

RS&W's FUTURE BRINGS MAJOR CHANGE

The Management and Directors of the Roamingwood Sewer and Water Association must increase the rates you pay for water and sewer service over the next few years. You need to know why we are taking this action, what your new payments will be, when these rate changes will take place, and what you can expect *in return* for these higher payments. This article covers important information about upcoming major changes to our water and sewer piping. These changes will impact ALL of us. To understand them, homeowners should read the information below carefully.

The aging water mains and sewers throughout the Hideout are now leaking badly and approaching the end of their useful life, failing at an unacceptably accelerating rate. Continuing to patch and replace only selected segments of this piping as they fail is not feasible for the long term. All piping needs to be replaced with new piping that can serve for another 40 years.

RS&W is currently finalizing the construction cost estimates, implementation schedule, and financing options with its consultant, BCM Engineers, and plans to apply for financing as soon as possible to begin the work of replacing both our water and sewer piping. We expect construction work to begin in 2012. Our goal is to provide all new piping in the highest priority areas of the Hideout, representing about *half* of the overall program, by the end of 2013 or early 2014. After the first stage construction program is completed, we will finish the work in the remaining (lower-priority) areas of the Hideout, area by area, as funding permits but as aggressively as possible.

RS&W's rates must rise to pay for the new systems. The monthly rate increases for 2011 and the increases that we anticipate for 2012 and 2013 are as follows:

RS&W Rate Increases (\$ / Month)		
Year	Developed Lot	Undeveloped Lot
2011	9.65	6.15
2012 (Anticipated)	7.40	4.72
2013 (Anticipated)	8.14	5.19

Earlier this year, RS&W commissioned BCM Engineers to prepare a "Water and Wastewater Master Plan" that would define major infrastructure needs for the next 40 years. This 2010 Master Plan is now nearing completion. The conclusions of this study, supported by multiple internal evaluations of our infrastructure over the past four years, are unequivocal.

Potable Water System

The Problem: Water Piping Breaks and Water Losses

RS&W staff repaired over 100 water pipe breaks in 2009; that number has already been surpassed as of October 2010.

In 2008, as a result of leaks from broken pipes, 54-percent (almost 91 million gallons) of potable water pumped into the water mains from our five wells never reached the home meters. In 2009, this figure reached 56-percent (about 99 million gallons). This huge quantity of potable water is leaking out of our water pipes before reaching our homes. The water is "lost" through leaks ... "unaccounted for".

With such extremely large water losses, our water wells are not able to meet the peak demands of the community. In recent years, our water usage during peak summer weekends routinely depleted our reserve supplies with all available wells in use. During the busy July 4 weekend this year, we could barely keep up with water demand and our line pressures dropped below critical levels for a short time. Failure to supply "water on demand" has become a realistic threat!

Wastewater System

The Problem: Groundwater Infiltration into Our Sewers

A *huge* volume of groundwater leaks into our sewer system as a result of broken and leaking sewers, house service laterals, and manholes. Fixing leaks is dominating the time of RS&W's limited staff. Maintenance is becoming reactionary rather than proactive as a result of the excessive time spent repairing breaks.

Over the past 4-5 years, we have been measuring wastewater flow rates by various means throughout our sewer system and have been televising the inside of the sewers to identify the source of the leaks. We found that the problem of infiltration water moving into cracked sewer pipes is widespread rather than concentrated in only a few areas. BCM Engineers confirmed this finding in its 2010 "Master Plan" work. This is important because fixing many small, widely distributed, cracks in the sewer system is far more difficult and expensive than repairing a smaller number of larger cracks.

In 2008, as a result of cracked and broken sewer lines and manholes, 69-percent of the flow through our sewers (about 179 million gallons) was not sewage - it was groundwater! In 2009, this figure reached 73-percent (about 217 million gallons)! The flow volume is so large that we are frequently at risk of overloading our pump stations and treatment plant, which not only poses a significant threat to the environment but also invites potentially severe fines and/or building bans by the Pennsylvania Department of Environmental Protection (PADEP).

This infiltration problem also threatens our water supply. Excess groundwater entering our sewers is diverted through our treatment plant, and therefore *out* of our watershed. This means that a very significant volume of clean infiltration water is not available for replenishing our groundwater, which is our only source of potable water.

What are the Master Plan's Key Conclusions and Recommendations?

Water System

Water Mains and Service Lines: Given the age of most water piping in our system, fixing our water piping piecemeal is no longer viable from either a financial or manpower perspective. The increasing number and wide distribution of main breaks and service leaks throughout the Hideout precludes spot repairs (i.e. patching selected segments of piping) as a long-term solution.

Our consultant strongly recommends replacing essentially all of our water mains and service lines as funding permits but as aggressively as possible. We should also upgrade the size of our water mains from 6- to 8-inch diameter to meet modern fire-fighting recommendations. In addition, we should consider changing water main pipe material from the currently predominant PVC plastic to cement-lined ductile iron (CLDI) for greater long-term strength and reliability.

Wells: The combined capacity of all five wells will not meet the potential "peak day" water demand for 4000 *developed* lots ("build out") in the Hideout. The lost or "unaccounted for" water problem described above is a major reason for this lack of capacity; water pumped from our wells leaks out of our system before reaching our homes. Consequently, future consideration should be given to supplementing the available water supply, but only after the effect of the water piping replacement program can be documented to determine if, in fact, there continues to be a supply shortfall.

Water Meters: The existing individual home water meters should be replaced with a more modern and flexible "instantaneous remote read" system as funding permits. For billing purposes, RS&W staff now read all home water meters manually once each quarter. Most of these meters are approaching 25 years old. Installing modern "remote read" meters would offer advantages both to homeowners (e.g. rapid water leak detection alerts) and to RS&W (e.g. reduce operating costs and improve system management).

Wastewater System

Sewers and Manholes: Given the age of most of the sewers and manholes in our system, fixing our sewer infrastructure piecemeal is no longer a viable option. The severity and wide distribution of infiltration into our sewers precludes patching selected segments of piping as a long-term solution.

Our consultant strongly recommends replacing essentially all sewers and service lines on a prioritized basis as funding permits but as aggressively as possible.

Ultimately, two broad options exist for replacing the existing sewer infrastructure in its entirety:

1. Replace the existing gravity sewers and manholes "in kind". This means that the new sewers and manholes will be installed in the same locations and at the same depths as the existing sewers and manholes.
2. Replace the existing gravity sewers and manholes with a modern "pressure sewer system". The Master Plan recommends a pressure sewer system because it is considerably less expensive than replacing the existing gravity system "in kind". Because pressure sewers are "under pressure" (similar to water mains), they can be installed at minimum depth (about 5 feet) and track the hilly terrain of the Hideout. Gravity sewers on the other hand cannot do this and therefore must be quite deep. Greater depth means higher installation and maintenance costs. After a pressure

system is fully installed, most of the 29 external pumping stations can be decommissioned because they will no longer be needed. Eliminating the external pumping stations will eliminate associated power and maintenance costs - a significant reduction in current operating expenditures.

Cost Estimates for Stage 1 Construction Program

Rate increases must be correlated to anticipated construction costs. Any construction cost estimates at this stage of “master planning” (i.e. prior to detailed surveying or design work) must and will be refined as design and construction details are developed. At this point, however, we have sufficient cost information to make initial funding and rate decisions.

BCM Engineers has estimated construction costs for replacing water and sewer-piping infrastructure in the *highest priority* areas of the Hideout, which represents about half of the planned full-replacement program. These “Stage 1” Construction Cost Estimates are:

- New Water Mains: \$16,917,000
- New Low-Pressure Sewer System: \$23,486,000

Financing

Funding for large capital projects typically comes from a number of sources. RS&W has been working closely with senior representatives of PENNVEST (Pennsylvania Agency), the Rural Utility Service (Federal USDA Agency), and RBC (investment banker), as well as our political representatives to explore options for funding this program.

Grants from Federal, State, or County Agencies are the best option for obtaining money to cover a portion of the costs. However, projects need to qualify for grants, which are typically awarded on the basis of income level of affected households and the current rate structure for services being provided. We were advised by PENNVEST that grants are unlikely in our case because our current water and sewer rates are about *half* of what is necessary for serious grant consideration.

At this time, our best option for raising the necessary funds to pay for the work appears to be a *combination* of low-interest loans from PENNVEST and the Rural Utility Service, with any shortfall in funding from these two sources provided in the form of a tax-exempt bond issue. Such funding sources will have different rates and payback periods. We plan to submit financing applications as soon as possible.

What can we expect *in return* for Higher Payments?

In a word, reliability. We will have a reliable central water supply that will provide “water on demand” to all of us, and we will have reliable central sewer service that will convey wastewater to our treatment plant without overloading that plant with groundwater and without depleting our valuable groundwater supply. We can also expect significantly lower energy costs (associated principally with the many pumping stations that we plan to decommission after project completion) and enhanced property values that are associated with modern centralized water and sewer services.

Central water and sewer piping systems such as the ones we have in the Hideout can usually be expected to provide service for 40-50 years. We are nearing the end of that service timeline and must decide *now* what we want for the next 40 years.

What does a Pressure Sewer System Entail?

Low-Pressure Sewer Systems have been in use since the 1970s and are now a common alternative to gravity sewer systems, particularly in hilly terrain. Compared to gravity sewer systems, pressure sewers are much less costly to install and maintain.

Under the Low-Pressure Sewer option, RS&W would install and pay for submersible grinder pumps that are mounted inside small buried “wet wells” (sumps) on the lot of every home in the Hideout. Wastewater from each home would then be diverted to the new wet well and grinder pump installation rather than directly to the sewer system. Many Hideout homes already have a similar pumped system now.

Under the pressure option, grinder pumps at each home would discharge a finely ground slurry into a smaller-diameter, completely pressurized collection system. The new pressurized sewer mains would be installed at a shallow, generally constant, depth (about 5 feet) throughout the Hideout.

The grinder pump wet well will provide adequate holding capacity for power outages (usually about 7.5 hours). The grinder pump is started when the depth of sewage in the wet well tank reaches a predetermined “turn-on” level, and pumping continues until the “turn off” level is reached. The pump’s running time is short and power consumption is low. For example, a typical full-time homeowner would pay no more than \$2-3 per month for electrical costs; seasonal residents would pay even less. The unit is very reliable and is protected against backflow from discharge lines by an integral check valve.

In summary, the principle reasons for changing from our current gravity sewer system to a low-pressure sewer system are:

- The capital and operating costs of a low-pressure sewer system are much lower than an equivalent gravity sewer system.
- As a sealed system, low-pressure sewers would virtually eliminate the huge volume of groundwater infiltrating into our current gravity sewers, thereby extending the life of our wastewater treatment plant very substantially.

What is the Proposed Implementation Plan and Schedule for the Work?

Construction Sequence for Low-Pressure Sewers

To replace the entire existing gravity sewer system, the “sequence of construction” will require that the system be replaced generally from the outside periphery of the Hideout toward the center. As the new system is installed, the existing gravity system would be abandoned. Prior to completing the entire construction program, therefore, a “hybrid” sewer system (lower pressure sewers discharging to downstream gravity sewers and pumping stations) would serve the Hideout.

Construction Sequence for Water Mains

The Master Plan recommends replacing the water system wherever the sewer system is being replaced. This will contain the construction activities to one area at a time, minimizing the inconvenience to our homeowners. Once both water and sewer pipes are completed in each area, the road can be re-paved and any associated culverts crossing the roads replaced.

Work with POA to replace culverts and upgrade roads as part of project

RS&W’s mandate and rate structure covers water and sewer infrastructure *only*. The POA’s mandate and rate structure covers all other amenities in the Hideout, including maintenance and replacement of our roads and culverts when necessary.

Clearly, RS&W’s proposed piping replacement program will have a very significant impact on both roads and culverts. The need to replace sewers and water mains presents a unique opportunity to replace damaged and/or undersized culverts and repave our roads under the same construction contract in a coordinated program that will eventually address the entire system: sewers; water mains; roads; culverts. RS&W hopes to work with the POA to accomplish this goal and to share project costs as equitably as possible.

Program Schedule

Over the next 12 months, RS&W will focus on the many tasks necessary to prepare for construction. These tasks include surveying, engineering design, updating cost estimates, applying for permits, applying for financing, and preparing for competitive bids. If all goes well, we hope to begin construction by “breaking ground” in late 2011 or early 2012.

Our goal is to complete the first *half* of the overall program, principally piping in the highest priority service areas generally bordering the periphery of the Hideout, by the end of 2013 or early 2014. When this initial construction program is completed, we expect to see a very substantial reduction in our water loss and sewer infiltration problems, and associated operational cost savings. We will then be ready to move ahead to complete all piping work in the remainder of the Hideout, service area by service area, as aggressively as funding permits.

Why Act Now?

We have no choice from both technical and cost perspectives. Continuing on our present course of fixing segments of water and sewer piping as they fail is NOT AN OPTION.

We have neither the manpower nor the resources to “keep up” with line breaks and leaks as they occur because our infrastructure is simply too old to do this successfully. Doing nothing is tantamount to “placing our heads in the sand and hoping for the best”. Continuing this present course of action will, sooner rather than later, have the following consequences:

- Water wells that cannot keep pace with peak water demand as a result of excessive water leakage out of cracked mains and service laterals.
- A water distribution network that cannot meet “fire flow” requirements on a consistent basis because line pressures fall below minimum levels, again caused by excessive water leakage.
- Surcharged, overflowing, and ultimately failing wastewater pump stations that cannot keep pace with the volume of groundwater entering them, particularly after wet weather.
- An overloaded wastewater treatment plant that cannot meet discharge requirements that are mandated by the Pennsylvania Department of Environmental Protection (PADEP).
- Risk of substantial fines, building bans, and potential lawsuits by regulatory authorities as a result of system failures.
- Risk of falling property values associated with community problems such as those outlined above.

On the positive side, we are in a unique low interest environment now and should act to take advantage of this opportunity before the cost of money rises once again. We are convinced that delay will only cost more.

Our water mains and sewers represent a very substantial investment in assets. Modern regulations governing such public systems, with which we must comply, now mandate a detailed, responsible, and proactive long-term asset management plan. The “2010 Water and Wastewater Master Plan” prepared by BCM Engineers represents such a plan. Its conclusions and recommendations, outlined above, are clear and unequivocal. We must act on these recommendations.

What’s Next?

RS&W’s actions over the coming months will focus on the following:

- Complete the “2010 Water and Wastewater Master Plan”.
- Move forward as quickly as possible with more detailed planning, design, cost estimates, and financing.
- Continue to provide forthright and accurate information to you, our Membership, as it becomes available.

You need to understand why we must take these actions. Our hope is to gain your support.

A RS&W “MASTER PLAN” PUBLIC MEETING WILL BE HELD AT THE HIDEOUT MAIN LODGE ON DECEMBER 18th AT 1:00 PM.

To keep abreast of events and decisions, please check RS&W’s website (www.rswanepa.com). If you have questions or need information, please telephone (570-698-6162) or visit us at the RS&W Office. What do you as a ratepayer want to know? We welcome your questions, comments, and ideas.

Parting Comments

As you consider the lengthy but important discussion above, please recognize that *none* of us wants to raise your rates (and our own).

The program we are engaging in will take a number of years to complete and we will make every effort to keep disruption to a minimum. After very considerable thought and effort on the part of many people, we are firmly convinced that we *must* move forward if we are to fulfill our commitment to you as managers and directors of RS&W. Once again, that commitment is to act responsibly and proactively to provide consistent and reliable water and sewer service cost-effectively, and to protect our investment by maintaining our water and sewer infrastructure for the *long term*.

We sincerely hope that you will support RS&W’s staff and board as we embark on this major program for the benefit of the Hideout.

- The Management and Directors of the Roamingwood Sewer and Water Association -