00
Annually - $632.00

Rate Scenario #2:

Customer Charge per EDU: $50.00
Gallon Allowance: 4,000
Usage Rate per 1,000 gallons: $7.40

Typical Bill at 15,000 gallons:
Quarterly - $131.40
Annually - $525.60

Rate Scenario #3:

Customer Charge per EDU: $50.00
Gallon Allowance: 6,000
Usage Rate per 1,000 gallons: $7.70

Typical Bill at 15,000 gallons:
Quarterly - $119.30
Annually - $477.20

The usual benchmarks for judging "affordability" of water and wastewater rates is $400-$800 per year, PER utility or 1.5%-3% of the median household income (MHI) for the area. Snow Hill's MHI, according to the US Census Bureau is $46,750. An affordable bill using the % of MHI standard would be from $701.25 to $1,402.50 for each utility. All prospective water rate options are well within those recognized affordability standards.

Rate Scenario Comparisons per User Block: Seeing the effect of a rate change on various levels of usage is often a critical consideration for decision makers. SERCAP has calculated two rate scenarios' impacts on 3,000, 6,000, 9,000, 12,000 and 15,000-gallon users since about 75% of Snow Hill's customers fall in that range. In addition, the impact on a larger, 20,000-gallon user is shown for the basis of comparison.

Volume	Current	Option 1 Quarterly	Annual Difference	Option 2 Quarterly	Annual Difference	Option 3 Quarterly	Annual Difference
3,000	$39.89	$71.60	$126.84	$50.00	$40.44	$50.00	$40.44
6,000	$39.89	$93.20	$213.24	$64.80	$99.64	$50.00	$40.44
9,000	$57.59	$114.80	$228.84	$87.00	$117.64	$73.10	$62.04
12,000	$75.29	$136.40	$244.44	$109.20	$135.64	$96.20	$83.64
15,000	$92.99	$158.00	$260.04	$131.40	$153.64	$119.30	$105.24
20,000	$122.49	$194.00	$286.04	$168.40	$183.64	$157.80	$141.24

Keeping the present gallon allowance at 6,000 makes the volume charge higher in order to fully recover costs. To put all three options vs. the current rate structure in perspective the table below shows the difference in revenues each option makes for the town.

Option	Surplus/(Deficit)
Current Rate - $39.89 + $5.90 over 6,000 gal	($ 67,981)
Option #1 - $50.00 + $7.20 per 1,000 gal	$ 9,311
Option #2 - $50.00 + $7.40 over 4,000 gal	$ 11,073
Option #3 - $50.00 + $7.70 over 6,000 gal	$ 10,356

The town's mandated 5% increase would bring the base charge to $41.88 so $42.00 was tried first as a round figure. That was insufficient to recover all costs of operation. A higher base charge is proposed as a way to keep the volumetric charge at a more palatable level, and to ensure the town has sufficient revenue to meet its own bills each month.

Observations and Recommendations:

1. The first, and most obvious observation, is that the utility is not covering its costs of operation under the present circumstances and cost centers. The utility must cover ALL its costs with its own revenues without subsidy from tax dollars. It is apparent from the table on Page 7, however, that the projected deficit increases each year for the projected 5-year period, if nothing else changes. This jeopardizes the sustainability and compliance capabilities of the water utility, as well as the town's ability to obtain financing for capital improvements.

2. The current rates do not appear to be based on actual costs, fixed or variable, and the rate structure shows some inequity between low level and higher-level users. Regardless of the actual figures chosen as a result of this report, the rate *structure* needs to change and the rates should always be based on actual costs to be recovered, rather than altering a previous year's figure to do no more than achieve a break-even budget.

3. Changing the gallon allowance included in the base Customer Charge will increase revenues and have the least impact on all users, allowing a smaller increase in both the base charge and the volume rate.

4. The 21.1% non-revenue water level should be examined closely to determine the source of that discrepancy. Bringing that percentage down to 10-15% would boost revenue significantly. Updating any meters older than 10 years will solve most, if not all of the non-revenue water amount. Certainly, any meters that read only in 1,000-gallon increments should be replaced as soon as possible, since they likely represent a large part of the total.

5. It is important to recognize that the scenarios above are starting points in any rate decisions and the Town should keep in mind that these are suggested figures. At $8.16, the average cost per 1,000 gallons produced is higher than either of the volumetric rates proposed, but setting a base customer charge to recover fixed costs offsets that difference. In effect, this is a way of re-slicing the "pie" as discussed on page 1 of this report.

Sewer Analysis

System Costs and Cost Projection:

Wastewater system costs and revenues were projected using the same percentages for inflation as were used in the water system analysis. Usage blocks and number of users from the water system study were also used since wastewater is usually billed based on metered water usage. There are likely some differences in the customer base for each, with some users having only water or some having only sewer service, but that has not been considered for the purpose of this analysis. Likewise, the analysis is based on current debt service and the advent of any new debt would impact these costs and projections significantly. The costs and cost centers are represented in the table below.

Cost Center	Base Year	Year 2	Year 3	Year 4	Year 5
Personnel	$336,914	$353,760	$371,448	$390,020	$409,521
Operations	$742,089	$783,787	$822,977	$864,126	$907,332
Debt Service & Reserves	$191,439	$201,011	$211,062	$221,615	$232,696
TOTAL	**$1,270,442**	**$1,338,558**	**$1,405,486**	**$1,475,760**	**$1,549,548**

The average cost to collect and treat 1,000 gallons is $20.03 . While the town can't reasonably charge that much for 1,000 gallons of sewer collected, nor should it, this does help put the current $5.69 rate per 1,000 into perspective as being much too low. With sewer costing twice as much to operate as water, a more realistic current figure might be $5.90 X 2 = $11.80 at least *in theory*. However, some portion of the costs of operation are recovered through the base charge so that the average cost per 1,000 gallons is not a rate setting figure, but furnished for the purpose of discussion and illustration.

System Revenue and Revenue Requirement Projection:

Like the water system, revenues were projected using the FY23 amended budget as a test year, but with only a 2.5% rate of inflation in order to be safely conservative in revenue estimation. The table below represents the five-year projection for revenues AND the revenues that must be collected from sewer rates alone.

Revenue	Base Year	Year 2	Year 3	Year 4	Year 5
Total Anticipated Revenue	$833,674	$854,516	$875,879	$897,776	$920,220
LESS Restricted Revenues	($159,174)	($163,153)	($167,232)	($171,413)	($175,698)
EQUALS Rate Revenue	$674,500	$691,363	$708,647	$726,363	$744,522

Again, these subsequent year projections are based on minimal growth and a conservative inflation estimate. Changes in growth, additional sources of revenues and other developments may change these future year projections accordingly. The average revenue per 1,000 gallons collected is $10.51. At an average cost of $20.03 per 1,000 gallons this is a significant revenue deficit of almost $10.00 per 1,000 gallons. Some of that revenue loss could be attributable to older meters but that is unknowable without further examination.

Surplus/Deficit 5-year Projections:

The table below shows Cost and Revenue projections together, and not surprisingly, there is a significant deficit projected for each year. If there is a single "snapshot" takeaway from this report, it is the table below which summarizes the current and projected position of the water system based on current rates and rate structure.

	Base Year	Year 2	Year 3	Year 4	Year 5
Rate Revenue Projected	$674,500	$691,363	$708,647	$726,363	$744,522
System Costs	$1,270,442	$1,338,558	$1,405,486	$1,475,760	$1,549,548
Surplus/(Deficit)	**($595,942)**	**($647,196)**	**($696,840)**	**($749,398)**	**($805,027)**

Observations and Comments on Costs/Revenues Analysis:

There is little doubt that the sewer utility is in a serious deficit situation if rates do not change. The town is not recovering its average cost of collecting and treating 1,000 gallons of wastewater at $20.03 when the average revenue per 1,000 gallons is $10.51. That said, it must be emphasized *again* that these are not the real costs or revenues of each and every 1,000 gallons through the system, but the average of costs per 1,000 gallons from first unit to the last each year. Some of the cost per 1,000 gallons is recovered through the base charge, obviously, but this average cost is a way to illustrate the gap between revenues and expenses affecting the system's sustainability.

The figures presented for years after the base year are estimates and should be viewed as such, given the assumptions stated in the previous sections about debt service, inflation, customer growth and salary increase levels. Again, the rate scenarios presented in this report for both Water and Sewer utilities should be viewed as starting points, not necessarily end results. There are other considerations that go into rate making that should be fully examined before any final decision is made on new rates or a rate structure.

Water Production and Non-Revenue Water:

With wastewater billing based on metered water usage, the level of non-revenue water becomes even more critical for the sewer utility, particularly given the high average cost of operations. At the present sewer rate of $5.69 per 1,000 gallons of metered water usage, the town is losing approximately $95,111 annually. Recognizing that not all of that 21.1% is actually recoverable, reducing the non-revenue water to the 10%-15% recommended range would reduce that loss to about $45,111 to $67,680 in revenue. When compared to the average COST per 1,000 gallons of wastewater that revenue loss could be even higher in real terms.

Rate Scenarios:

The town's current rate structure shows a lower volumetric charge for wastewater than for water, which is unusual for most similar utilities. For full cost recovery rates, wastewater is almost always higher because both capital and operational costs are usually higher. To verify that, SERCAP compared the costs of the water utility with that of the wastewater utility and found that the wastewater service costs about twice the cost of operating the water utility. The gap widens when comparing the average costs of 1,000 gallons for each utility. The average cost of 1,000 gallons of water is $8.16 while wastewater costs $20.03 per 1,000 gallons, a factor of 2.4 times the average cost of water. The fixed costs are higher for wastewater because there is current debt service each year, and reserves, based on operations costs, are higher as a result.

It is imperative to keep all that in mind when considering any of the rate options, that these are starting points and represent minimums to fully recover costs of operation. As with the water utility SERCAP was asked to present three options, one with volumetric charges beginning at the first gallon, one beginning at 4,000 included in the base charge, and a third beginning at 6,000 gallons. The scenarios are shown below.

Rate Scenario #1:

Customer Charge per EDU:	$100.00	Typical Bill at 15,000 gallons:
Gallon Allowance:	0	Quarterly - $ 307.75
Usage Rate per 1,000 gallons:	$13.85	Annually - $1,231.00

Rate Scenario #2:

Customer Charge per EDU:	$125.00	Typical Bill at 15,000 gallons:
Gallon Allowance:	4,000	Quarterly - $ 262.50
Usage Rate per 1,000 gallons:	$12.50	Annually - $1,050.00

Rate Scenario #3:

Customer Charge per EDU:	$135.00	Typical Bill at 15,000 gallons:
Gallon Allowance:	6,000	Quarterly - $ 246.15
Usage Rate per 1,000 gallons:	$12.35	Annually - $ 984.60

The same benchmarks for affordability apply here – either $400-$800 per utility per year OR 1.5-3% of MHI for the area. Clearly these prospective annual rates are above the generally-considered affordability used by USDA of $400-$800 per year, however for the Snow Hill MHI of $46,750, either bill is considered affordable by the 1.5 to 3% of MHI affordability standard of $701.25 to $1,402.50.

Rate Scenario Comparisons per User Block:

Seeing the effect of a rate change on various levels of usage is often a critical consideration for decision makers. SERCAP has calculated both rate scenarios' impacts on 3,000, 6,000, 9,000, 12,000 and 15,000-gallon users since about 75% of Snow Hill's customers fall in that range. In addition, the impact on a larger, 20,000-gallon user is shown for the basis of comparison.

Volume	Current Quarterly	Option 1 Quarterly	Annual Difference	Option 2 Quarterly	Annual Difference	Option 3 Quarterly	Annual Difference
3,000	$73.47	$141.55	$272.30	$125.00	$206.12	$135.00	$246.12
6,000	$73.47	$183.10	$572.84	$150.00	$440.44	$135.00	$380.44
9,000	$90.54	$224.65	$536.44	$187.50	$387.84	$172.05	$326.04
12,000	$107.61	$266.20	$634.36	$225.00	$469.56	$209.10	$405.96
15,000	$124.68	$307.75	$732.28	$262.50	$551.28	$246.15	$485.88
20,000	$153.13	$377.00	$895.48	$325.00	$687.48	$307.90	$619.08

While this would represent a significant rate increase, it is critical to understand that the town has been charging well *BELOW* what the service actually costs for some time. Charging the rates above represents catching up from that deficit all at once. The customers have been enjoying rates that were artificially low and not based on sustainable cost recovery.

To put the rate options vs. the current rate structure in perspective the table below shows the difference in revenues each option makes for the town.

Option	Surplus/(Deficit)
Current Rate - $73.47 + $5.69 over 6,000 gal	**($595,942)**
Option #1 - $100.00 + $13.85 per 1,000 gal	$8,212
Option #2 - $125.00 + $12.50 over 4,000 gal	$8,536
Option #3 - $135.00 + $12.35 over 6,000 gal	$9,994

Strictly for the purpose of discussion and comparison, the effect of changing only the Base Charge and retaining the current 6,000-gallon allowance and $5.69 rate per 1,000 gallons is shown below:

For Comparison	Surplus/(Deficit)
$100.00 + $5.69 over 6,000 gallons	**($524,804)**

SERCAP recognizes that these proposed rates represent a dramatic rate increase for both utilities and their customers. To ease the customer burden rate increases may be phased in, if that is the Mayor and Council's wish, and SERCAP can help with developing a phased in schedule. That said, phasing in the necessary rates is only feasible if there are sufficient funds in the General Fund budget to cover the costs that are not recoverable by rates less than recommended. Continuing to charge rates so far below the average cost per 1,000 gallons of $20.03 while only recovering about $10.51 per 1,000 gallons on average will only deepen the existing deficit situation. The mandated increase of 5% per year is not sufficient to eliminate that deficit. Neither utility is sustainable without some change in rates and a 5% across the board is not sufficient to reduce either deficit.

CONCLUSIONS AND RECCOMMENDATIONS:

1. The Wastewater utility needs to increase rates to fully recover the costs of operation, and a re-structuring of the rates is highly recommended and encouraged. Both utilities are projected to be significantly in the red, and the wastewater utility likely has been for some time. These gaps will only widen in future years without further action. It is imperative that this be attended to for the utilities to be sustainable, let alone qualify for any future funding.

2. The gallon allowance included in the Customer Base Charge per EDU should be reduced or eliminated altogether. A gallon allowance of 1,000 per month or 3,000 per quarter is suggested, although that calculation is not shown in the scenarios here. The preferred method is no gallon allowance at all to achieve complete equity between customers. However, the public relations aspect of rate setting may require a gallon allowance to be used. Regardless, the Customer Charge or "Minimum Bill" as it is termed in current rates, should always be based on the town's fixed costs – in this case Debt Service and Reserves – and divided by the number of EDU's rather than simply by number of connections.

3. It is absolutely critical that replacement of the present meters and associated meter reading and billing software be considered. The non-revenue water represents a significant loss to the town in both water and wastewater utilities, particularly both are in such a deficit position. New metering would more than pay for itself over a few years by recovering every billable drop, whether clerical loss or actual volume lost. While this might require some debt service, there is a great deal of new program money available that hasn't been available in the past, especially for a community with an MHI that is 46% lower than the state MHI of $87,063. If the town wishes to implement this recommendation to help make both utilities more sustainable, SERCAP can assist with identifying and applying for the most advantageous source for funding.

4. SERCAP has reviewed and discussed with town staff the current rate structure and EDU charge(s) along with the ordinance that mandates a 5% per year increase regardless of costs. SERCAP recommends that both of these methodologies be discarded if possible, or at least suspended until the utilities are brought back into a financially sustainable, full cost recovery balance.

5. NEITHER the water or wastewater analysis has included depreciation figures as a cost on which to base rates. Instead SERCAP has used its standard percentage for "reserves" to repair/replace equipment and another for Emergencies/Contingencies. The town's actual depreciation may be greater than the figures used for this analysis and that should be taken into consideration as well. While depreciation is often viewed as a "paper" number that doesn't have to be funded, it does represent the real cost of equipment's wearing out and eventually becoming inoperable. Customers who are connected to the system at any given time are contributing to that equipment's wearing out and should pay some pro rata share of the costs to replace it. If these costs are not built into rate calculations, whether by funding depreciation or funding reserves, as was done in this analysis, then the future customers who are connected when the equipment needs replacing will bear the entire cost of that replacement.

6. BOTH utilities must be attended to immediately lest they drain the reserves already set aside to cover the costs of operation. Failure to address the deficits immediately as well as over the long term will jeopardize the utilities' sustainability and ultimately their compliance with required regulations.