

Winter 2021



RURAL MATTERS

The magazine of the Rural Community Assistance Partnership

The Wastewater Issue

**How RCAP Helped Win Ohio's
Largest Rural Development Water &
Environmental Programs Award**

**A Floodwater Plan for a
Wastewater System**

Resiliency in Gordon, Alabama

**Five Quick Tips for Managing
Your Home Wastewater
Treatment System**

Rural Matters® (ISSN 1097-7619) is a publication of the Rural Community Assistance Partnership, Inc.

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Publication of Rural Matters® is funded in part by the U.S. Department of Agriculture and the U.S. Environmental Protection Agency

Opinions and ideas expressed in Rural Matters® are those of the authors and do not necessarily reflect those of RCAP, Inc., its affiliates, officers or other funders.

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As this is the first edition of Rural Matters in 2021, it is important to both look ahead to this year, but also recognize the incredible challenges and successes that rural communities encountered in 2020. The COVID-19 pandemic changed the way that we think about the resiliency of communities, and the way we serve the most vulnerable. It is clear that RCAP's work is more important than ever. Over the years with our partners, RCAP has served millions of rural and tribal residents. In 2021, we plan to expand our work to new communities, build more partnerships, bring in additional resources where possible, advocate for rural issues, and seize every opportunity we can.

Despite the hardships of 2020, we were reminded of the incredible resilience and adaptation of our rural and tribal communities. We have also grown to appreciate those things that we often have taken for granted, which was evident in the wastewater industry. We saw firsthand how important wastewater services are to communities of all sizes, whether it was the ability to track COVID-19 through wastewater to identify new outbreaks, pushing to educate people on the importance of not flushing "flushable" wipes, or ensuring the safety of wastewater operators. Most people across the United States know about issues relating to drinking water, as they are in the headlines most months, but you very rarely hear about wastewater. That is starting to change due to COVID-19.

This issue will highlight the work happening across the country in rural and tribal communities with wastewater systems and showcase the incredible need that still exists here in the United States. RCAP anticipates the release of a new \$12 million grant opportunity in the coming months from EPA for Technical Assistance for Treatment Works: a wastewater program to provide technical assistance and training to rural, small and tribal Publicly Owned Treatment Works (POTWs) and decentralized wastewater systems. This is the first time funding has been provided for this new program enacted in the America's Water Infrastructure Act of 2018, and is just the start of annual appropriations around this issue.

Throughout 2021, RCAP will launch new programs to further expand our work and raise the voices of small-town America. Just recently, RCAP announced a new partnership with the Smithsonian Institution called "Coming Home: Stories from Main Street", an initiative aimed to help high school students tell the stories of their rural and tribal communities in unique ways. As the year continues, RCAP will be expanding our research and launching new reports on rural innovation, water and wastewater regionalization policies. We will continue to advocate for a broad array of rural issues through the Rural Network, a coalition of more than 80 rural focused organizations that we co-chair. Lastly, RCAP will launch a new website, housing a plethora of new tools and resources for communities.

We are looking forward to working alongside rural and tribal communities to build economic prosperity and show the world how much opportunity for innovation exists in rural America, including in overlooked areas like wastewater disposal. 🌊

Thanks for your continued partnership.

A handwritten signature in black ink, appearing to read "Nathan Ohle". The signature is fluid and cursive.

Nathan Ohle
RCAP CEO

Training for AWIA Compliance

Now FREE for Small Systems

Students will learn about the 2018 America's Water Infrastructure Act (AWIA) requirements and how utilities may apply the various AWWA standards and resources to aid compliance.

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- Risk and Resilience for Water and Wastewater Systems (EL262)
- Emergency Planning (EL263)
- Cybersecurity Guidance and Use Case Tool (EL250)

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**American Water Works
Association**



New Administration and Congress: Renewed Push for Infrastructure



Ted Stiger
Senior Director of Government
Relations & Policy

With a new administration and Congress taking shape, infrastructure advocates are renewing a push to enact a comprehensive infrastructure package this year, perhaps, through the budget reconciliation process that only requires a simple majority in the U.S. Senate versus the usual 60 vote threshold to approve legislation.

The facts are simple and clear. America's infrastructure is in dire need of repair, new technologies and updates are required to bring America's systems into the 21st Century. It is estimated that upgrading deteriorating water infrastructure alone will cost at least \$1 trillion over the next 20 years.

RCAP and other organizations are advocating to ensure rural and small towns do not get left behind in this push for renewed federal investment in infrastructure. Below are several policy priorities and ideas that RCAP is seeking to be included in a comprehensive infrastructure package.

Reauthorize EPA Drinking Water Technical Assistance at \$40 million per year under the Safe Drinking Water Act. This program provides technical assistance, training, and capacity building to small water systems under 10,000 in service population.

Reauthorize the Drinking Water and Clean Water State Revolving Funds. These two state-run infrastructure programs provide low-interest loans, loan subsidizations, and grants for investments in water and wastewater infrastructure.

Better align WIIN Act Small & Disadvantaged Communities and the Lead in Schools & Child Care Facilities Programs to meet the unique needs of rural areas and small water systems as they respond to lead, and other emerging contaminants found in our source waters.

To address systemic racial and economic inequalities in rural communities – RCAP is urging Congress to create a low-income loan and grant program to help homeowners and communities, upgrade or replace failing decentralized wastewater systems.

Boost funding to care for America's private wells and the 43 million Americans who rely on them for their drinking water. This included supporting funding for EPA's National Priority Area on Private wells and USDA's Decentralized Water Systems Grant Program, which targets low-income homeowners in rural America.

Reauthorize the U.S. Economic Development Administration (EDA) – this is the only federal agency solely focused on economic development activities. The funding and programs are necessary to address the following: business and entrepreneurship, technical assistance, infrastructure, and recovery needs of communities as they respond to the severe economic recession and resulting job losses due to COVID-19.

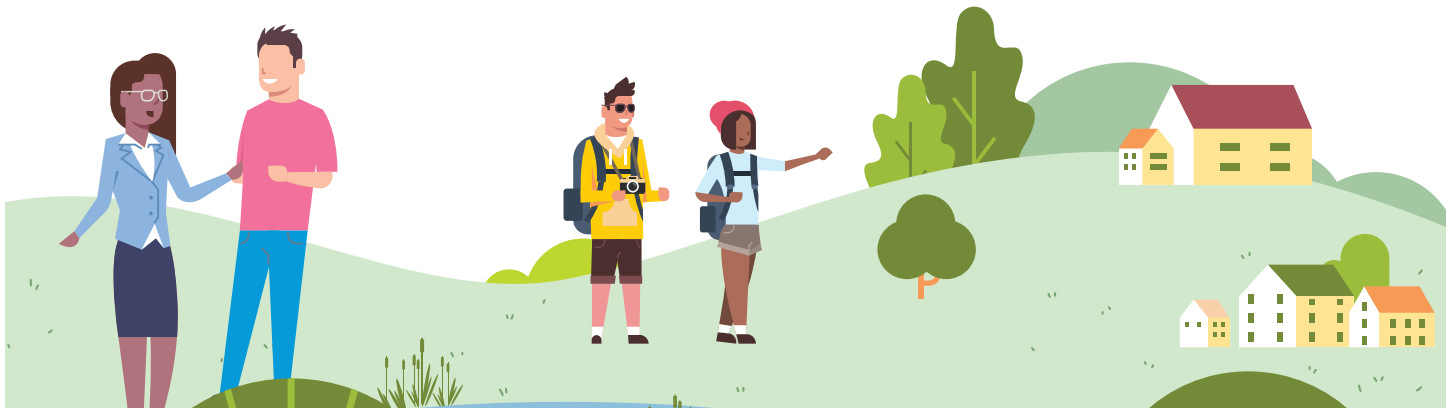
The time for action on infrastructure is now. Anyone reading Rural Matters can be an advocate for protecting your community and supporting the necessary investments that are needed to support much needed water infrastructure upgrades. 🌊

Coming HOME

STORIES FROM MAIN STREET

Incorporating Young Voices in the Future of Rural America

Across America, rural communities debate important issues that impact their livelihoods. Engaging young people in this discourse is a critical investment in your community's future.



Coming Home: Stories from Main Street is a project that invites young people to learn about their communities, document local history, and foster important discussions about their community's future by:

- Conducting interviews, collecting images and video footage, and using the research to tell complex multi-media stories
- Developing a deeper understanding of their hometown's character and an increased appreciation for local history and culture
- Recognizing the ways in which their communities' stories are vital, reinforcing a sense of connection to their towns
- Engaging community members who have left their town in conversations about their experiences and what they miss about rural America.

The result is a vast array of dynamic multi-media projects that connect youth voices to local discourse. Young voices will be amplified, creating a more inclusive narrative of what the rural experience is in different regions of the country.

Top to bottom: Youth interview a Choctaw Nation historian for an exhibition in Poteau, OK, photo by Kiamichi Technology Centers; a student team from Lansdowne High School gathers stories from a business owner in Ellicott City, MD, photo by Historical Center of Baltimore County; and a youth story collector interviews a community member in St. Joseph, MI, photo by The Heritage Museum and Cultural Center.



Coming Home is a collaboration between the Rural Community Assistance Partnership's Rural Homecoming initiative and the Smithsonian Institution's Museum on Main Street project. For more information about participating, visit the project website at: MuseumOnMainStreet.org/ComingHome



Rural Community Assistance Partnership

RCAP's Vital Role in the Ohio's Largest USDA RD WEP Award

By Wayne Cannon, Sr. Rural Development Specialist,
Great Lakes Community Action Partnership



R CAP Senior Rural Development Specialist, Wayne Cannon, began helping Belmont County, Ohio in late 2016 to develop projects to extend their water and sewer services and make substantial improvement to both utilities. This included the completion of a rate study and the development of recommendations to improve the utilities' financial footing.

The Belmont County Water and Sewer District, owned by the county, is in the heart of Ohio's Appalachian area. The water district serves 9,710 customers with bulk sales to satellite communities serving an additional 2,100 users. The existing water source and treatment plant was rated at 6.0 MGD. Water is distributed through a network of 10 pump stations and 22 tanks. All of the large assets will be renovated, and the water treatment plant will be replaced as a result of this project.

The sewer district serves 2,300 customers. Approximately two-thirds of them are collection only with treatment provided by the nearby Eastern Ohio Regional Wastewater Authority in Bellaire, Ohio. The county's only treatment facility is under EPA Findings and Orders to have major improvements, and two of their 38 lift stations must be replaced immediately. The remaining lift stations were budgeted for upgrades within a fifteen-year planning period.

At the start of this project, the county operated three separate water districts under two rate structures and 5 sewer districts using seven different rate structures. Rate structure and fairness was a serious concern. To simplify billing and improve fairness, the county wanted to move toward a single tariff rate structure. However, with the difference among customer costs being as high as 36% for water and 84% for sewer, this was going to be a difficult job.

As is common with many systems, they had historically operated in a reactionary mode with minimum staffing. Wages were held down with utility department employees making approximately half that of private sector workers. During the study period, non-management staff voted to unionize. Fortunately, the pay scale problem had already



been researched and a wage adjustment proposed before the unionization was finalized, which greatly facilitated the counties' abilities to meet union demands. Salary and benefit costs were going to increase significantly.

Understaffing resulted in a significant level of deferred maintenance. The county was under EPA orders to make wastewater treatment plant improvements, but that was only the tip of the iceberg. Their engineer developed a list of \$37.3 million dollars of capital improvement needed for water and \$7.5 million dollars for sewer. The county had no savings to apply to these costs so the entire amount would have to be financed with loans and grants.

Their debt problems were further complicated by a very poor loan structure on their existing debt. In order to save money on interest, the county had refinanced nearly all of the water and sewer debt using short term bond anticipation notes. Only a few months prior to Wayne's involvement, they consolidated the debt into an intermediate term note, which unfortunately left no room for additional debt service. This note would have to be refinanced on longer terms before any of the necessary capital upgrades could move forward. The water department needed to refinance \$10.8 million dollars and the sewer department would need to refinance \$4.8 million dollars.

The last obstacle was the development of an improved preventive maintenance program and predictive maintenance escrow accounts to ensure that the conditions which lead to the above problems did not reoccur. In financial terms, this meant that the water department would need an additional \$1.185 million dollars for improved maintenance. Improved maintenance needs for the sewer system were \$585,000 annually. No lender would want to provide money for

the necessary capital upgrades and refinancing until they could be made comfortable that management improvements were in place to correct the problems that put the county in this situation.

Fortunately, USDA RD was willing to consider the debt refinancing and new loan request with an affordable interest rate and 40-year terms. The loan request was packaged in August 2017 using financial feasibility and rate structuring recommendations provided by RCAP Senior Rural Development Specialist Wayne Cannon, including the identification and quantification of the future costs for its many short-lived assets. This was critical in enabling USDA RD to provide several million dollars of grant funding to the county. In addition, RCAP's Senior Rural Development Specialist Pam Ewing completed their NEPA Environmental Report, which is required as part of the application process.

Short-lived assets are predictive maintenance items that would generally have a useful life less than 15 years. In the case of Belmont County, a very large list included blowers and lift station pump maintenance, sludge dewatering equipment, flow meters, H2S treatment, CCTV inspection of sewers, SCADA/telemetry, and mobile equipment replacement.

In November 2017, USDA-RD awarded Belmont County \$2,998,500 in grant and \$9,359,000 in loan for sewer system improvements, and then in August 2018 it received an award of \$14,987,000 in grant and \$45,509,000 in loan for its water system. Pam Ewing and Wayne Cannon continued to work with the county to ensure it met its Letters of Conditions and proceeded with both projects. Both loans closed in July 2019. Thanks to USDA and RCAP's involvement, Belmont County was able to address all their concerns at affordable rates. 🌊



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Community-Based Water Resilience: Keep Vital Services Flowing

Chrissy Dangel and Tom Noble, United States Environmental Protection Agency



Chrissy Dangel of the USEPA is the project lead for the Community-Based Water Resiliency (CBWR) program. Tom Noble, a Principal with the Horsley Witten Group, has supported USEPA's Water Security Division since 2003, assisting the Division to increase preparedness and resilience within the drinking water and wastewater sector. Please contact Chrissy at dangel.chrissy@epa.gov for further information about USEPA's Community Based Water Resilience Program.

Communities rely on water and wastewater services. Approximately 50,000 community water systems in the United States serve more than 300 million Americans, each of whom uses approximately 100 gallons of water per day. An estimated 14,748 publicly owned treatment works provide wastewater collection, treatment, and disposal service to more than 238 million Americans. Whether potable water for drinking and sanitation, or wastewater treatment for environmental release or recycling, water is the lifeblood of any community. Water infrastructure is typically hidden from view, buried underground, or tucked away down little-traveled roads or in less-visited parts of town. For many, fire hydrants, manholes, and the occasional water tower with the school mascot painted on the side might be all that the public sees of the vast network of assets that comprise water infrastructure. Most people in a community have no reason to give these services a second thought.

Drinking water and wastewater systems are vulnerable to a variety of threats, from contamination to natural disasters, and to challenges, such as aging infrastructure. Even a water main break can result in pressure loss and a boil water advisory. Such a situation negatively impacts a community in multiple ways, including temporary business closures (e.g., restaurants) and operational problems for healthcare facilities (e.g., dialysis clinics). Or a major blockage forms, causing untreated sewage to overflow into a community, leaving behind a messy clean-up job and the potential for disease transmission. Incidents like these can make a community painfully aware of their reliance on water and wastewater services and remind the community that they need contingency plans in place. This is where the U.S. Environmental Protection Agency's (EPA) Community-Based Water Resiliency resources and tools can help.

What is Community-Based Water Resiliency (CBWR)? CBWR helps identify the critical interdependencies between water utilities and other sectors within a community and promotes cross-sector relationships that are essential to create and maintain resiliency. For example, the healthcare and public health sector relies on water extensively. Hospital surgeons must scrub before procedures, autoclaves need water to sterilize medical instruments, and patient rooms must have toilets that flush. If drinking or wastewater services are interrupted, what is the hospital's contingency plan? Are facility



managers in contact with their local water utility to understand when service interruptions are likely to occur? Do they know who to contact at the utility if they have questions about service interruptions? The water sector also relies on the healthcare and public health sector. Hospitals and healthcare providers may be the first to detect a potential drinking water contamination problem within a community if patients arriving at hospitals and clinics complain of similar symptoms that suggest a waterborne cause. A water utility would want to know that information as soon as possible to begin water quality investigations and initiate appropriate operational response actions.


Another example of a critical interdependency is with the emergency services sector, whose role it is to save lives, protect property and the environment, assist communities impacted by disasters, and aid recovery during emergencies. This sector includes law enforcement, fire and rescue services, emergency medical services, emergency management agencies, and public works. Emergency services rely on water and wastewater services for fire protection, shelter operations, and hazardous materials response. At the same time, water utilities rely on emergency services for incident response support such as providing alternate drinking water and helping to alert the public regarding water use advisories. A resilient community will ensure that both their water and wastewater systems and emergency services sectors are coordinating plans and procedures on a regular basis to protect residents and businesses.

The healthcare and public health and emergency services sectors are not the only sectors interdependent on water. Others include the energy, food and agriculture, chemical, transportation system and communication sectors. Water utilities need energy to operate, food and agriculture needs water for food processing, water utilities need treatment chemicals just as chemical manufacturers need wastewater services, transportation needs water to clean vehicles between shipments, and the communications sector needs water for cooling equipment. But how does a community help promote working relationships between

all these important sectors and ensure that information is being exchanged between water utilities and others?

One step a water utility and community can take together is to host a water emergency workshop. CBWR includes a Water Resiliency Action Plan Kit, which can be found inside EPA's Community-Based Water Resiliency Guide. This kit guides a utility and its partners in establishing a multi-discipline workshop planning team to develop and host a community workshop. It includes resources that can be used to prepare for and conduct the workshop: a planning checklist, sample agendas, an invitation list and invitation template, and other useful documents. A workshop brings together stakeholders to discuss goals, challenges, and roles and responsibilities in water emergency preparedness. The purpose of the event is to provide a highly interactive forum to discuss how to improve overall community resiliency to water service interruptions. By working together before an emergency, a utility, its interdependent sectors, and its community can be better prepared.

A workshop participant, Perry Dahlstrom of Golden State Water Company, underscored the importance of interdependent sectors coming together: "During my 40-year career in the utility sector, I have found that there is great value from collaborating with others. When we work with others, knowledge and past experiences are exchanged and that is where the added value comes from. Additionally, we can establish new contacts so you have somebody you can connect with later, during an emergency or not. All who participate in emergency response and service restoration play a vital role in our societal community needs. The end goal is to provide the best service at all times. Any time we can leverage our learning and knowledge gain, we should take advantage of the opportunity. Please take the opportunity to participate in a Community-Based Water Resiliency workshop and you will be better prepared and be able to provide a higher level of service to the community that you serve."

To learn more about CBWR, take the *Water Sector Interdependencies and Community-Based Water Resiliency Training* available from EPA at <https://www.youtube.com/watch?v=j305S431Y5E&feature=youtu.be>. This 30-minute online training covers the topics of water and wastewater systems interdependencies, scenarios, and EPA's *Community-Based Water Resiliency Guide*. The training will increase awareness of interdependencies and promote proactive community-level preparedness for water-related emergencies. With an increased awareness of relationships between the water and wastewater systems sector and other critical infrastructure sectors, a utility can help its community to successfully prepare for water service interruptions. 

FREE ONLINE RESOURCES FOR RURAL COMMUNITIES

What do operators & well owners have in common?

Advocates across the RCAP network and at the University of Illinois!

WaterOperator.org and PrivateWellClass.org are sister programs that serve a unique role by providing training and technical assistance *exclusively* via the Internet, supplementing the critical work performed on the ground by RCAP network staff.

WATEROPERATOR.ORG

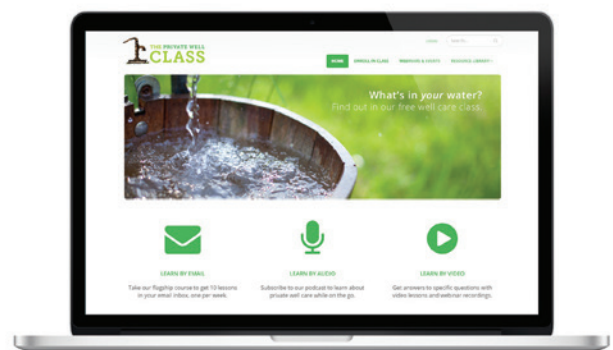
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WaterOperator.org and PrivateWellClass.org are collaborations between the Rural Community Assistance Partnership and the University of Illinois, through the Illinois State Water Survey at the Prairie Research Institute, and funded by the U. S. Environmental Protection Agency.



Floodwater Planning for a WW System

Pete Smith, Midwest Assistance Partnership

In recent years, flooding has been a constant issue in many areas of the U.S. There are several communities impacted with flooding directly by the Red River and the mighty Mississippi. Even those living nearby to those communities most affected get a firsthand view of the devastation it can cause to the daily life of the city including extensive property damage.

Some of the biggest impacts are not necessarily visible to the naked eye. Not only damage to personal property and streets but also there are major effects flooding can have on a community wastewater system. While it can affect communities in many different ways including streets and underpasses, many if not most people do not notice the stabilization lagoons or ponds outside of town or the



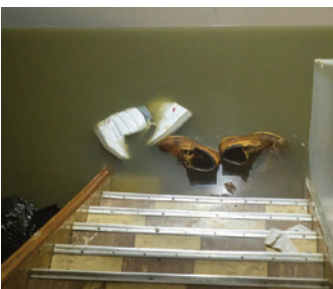
wastewater treatment plant tucked in the corner of town. Some do not know what the lift stations or manholes in the streets are and what their purpose is let alone the issues flooding can cause to these vital pieces of the infrastructure puzzle. Some of these wastewater facilities and equipment can be in low-lying areas or near rivers, streams and in some cases, even lakes. These facilities are often located in places that, by design, are out of sight



from the general public and can be vulnerable to flooding during heavy rain events.

It is especially important to prepare yourself and your utility to deal with the issues flooding may cause. It has been well documented; history has shown that flash flooding can occur quickly. Most of the time a wastewater operator and community officials will have some warning before waters get to a high level but this is not always the case, especially when dealing with a river that has a dam system somewhere upstream. Many larger cities are installing flood protection and implementing strategies to avoid many of the issues flooding can present. These actions, however, can make it difficult and change the dynamics for many smaller utilities downstream. This can present problems that may have not been considered before and therefore the needed planning has not been done to combat many of the issues caused by rising waters.

This makes it especially important to these small systems to be prepared and arm themselves with whatever knowledge they can for fighting flooding and rising waters. Being vigilant and keeping an eye on any indicator such as the local forecast, local rainfall, rainfall upstream, and other historical information is helpful. Other things to think about are how your system has handled rainfall or flooding in the past which can help you prepare to make key decisions that are usually needed to be made sooner rather than later. If signs are pointing toward potentially damaging conditions, having an operational procedure plan or similar document to follow could prove beneficial and in some cases, lifesaving.



An operational procedure plan is one name for this important document that should consist of many different things, but safety should always be the number one priority. You will need to know your system and plan accordingly whether that is to pull submersible lift station pumps or motors out, install plugs, shut down power, reroute traffic, or find and install backup pumps and equipment. Electricity does not mix with water and all safety precautions should be taken when working on or near any electrical equipment.


A good plan should contain contacts for repairs, vendor information, mutual aid agreements, etc. or at least be a part of a larger more encompassing emergency response plan which goes into detail regarding other natural and man-made disasters. It should also include an inventory list of staff, equipment, vehicles and other assets the utility has at its disposal. Keeping up current records and adding updates is important when dealing with the management of assets.

This plan can also include preplanned scenarios much like an emergency response plan. You also need to be prepared for the possibility of high flow in the wastewater collection system mainlines and manholes. Many times, most preparations are geared towards the wastewater plants' capacity and rightfully so. If the plant cannot treat the incoming water then a bypass must occur and this is a big issue; guidance on how to handle

this should be in the plan. However, another item to consider is the capacity of the collection system. Submerged streets, houses and basements filling up with water, and other circumstances will lead to flood water and wastewater finding its way into the residences connected to the system. By knowing what needs to be done and following an existing plan, you could save equipment from being damaged or find a way to continue operations with as little property damage as possible, both to the customers' property as well as the property of the city or utility. This is a scenario that is likely going to happen in flood prone areas and should be one that is laid out and planned for in the planning document.

Your plan should also include steps for communication and documentation before, during and after the event. While you are preparing for and putting the appropriate measures in place for possible flooding, communicating with other officials, and doing other tasks, don't forget to document what you have done and to take pictures if necessary. Be aware if you need to report to your regulatory agency of any changes or issues you may experience and keep them informed until conditions return to normal. Each time you have an experience (good or bad) it is an opportunity to learn how to better your system, so documenting what you do could help prepare for a future event. After such an event, you should inspect anything that may have been damaged or destroyed to ensure everything is in good working order before returning to service. If needed bring in a professional to inspect things you are unsure about such as electrical boxes or controls that were under water. It might be a good idea to write up a report on the conditions and again, take pictures if needed, as this will help in the future and possibly for insurance purposes. This is all good documentation that may save time and money in the future as areas that are prone to flood waters are usually always going to be that way.

This is not meant to be an all-encompassing template for a plan but should at least give you some ideas and allow you to get a start in constructing a formal plan. Hopefully it may also provide some tips to add to for those that have an existing plan in place.

Lastly, the number one point is safety. People think of wastewater as "gross", but floodwaters can be very dangerous in many ways. The combination of these two is even more dangerous and unpredictable. There is a possibility of coming into contact with diseases and chemicals as well as the dangers of fast-moving water, open manholes and also floating debris. Be prepared and learn from your experiences to ensure safety and sustainability into the future. 

Land Stewardship through Unlikely Collaboration.



From protecting clean water to creating economic opportunities, communities across the Mountain West are partnering with the LOR Foundation to co-create solutions that meet daily needs. We listen first, then collaborate with local advocates, experts, and philanthropies using an evidence-based approach.

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Closing the Media Filter

By Candace Balmer, RCAP Solutions

Art Baer simply wasn't going to take no for an answer. After all, anyone who played ball in the park behind the Town Hall knew that, when retrieving a foul ball, tread carefully and pray the ball had landed on dry ground. For many years, the odor that wafted through the small downtown hamlet of Hillsdale was familiar like a smelly old friend: the unpleasantness was the standard backdrop to an otherwise enjoyable experience.

As newly elected Town Supervisor, Art Baer intended to solve this problem that plagued his picturesque community. Although the problem was by no means news, proposed community-wide wastewater solutions had been voted down more than once in past years by locals who took pride in their self-sufficiency. But something had to be done.

The Supervisor knew that, at the end of the day, it was mostly about money. So together with a newly invigorated ad hoc wastewater committee, led by Town Councilman, Augie Sena, Art and the Town set about researching affordable community wastewater alternatives and how they might be able to pay for it.

The Town was fortunate in their choice of engineer, Clark Engineering, owned by Mary and Doug Clark of New Lebanon, NY. The Clarks understood that small community wastewater needs such as Hillsdale's, allowed for a flexible approach and, ultimately, a nontraditional solution.

Small-Diameter Collection

The collection system they decided on is nontraditional in that it is not the standard gravity-fed piping network. In a gravity collection system, to obtain enough pitch to keep wastewater flowing downhill by gravity to a central treatment plant, the pipes end up being buried pretty deep. In contrast, a small-diameter collection system does not transport solids: only the separated liquid waste is moving through the pipe network, allowing the collection pipes to be shallower and to follow the contours of the land.

The solids are separated first in standard septic tanks located on individual properties. Even in this, the Hillsdale system was creatively designed. Because of the small lot sizes and the need to replace aging and sub-standard septic tanks, the new tanks are, in a number of instances, shared by two or more properties.

Packed-Bed Filter Treatment

The treatment system itself is also nonconventional. Eight packed-bed filters are installed flush with the ground surface, occupying a total of less than 1 acre of land. Each filter essentially consists of a large fiberglass box containing about 35 man-made textile sheets over which wastewater is distributed. The boxes are uniformly dosed with wastewater, distributed over the filter media by a series of spray nozzles, on a timed schedule.

The innovation represented by these sheets is their surface area – they provide 5 times more surface area

than the sand in a typical recirculating sand filter. This means lots more space for micro-organisms to live and do the work of breaking down the waste in the wastewater.

The non-woven textile sheets also have a much greater void space and water-holding capacity than sand, so wastewater loading rates can be increased significantly. Independent testing has demonstrated loading rates 12 times higher than the loading rate for a recirculating sand filter: 60 gallons per day per square foot versus 5 gallons per day per square foot. This is why the treatment system requires so little land.

Flow Equalization

Two large collection tanks at the head of the system serve as equalization basins, that is, they collect and store the wastewater so it can be steadily applied over time, instead of being subject to the peaks and lows of home water use over the course of a day.

Sub-Surface Disposal

The sub-surface dispersal field is composed of a three-cell, low-profile, mound, designed to maintain an unsaturated zone beneath the field. Due to the high quality of the effluent, the allowed loading rate is nearly double the loading rate typically allowed. The treated discharge goes into the shallow ground water where it is polished on its way to a neighboring native wetland.

The system was originally designed with a constructed wetland as a final polishing and denitrification component. When the original bid came in \$200,000 over budget, the wetland was removed from the design and replaced with a simple splitter basin (cost < \$3,000). A portion of the treated effluent is split off and returned to the anoxic tank at the head of the plant. Recirculating a portion of the treated effluent through an oxy-gen-deprived stage is critical to accomplishing denitrification. In this case, the modification allowed the system to meet a nitrogen limit of 20 mg/l.

Low Profile

The entire facility, including a storage building and sub-surface disposal in large leach fields, fits on less than 3 acres. Siting a treatment plant can be the most challenging element of a new wastewater project. A compact design and low visibility can be a real advantage for communities with challenging site constraints.

Municipal Commitment

Admittedly, there were bumps in the road. The Town had determined to supply new septic tanks as part of the overall collection system and had secured a Community Development Block Grant (CDBG) to help pay for the tanks of eligible homeowners. Little did Art and Augie


suspect when they applied for the grant that they would find themselves walking up and down the streets of the hamlet with a printer and a 250-foot extension cord in a supermarket shopping cart collecting the required paperwork from individual homeowners who had not yet come forward with their documentation. They even brought a translator along to ensure they successfully reached out to all homeowners.

In fact, the Town went out on a very big limb. They had discovered that they were going to need help from more than one funding source to get this project off the ground. Their two best sources for low-interest loans and grants were USDA Rural Development (USDA RD) and the Clean Water State Revolving Loan Fund (CWSRF). However, the project priority ranking system that was used for CWSRF monies was heavily weighted toward upgrading existing facilities. New systems simply could not score very high. If, however, the town were under a Consent Order from New York State Department of Environmental Conservation (DEC) to solve their wastewater pollution problem, they could get a high enough score to boost their project above the funding line. The Supervisor requested DEC to put the Town under Consent. This effectively required them to solve their wastewater problem within two years or face enforcement action and penalties.

They got their money in the long run, though. Ultimately the project was funded through a combination of CWSRF zero-interest loan, USDA RD grant and low-interest loan, a Community Development Block Grant, a grant from the private Rheinstrom Foundation, and Town and local contributions. Other partners that helped make the project possible were the Columbia County Housing Authority who wrote the CDBG application, and RCAP Solutions who helped investigate and document funding eligibility and secure funding.

Affordability is Key

Initially the project was estimated to cost about \$1.8 million. When bids came in over \$2.4 million, the Town scrambled to obtain more money from their funding partners. They were successful, and ultimately, they were able to keep user costs down to their target cost of \$45 per month per household.

The system has been operating since 2008. At an educational gathering and tour of the system, organized by RCAP Solutions on behalf of municipal officials, then Wastewater Operator, Shad Pulver, spoke of his experiences operating the system: "Honestly, the most challenging part of the operation has been wrestling with the lock on the gate." 

Resilience of Gordon, Alabama

By Dinah Foreman

The Town of Gordon is a small community located in Southeast Alabama, nestled in the most southern point of Houston County. The northern border of the town meets the Georgia state line at the beautiful Chattahoochee River. The southern border for the Town of Gordon is just 11 miles north to the Alabama/Florida state line.

The town was first established as a trading post on the Chattahoochee River and became a major port in 1928 when the steamboats traveled the river carrying cotton to the markets and bringing products to local merchants. The Town of Gordon was incorporated in 1872.

The town has drinking water and wastewater facilities. The drinking water system is a groundwater system that consists of one well and one storage tank. The town serves approximately 138 water connections. The wastewater system consists of collection lines, lift stations and a lagoon. The town has around 127 connections on the wastewater system.

The town is full of large trees, beautiful old churches, and warm-hearted citizens; though small in size, this community has faced considerable obstacles in recent years.

In 2016, a new mayor was elected. Then in 2017, he was charged with voter fraud and theft of the town's property.

He was convicted of voter fraud and officially removed from office in January 2019. Also, the town clerk appointed in 2017 is being investigated due to irregularities identified by the Gordon Town Council in 2018.

In October 2018, amid all this internal turmoil, Hurricane Michael hit the Florida Panhandle near Panama City, Florida, as a Category 5 storm. Michael then traveled north to the Town of Gordon, where it left a path of destruction.

The powerful winds of the hurricane blew down trees, damaged homes, blocked roads, and knocked down power lines. Homes and municipal facilities were severely damaged.

With the lack of leadership from the mayor's office, the emergency response and recovery efforts were delayed. The Town of Gordon was left physically damaged and financially distressed by both manmade and natural disasters.

In January 2019, the Council appointed a new mayor, Shana Ray. She is committed to serving the residents of the Town of Gordon. Her goal is to correct the issues created by the past administration and improve the town's financial condition. Though the new administration is committed to making improvements, the mayor, council, and town clerk face a proverbial mountain that includes compliance issues and a dire financial position.

Communities Unlimited (CU) contacted the Town of Gordon at the request of the Alabama Department of Environmental Management (ADEM) and U.S. Department of Agriculture - Rural Development (USDA-RD). CU first met with the mayor and town clerk in April 2019. The town was behind in completing and submitting drinking water and wastewater compliance reports, and they were delinquent with their annual payment on their USDA-RD wastewater loan. The mayor and the town clerk had limited experience and even less training in the drinking water and wastewater field. They needed to learn about their systems, then learn about how to support them and maintain them physically and financially.

CU completed a rate analysis on the drinking water and the wastewater departments and presented it to the mayor, council, and residents of the Town of Gordon. The results showed the town needed to increase rates for both the water and wastewater systems in order to sustain them.

The council approved the rate increase for both utility systems as it was presented. The rate adjustment should significantly improve the financial position of the drinking water and wastewater departments. The additional revenue that will be generated from the adjusted rate structures will allow funds for badly needed maintenance while still allowing for adequate cash flow to cover the annual loan repayment required by the USDA-RD wastewater loan agreement.

To improve financial monitoring and reporting, the Town of Gordon purchased QuickBooks in February 2019. The town clerk did not have any training on the program and was trying to learn the program as she used it.

When this issue was presented to CU, staff members from CU who were trained and familiar with QuickBooks began training the town clerk. The training sessions began in July and are still ongoing. Communities Unlimited scheduled a training session every 2-3 weeks as the clerk's schedule allowed.

While training the clerk on QuickBooks, Communities Unlimited staff also trained town employees on financial record keeping and basic accounting, such as expenses, revenue and assets and how they appear on reports that should be generated monthly or annually as needed.

To improve financial reporting and accounts receivable collections, CU staff, along with the mayor and town clerk, worked with the utility billing programmer to get forms generated by the billing program changed to a more user-friendly format.

This change now allows the town to generate a detailed receivables report. With some training and guidance, this report will enable the town to monitor delinquent accounts monthly and notify customers of past due accounts and pending disconnection of their water and wastewater service. Before the change, the accounts receivables report generated by the billing program was not easy to decipher. Therefore, it was not used as a tool for monitoring delinquent accounts.


Staff from Communities Unlimited and the town clerk recently spent several hours working together to prepare disconnect notices for almost 50 customers. In a recent call with Mayor Ray, she informed CU that she has been receiving calls from people that received a notification.

The mayor recognized how important collecting money due to the town is to the financial health of the water and wastewater systems, and she thanked Communities Unlimited and said, "You go beyond the call of duty to help the town."

Though the Town of Gordon Water Department and Wastewater Department still face compliance issues directly related to sewer overflows and not meeting permit limits, the town's administration is steadily working with Communities Unlimited to resolve those issues.

The town is in the process of applying for a Special Evaluation Assistance for Rural Communities and Households (SEARCH) Grant from USDA-RD and has already applied for the funding from the Community Development Block Grant (CDBG) program. The SEARCH Grant will be used to offset the cost of engineering for the needed improvements to the wastewater system, while a large portion of the CDBG funding will be used to make improvements to the wastewater system.

This combination should resolve many of their compliance issues. If funded, some of the CDBG funds will be used for replacing old water meters and repairing or replacing old water lines that frequently have leaks. The leaks drive up water loss and run up the cost of operations.

The mayor and council's willingness to adjust the water and wastewater rates, implement the new rates and to diligently work on collecting past due accounts will go a long way in stabilizing the finances of the water and wastewater systems. Communities Unlimited will continue to provide training on financial reporting, monitoring, and record-keeping, along with QuickBooks training and guidance. 

Five quick tips for managing your home wastewater treatment system

By Joseph Valdez, RCAC Rural Development Specialist

Home wastewater treatment systems are common in rural communities as well as those without a central wastewater collection and/or treatment facility. According to some estimates, one in four Americans have a private septic system. In a private septic system, waste flows by gravity or is pumped by an electric pump from the home into an underground septic

tank which discharges into a disposal area known as a leach field.

Proper management of a home septic system is critical to ensure safety and sanitation and to ensure that you don't have costly system failures. Follow these five rules to keep your septic system running smoothly.



Maintain and operate your system correctly

Never flush anything other than toilet paper down your toilet. Some common items people flush (and shouldn't) include baby wipes or personal cleansing cloths, paper towels, hygiene products, sand, coffee grounds, cigarette butts, and kitty litter. No septic system is able to break down these items.

Establish a regular pumping schedule

To keep your system functioning properly, it is important to establish a regular pumping schedule. The U.S. Environmental Protection Agency recommends that a family of four have the septic system professionally pumped every two to three years to empty the sludge and scum (fats, oils, and greases) that may build up and clog the inlet and outlets in a septic tank. The schedule may vary depending on the family size, the system size and the amount of wastewater that enters the septic system on a regular basis.

Reduce what goes down the drain

Remember the term NO F.O.G. (fats, oils, grease) to ensure that there is no damage to your septic system. Wipe out pots and pans with a paper towel and dispose of the towel in the trash before washing them to limit the amount of fat, oil or grease that goes down the drain. Never dump oil or grease in the drain or down the toilet, as they will solidify in the pipes and cause system back-ups and clogging. Avoid dumping chemicals down the drain as this can interfere with the bacterial process that breaks down the waste in a septic tank. Also, avoid using a garbage disposal that dumps food waste into the septic system, as undigested food increases the Biological Oxygen Demand (BOD) in a septic tank.

Inspect regularly

Establish a regular inspection schedule to look for signs of a malfunctioning system, including water leaking at the top of the tank or effluent surfacing from either the septic tank or leach field onto the yard surface. This is especially hazardous to children and pets who may be running or playing in the yard.


Conserve water

Extend your septic system's useful life by reducing the amount of water that enters it. Fix leaks and broken valves in sinks and toilet tanks. Space out laundry loads throughout the week instead of doing it all in one day to limit the amount of water going through the system. Stick to four to five minute showers.

Learn more about how to properly manage your septic system and find more resources available for septic owners here:

<https://www.epa.gov/septic/septicmart-homeowners>

http://www.nesc.wvu.edu/subpages/septic_defined.cfm

or any Local, county/state environmental quality/protection agencies in your state. 

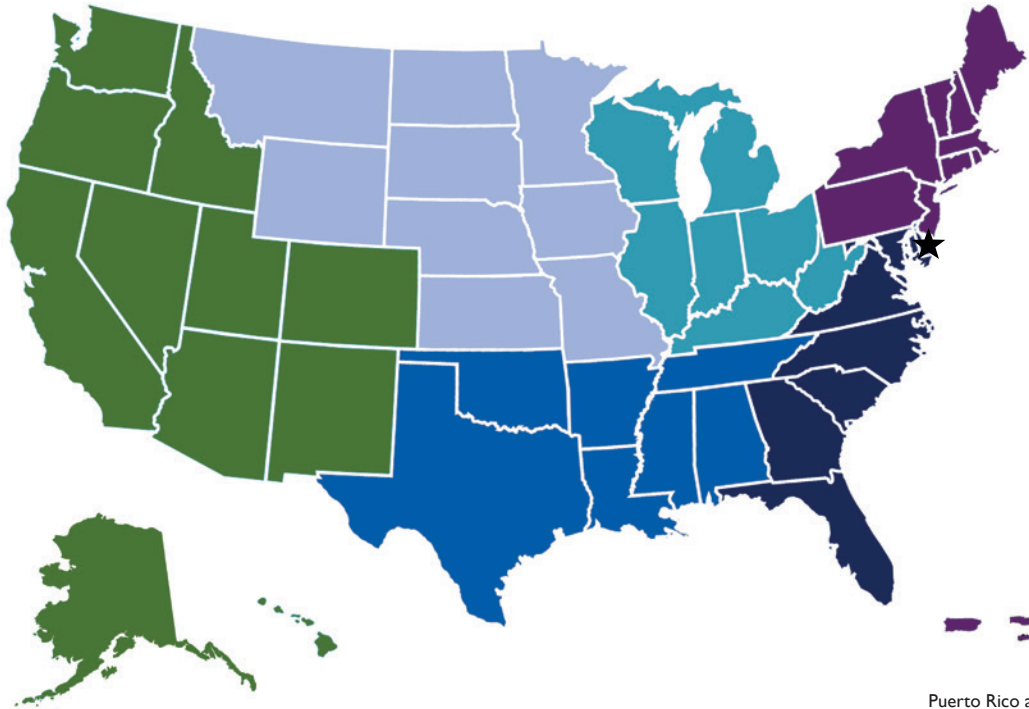
Upcoming Events & Trainings

SPONSOR	EVENT	DATE	EVENT DETAILS
Rural Community Assistance Corporation (RCAC)	Wastewater CA Test Prep Series 1 of 6; Overview of Wastewater Treatment	February 24, 2021	https://www.events.rcac.org/assnfe/ev.asp?ID=2471
Great Lakes Community Action Partnership (GLCAP)	Wastewater Lagoons & Oxidation Ponds	February 25, 2021	https://bit.ly/2P6zJDu
Communities Unlimited (CU)	Decentralized Wastewater (Septic System) Basics for Homeowners in Oklahoma	March 4, 2021	http://events.r20.constantcontact.com/register/event?oeidk=a07ehjgmbkvad3e2b12&llr=pcbhpwn6
Midwest Assistance Partnership (MAP)	Wastewater Training	March 9, 2021	https://www.rcap.org/training/#event=65124734;instance=20210309083000

For more events and trainings, visit rcap.org/training and wateroperator.org.

Rural Community Assistance Partnership

*A non-profit network reaching rural and small communities in all fifty states to improve quality of **life**.*



Puerto Rico and USVI
(Northeast & Caribbean RCAP)

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www.rcac.org

Midwest RCAP

Midwest Assistance Program (MAP)
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Maryville, MO 64468
(660) 562-2575
www.map-inc.org

Southern RCAP

Communities Unlimited
3 East Colt Square Drive
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www.communitiesu.org

Northeast & Caribbean RCAP

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www.rcapsolutions.org

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