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LETTER FROM THE EXECUTIVE DIRECTOR

January 8, 2019 marks the 40th anniversary of Midwest Assistance Program, Inc. As Executive Director for the last six years, I have had the honor and pleasure to work with some of the most dedicated and passionate people in regard to rural issues I have ever known. The Midwest Assistance Program referred to by many as MAP has had the privilege to serve small communities throughout the MAP nine-state region for many years. The people working at MAP have changed, but the mission remains the same.

I found an article we printed in a 1999 edition of the WaterLog, published by MAP as it celebrated its first 20 years. The article was written by Kenneth Bruzelius. Ken was one of the founders of MAP and was its Chief Executive Officer from 1979 to 2005. It outlines the early history of MAP.

Twenty years ago, a group of individuals interested in improving water and wastewater services for Midwest rural communities laid the groundwork for a grassroots technical assistance and training organization.

These individuals concluded that this effort would not be to lay pipes or build systems, but rather to have an impact on the way decisions are made in water and wastewater development. They were determined that systems could be designed and managed with the needs of the rural, low-income population in mind. Nationally, the "War on Poverty" was an important issue. A local demonstration project began in Roanoke, Virginia. It grew to a national program in 1972, and was incorporated as the National Demonstration Water Project (NDWP) the next year. This organization, funded primarily by federal agencies as part of an antipoverty program, was virtually the only non-profit organization assisting rural communities in water and waste disposal facilities development in the 1970's.

In 1975, NDWP conducted a survey of selected community action agencies to determine the scope of need in small rural communities for water and wastewater technical assistance. Leaders from the Center for Rural Affairs and several community action agencies agreed that a grassroots organization could positively affect rural water and waste disposal conditions.

In 1977, NDWP expanded its demonstration effort involving the use of regional organizations as centers of technical assistance service delivery. The Midwest Demonstration Water Project, one of two demonstration projects in the country, was formed. The Midwest Demonstration Water Project incorporated as the Midwest Assistance Program in 1979 and hired Kenneth Bruzelius as executive director.

Within a few years, other regional demonstration technical assistance centers sprouted and eventually became the current six regional Rural Community Assistance Programs. MAP, the Midwestern Rural Community Assistance Program, opened its doors as a multi-state service agency with four staff. Its first role was to work with local community action agencies to sharpen their abilities to serve as technical resources to communities experiencing water or wastewater problems.

Soon MAP's activities shifted to transferring knowledge directly to local governments, helping them assess needs and available resources, complete funding applications, and ultimately, install water and sewer services.

In 1989, NDWP underwent changes to enhance the network's evolution from a demonstration to a permanent service institution. The national organization was renamed the Rural Community Assistance Program, Inc.

This represented a realignment of the six organizations that operate the regional RCAP's and the national office.

The result was a stronger commitment to building a presence at the national level and unifying efforts for rural low-income communities. It also placed RCAP in a position to serve as a voice at the national level for Rural American communi-

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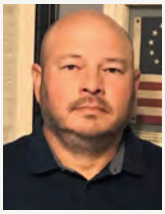
New Staff Hires

TOM FINGER
Technical Assistance Provider in Kansas

Tom Finger joined MAP in February 2019 and brings extensive experience in providing rural financial credit and technical assistance. He served as the primary Loan Specialist for USDA, Rural Development in South Central Kansas from 2008 until 2018, with responsibility for processing and servicing of the Utility and Community Facility Programs. Tom is skilled at establishing strong working relationships and networking with diverse communities and organizations. This has allowed him to develop projects and access multiple funding sources for clients including public agencies, special purpose districts, and non-profits. He has coordinated funding in numerous projects thus resulting in a thriving portfolio and activity level. Tom has established strong working relationships with the staff of multiple Kansas engineering firms, regulatory and funding Agencies, and other partners critical to rural infrastructure projects. Finger has a BS in Agriculture from Kansas State University and was reared on central Kansas diversified irrigation farm.

DERRICK LUEBBE
Technical Assistance Provider in Nebraska

Derrick Luebbe joined MAP as a Technical Assistance Provider in September of 2018. He is certified in both water and wastewater in Nebraska. Derrick served for over seven years as the water, wastewater, and street superintendent for the Village of Staplehurst in Nebraska. He has experience with the daily operations, trouble shooting, and handling of emergencies of a water and wastewater system. He is knowledgeable in managerial duties and in building relationships with regulatory agencies, and is familiar with grants. Derrick was a member of the local volunteer fire department where he gained knowledge in other areas such as National Incident Management Training.



MONTE KERCHAL
Technical Assistance Provider in Iowa

Monte Kerchal joined MAP November 2018 and brings with him two decades of experience in physical security, human resources, and organizational leadership. Prior to MAP, he served 33 years with the Army National Guard in numerous capacities. Monte served 15 months in Iraq, some of that time included working in the Civil Military Operations Cell overseeing the water and wastewater distribution systems for populations of over 13,000. He has 15 years' experience in training management to include classroom curriculum development and instruction. Monte has an Associate's degree Automotive Technology and has received training in the following areas: Fiscal Law Course, Commander's Safety Course, Physical Security Inspector Course, Sexual Harassment/Assault Response Prevention Training Course, Operations Security Officer Certification level II, Anti-Terrorism Course level III, Hazmat Safety Course, Unit Status Readiness Reporting Course, and Training Management Course. He has worked with a number of communities during state emergencies assisting with the following: man-power, environmental compliance, safety, security, logistical and water distribution.

MICHELLE POND
Technical Assistance Provider in Montana

Michelle is a Technical Assistance Provider for the Midwest Assistance Program in Montana. She holds a B.S. in Environmental Engineering Science from UC Berkeley and is a certified Engineer in Training. Before joining MAP, she spent two years serving her communities through AmeriCorps' Watershed Stewards Program and the Big Sky Watershed Corps. Through these programs, she served with both state and county agencies to plan and conduct environmental monitoring, analyze data, and help engage communities with their water resources and public health. She looks forward to collaborating with communities to create and support sustainable infrastructure solutions for rural Montana.

JERRY POPP
Technical Assistance Provider in Wyoming

Welcome back, Jerry! Jerry Popp brings his many years of engineering experience to MAP as a Technical Assistance Provider in Wyoming. He has designed and provided construction management for a wide variety of public works projects including municipal & rural water systems, wells, storage tanks, pump stations, control systems, wastewater facilities, underground utilities, streets, storm water management, site grading and subdivision development. He has industrial and land surveying experience as well, including most recently working with Sperry Drilling, providing design and monitoring of directional drilling for oil & gas production. Jerry has a BS degree in Mechanical Engineering from the University of Wyoming and is a Registered Professional Engineer. He lives in Glenrock, Wyoming.

STEVE SHOPE
Technical Assistance Provider in Montana

Steve Shope is a Technical Assistance Provider (TAP) for the Midwest Assistance Program. A fourth generation (born) Montanan, he grew up with strong ties to the cultures, people and land of the State and understands the issues faced by many rural Montana communities today. As a TAP, he will be able to draw on his upbringing and experience to help to address these issues. His professional life began with a graduate degree focusing on environmental microbiology with an emphasis on public health. This degree took him directly into a tenure as a laboratory processes designer and manager focusing on the commercial production of an environmental bacterium and into the position of environmental health specialist. From that point on, Steve has experienced many aspects of public and environmental health both as a regulatory official and as a design professional, including: state licensed facility permitting, wastewater treatment system review, inspection and design, and teaching nationally accredited classes in foodborne (water) illness prevention.

Infrastructure Asset Management (IAM)

by Ron Vanderpool

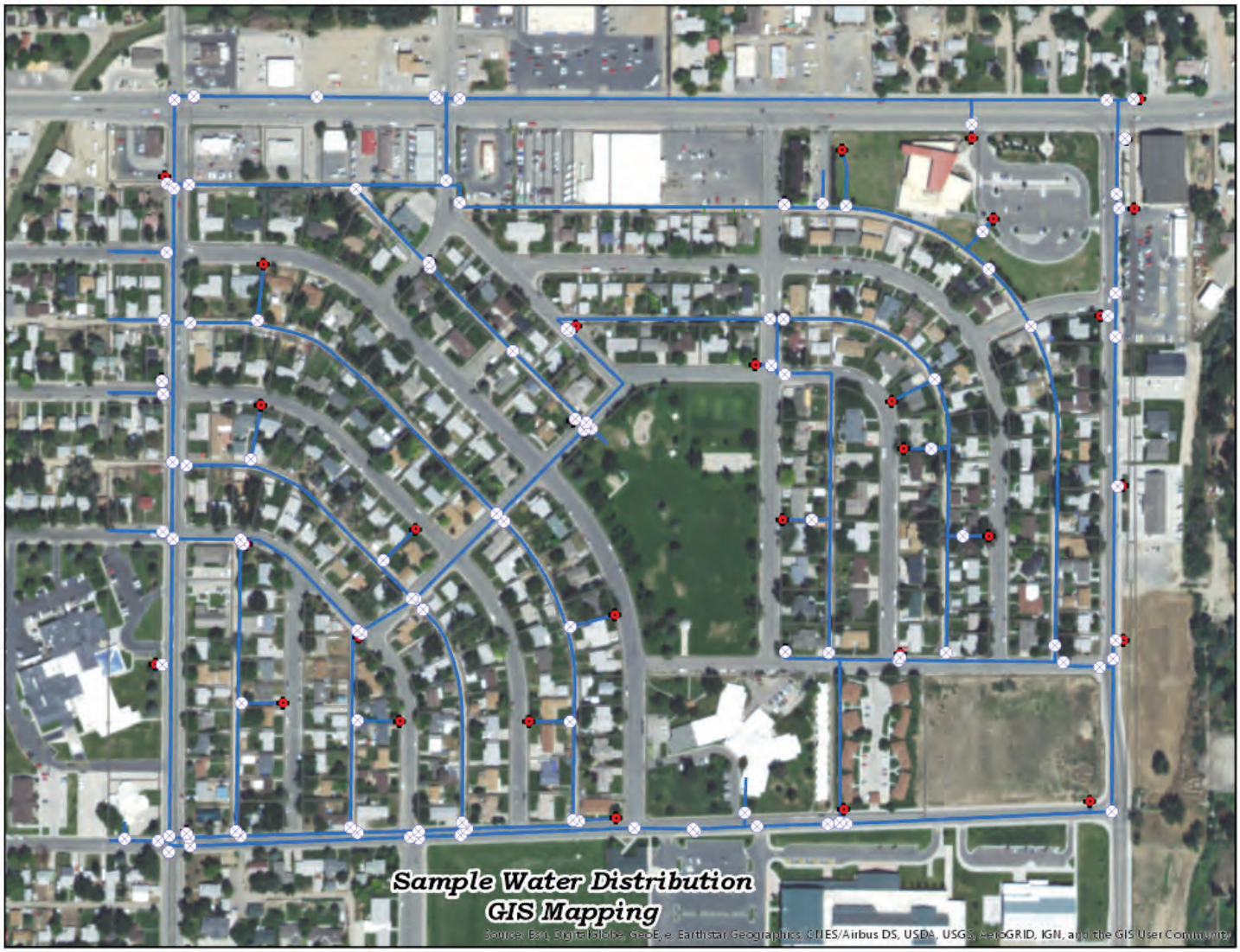
The thought process of implementing an asset management plan, as a whole, or in part, often sends small water and wastewater systems into downward spiraling path of confusion and frustration. Operators, clerks, treasurers, and boards hear about asset management and how important it is for a system's health on regular basis, but many steer away from what appears to be an insurmountable task of incorporating an adopted plan.

Everyone needs to understand that most systems are already performing some form of infrastructure asset management. Making repairs when failures occur, developing and implementing budgets based on revenues and expenditures, making rules and regulations to manage the system, are all significant functions of a sound plan.

A small system should implement proactive infrastructure management but keep it simple.

The first step, always, is to take an inventory of the system, as a whole, component by component. Every valve, manhole, pump, treatment facility, etc. has a function. System components (features) do something, thus have value and need to be identified. Those features also have a physical location on this planet and knowing where it is, is as important as knowing the function. The inventory can be listed in a simple paper ledger, spreadsheet, database, or fully interactive software. Regardless of what format is used, each and every feature needs to have at a minimum, a unique identifier and a physical location (address or lat/long) so the component can be separated from similar components and mapped. The initial inventory should also include size, type, manufacturer, date of install, and specific notes that are relative to that specific feature.

Once all of the system's features have been identified and mapped through the inventory process, relating attributes need to be assigned. These attributes at the minimum need to include information about the feature that will help the managers, operators, clerks and treasurers understand that feature's importance to the system. Very simply adding the



feature's age, condition, system criticality, value (new and depreciated) and life expectancy will provide the managers with a great wealth of information that can be used for many analytics, trends, and predictions necessary for the future of the system.

When there is a good inventory of the system and an understanding of each feature, proper management is possible. It is important to know where it is, what condition and criticality it has, and how long it should be efficient or functional.

The next step in developing proper management of the system is to establish an attainable Level of Service (LOS). Then, implementing that into the management scheme including developing operation and maintenance plans. The LOS should cover all management functions; financial and operational, yet be simple. It should establish health and safety standards including setting management and governing responsibilities for the public-owned infrastructure.

The Operations & Maintenance (O&M) plans are based on the information acquired during the inventory acquisition and analysis. It should include associated budgets designed to fund the proper maintenance of the infrastructure. The O&M plans should contain feature group descriptions, inspection procedures, feature maintenance including scheduling for maintenance, and lastly rehabilitation and replacement schedules. All of this should relate back to the inventory database and the LOS.

The last part to an Infrastructure Asset Management Plan (IAM) is to apply minimum life-cycle costing to the infrastructure features. Through developing reserve funds, based on user fees that offset depreciation of infrastructure, it will provide renewable funding to replace aging infrastructure on a programmatic basis. Some features last longer than others and may not require full replacement as much as steady maintenance. Setting life-cycle costing for all features will help managers understand where immediate and future funds need to be expended.

Utilizing these basic steps, the system can establish capital improvement planning which promotes proactive sustainability. This information is typically well received where funding agencies are concerned. When components of the infrastructure are rehabilitated or replaced, the cycle process of IAM begins again. It all starts at the same place, inventory acquisition and mapping.

Many plans and software programs can either provide certain portions or be all inclusive for a good IAM. Several larger systems have moved infrastructure asset management into a GIS environment. Years ago, this required a large investment in equipment, software and personnel. This is not necessarily the case today.

Utilization of the new online GIS environments as the core for an IAM plan is becoming more accessible for systems, including small systems. Inventory can be mapped, feature databases with attributes developed, online maintenance forms created and deployed for all O&M with direct relationships to the feature databases, in-depth analytics can be run and costing projects created, capital improvement needs identified, and the list goes on.

With new technologies and access to infinite data, setting up an IAM plan is easier than ever. The staff at Midwest Assistance Program are here to help you break through the confusion and develop a plan that fits the needs of your community and your system.

Executive Director Continued....

ties and to establish a national program to deliver services to them.

MAP's program of work expanded to include solid waste management in 1987 and housing initiatives in 1995.

(1999) Today, MAP has 34 employees, with multiple field offices in each of the 9 states in its region; and an operating budget of nearly $2.3 million from federal, state, and private funding sources. During Fiscal Year 1999, MAP served more than 400 communities.

Kenneth Bruzelius
Executive Director

Midwest Assistance Program℠
serving rural communities since 1979
RCAP NETWORK MEMBER

Celebrating 40 years!

Today, 20 years after this article was written, MAP still has multiple staff in all nine states. We continue our work through funding from federal, state and private sources. Our strength continues to be in the areas of water and wastewater treatment, distribution, management and finance.

As MAP moves forward, we are looking at how we can help the rural areas capitalize on their assets and provide assistance in a more holistic way. We are working with RCAP and all of our partners to find ways to help maintain rural population and make it a vibrant place for all of us to live and enjoy for the next 40 years or more.

Mike Brownfield
Executive Director (2013 – Present)

The Team

Everyone in a community is part of a team.

This team must work together for the betterment of a community. Each team member (resident/customer, clerk/auditor, operators, and board/council) has different roles and responsibilities to perform and each needs to do their part. Respect for each other's roles and understanding is essential to making an effective team.

Small System Water and Wastewater Operators Are an Essential Element of a Well-Tuned Municipality.

An operator's first duty is to procure and maintain their mandatory water and wastewater certifications, as they are the essential component of a safe drinking water system. It is also the operator's responsibility to assure their customers receive safe, potable drinking water and ensure effective management of the municipal sewer system.

A small system water and sewer operator might be considered the unsung hero of their municipality. There is no less a glamorous position to be employed in and is often performed with good humor and an eye for detail. Small system operators are tasked with multiple budgets and departments and in some cases, water and sewer utilities are the only funds contributing to a municipal general ledger.

A municipal operator is responsible for keeping their utilities in compliance with state and federal ever-changing regulations. These regulations have a tendency to be costly to implement, causing operators to maintain systems that have outlived their useful life. This means operators find themselves trying to maintain a failing, underfunded system while working to bring their local government on board to approve even the most minimal of necessary upgrades.

An operator makes their job look easy from the outside due to vast experience and by prioritizing their workload. Duties would include, but are in no way limited to:

- Understanding of proper operations of their utilities and performing laboratory tests such as pH, temperature, and chlorine residual.
- Make process control decisions and apply the results of those tests to facility operations.
- Maintain accurate and orderly records.
- Troubleshoot problems and routinely perform equipment, grounds and building maintenance.
- Ensuring compliance with state and federal laws and regulations.
- Operators and office staff are often the face of the city and work together to accomplish day to day operations.
- Working with city staff to coordinate problems and seek solutions.
- Forging relationships with regulating agencies and facilitating those relationships with the governing board.
- Working with customers to address and correct issues.
- Attending monthly board meetings and reporting to the council which is requested.

Residents/Customers

- Residents/Customers are the main reason a municipal system exists and why the highest quality of service is strived for.
- Consumers of the product produced by the municipal system.
- Provides on the ground observations that can be quickly relayed to the operator.
- Provides the main source of necessary operational revenues for system.
- Provides feedback to the governing body concerning the system and how it's operated.
- Elect representatives to serve as the governing body/board members, who also oversee the operations of the system.

Clerk/Auditor

- Acts as a liaison between users of system and governing body or board members.
- Processes and distributes user's statements, collection notices, and disconnect notices each month.
- Works with utility personnel to complete work orders for leaks, shut-offs, and connections.
- Collects user payments for all associated fees and prepare these funds for treasurer to deposit.
- Maintains records for the entire utility system and verifies they are current and up to date.
- Works with department heads and governing body to coordinate the preparation of an annual budget.
- Maintains a current general ledger for all funds for the municipality.
- Coordinates with utility personnel the processing of required documents for regulatory agencies.
- Maintains a written account of all governing body meetings.
- For many systems, acts as the first point of contact on behalf of the system.

Controlling Management - Board/Council

by Jerry Popp

A key component of a functioning Water System is the controlling management. In Wyoming this is likely to be the Board of Directors of a 'special district' or the Town Council of an incorporated municipality. Among the many options of private and public types of administration, this article will describe the example of a small municipality, the Mayor-Council form of government specifically, since it is a fairly representative concept to most systems. It should be noted that this is not intended to be a legal reference, but for illustration only, and readers are asked to translate these ideas into the language of their own particular state, local and system governance.

To provide for the needs of the public community they serve, the Mayor and Council fill two primary roles in the operation of a water system; the **establishment of policy** and **oversight** of the administration of the system. They are not intended to be directly involved in the physical day to day operations. These are the individuals held directly accountable by the voters to provide adequate and safe drinking water to the community members. They are also accountable to the regulating agencies for ensuring that the actual technical, managerial, and financial management of the system meets the established requirements. In these roles, the Mayor and Council comprise the head of the leadership team. They are not the operators or managers, but should effectively function as the CEO and the legislative body, making the rules of operation from a legal, financial, and public priority point of view.

The Mayor and Council put these leadership roles into action in this manner:
The Mayor, with confirmation from the Council, makes the appointment of the upper Management staff (department heads) needed to perform the work, mainly the Clerk, Treasurer and a Chief Operator or a Public Works Director. After an election, this may be as simple as the affirmation of existing staff appointments. If a replacement is needed for any reason, the Mayor may direct and be very involved in the advertisement, selection, interviewing and hiring of the department heads. These department heads then carry out the necessary execution of the day to day operations including hiring of additional staff.

The entire Council, under the leadership and participation of the Mayor, will establish the budget, policy and procedures necessary for complete operation of the system. This will require input and assistance from the appointed department heads. The Mayor and Council are jointly responsible to ensure that budgets, policy and procedures are in place to provide for hiring of sufficient staff, and to provide the entire staff with all necessary training, tools, equipment and time to perform the necessary day to day tasks involved in the continuous operation of the system. They are also responsible for ensuring the system is self-sustaining and that all monies, income and expenditures, have been properly accounted for.

In summary, the 'rubber meets the road' for the Council and Mayor in their active conduct of public meetings, effective communication with the staff and with the community. Through proper monthly, periodic and/or annual review of financial reports, operational and maintenance reports, approval of annual budgets, and approval of funding requests made to other agencies and government entities good stewardship is ensured. Not to be ignored for a municipality or a district, with wider responsibility than just providing water, there are the additional accountabilities of the board. It could include fire protection, police, sanitary and solid waste collection and disposal, streets, parks along with other services and infrastructure in which they would have these same responsibilities to address.

Internal controls have a major role in providing consistency and trust throughout the Team workflow.
We have an article about the types of controls and checklists on our website.

*If you still have questions or concerns, visit our website **www.map-inc.org**.*
We have a lot of information, resources, and reference material, by state, available to help.

What do you mean Loan Obligations?

by Aubrey Neussendorfer

Each year, more and more communities sign the dotted lines to accept funds from various sources to provide the funds necessary to improve or replace their existing water or wastewater infrastructure. Members of the community are usually involved with the project in the very beginning when everything is visible, as preparing and construction is taking place. But once the dirt settles as this phase is completed, often as years go by, those original loan obligations are often overlooked. As city employees and governing body members change over the life of a loan commitment, these new members will not be aware of these loan obligations unless they review the original documents and understand those obligations. Often times once these papers are signed they are filed away to never be seen again.

These loan obligations are referred to as covenants within the original documentation from the funding agency. There are three types of covenants; action, prohibitive, and performance. Action covenants are ones that refer to the borrower completing an action such as submitting annual reports. Prohibitive covenants address things that are not allowed without obtaining the funding agency's permission first. This includes selling assets the funding agency has a lien against. The last type of covenant is a performance covenant and it addresses the operational, managerial, and financial aspects of a system the funding agency expects them to maintain throughout the course of the loan.

Phillip Fishburn, a Technical Assistance Provider in Kansas since 1995, believes this an important area in which Midwest Assistance Program (MAP) can assist communities. The creation or development of a "Life of Loan Manual" for them to use as a tool. This would aid them during the course of their loan to help them to comply with all of their loan obligations. MAP can also provide training and education to staff and council members concerning these obligations on a continuing basis. During his career, Mr. Fishburn, has noticed many communities fail to fully understand the consequences if they do not meet their obligations. Public officials often do not fully engage their management capacities within their systems.

The most common failure is when communities fail to adequately manage the funding required to efficiently operate a system. In other words, revenue vs expenses. Governing body members are typically very hesitant to review and adjust utility rates to accommodate the needs of the system to cover current expenses and additional funds to prepare for future repairs and improvements and projects. Mr. Fishburn also believes residents should be involved in and vocally outcry when their community is not getting the "biggest bang for their buck".

While many communities with loan obligations encounter typical loan issues, there are a few grey areas which need to be more clearly defined by the funding agencies. One example is for the system to maintain adequate insurance during the course of the loan. This leaves each community to define what adequate is and can vary greatly. Each funding agency has different needs of what they deem as adequate insurance coverage and this could highly impact the funds needed to sustain a system each year.

Education is key, as each year more communities are tackling water and wastewater projects. More education on the loan processes and the obligations surrounding them needs to be implemented within the industry. In a recent article from Jeff Case the USDA Rural Development Missouri State Director, he states, *"This year, USDA Rural Development has* ***more than $4 billion*** *in direct loans available to help rural communities to build or upgrade water infrastructure."*

While many communities will reach out to agencies such as Midwest Assistance Program for help with the process towards the initial funding of a project, many do not seek out assistance or education to maintain these loans. Technical Assistance Providers from MAP can provide the on-going necessary training, education, and tools to aid communities in not only meeting all of their loan obligations, but in areas to develop more managerial, financial, and technical skills to improve their systems.

So Here's A "Plug" For Fire Hydrants...!

by Jeffrey Kormann

See what we did there? In all seriousness, and whether you choose to call them fireplugs, fire cocks, fire pumps, Johnny pumps, or even something else, hydrants are a major component of water distribution systems and represent a key element of the fire-fighting infrastructure which society depends on today.

The Hydrant in History

Records show that the Chinese may have been the first to develop a concept of storing water for use in fighting fires. (Perhaps there is a connection to the fact that the Chinese also invented gunpowder.) Iron cauldrons were placed in strategic locations and kept filled with water in case of need. In other parts of the Asian world, fire cisterns are still used which store water below ground for better access in the event of an earthquake.

Although scholars differ on the true origins of the modern fire hydrant in America, credit for its invention is widely attributed to Frederick Graff, Sr., in 1801. Mr. Graff, as Chief Engineer of the Philadelphia Water Works, wanted to improve on the bucket brigade concept and apparently patented a design for a wooden post or pillar type of appurtenance that connected to the wooden water mains of the day. The following year, the first cast iron hydrants were being manufactured by cannon maker Foxall & Richards and became standard equipment in conjunction with the cast iron mains in use for most of the next 150 years. The Mathews Improved model, patented in 1858, was widely used after that and supposedly some examples can still be found in service today. Later modifications advanced the basic concepts of wet-barrel and dry-barrel hydrants, along with flush hydrants that have generally been used for distribution system maintenance. Another offshoot of the basic concept has been the development of non-pressurized "dry" hydrants, which are installed adjacent to lakes and ponds which a pipe runs below the standard water line. When needed, fire fighters simply connect to the barrel end of the hydrant and draft water into the pumper engine or tank through the principle of suction.

Ironically, history indicates that all records pertaining to Mr. Graff's original fire hydrant designs were lost in an 1836 fire that destroyed the U.S. Patent Office building.

Today's Uses

Most people associated with the water industry are aware of how fire hydrants are opened and connected by fire departments to pumper trucks when fighting fires. Other *legal* purposes for accessing their bounty include the temporary permits issued to construction contractors until such time that a service line can be installed to a property, the filling of in-ground swimming pools and water tank trucks, and the local wastewater department when cleaning out collection lines. Of course, fire hydrants play a key role in the periodic flushing of the water distribution systems they are connected to, which is recommended maintenance for both the lines and hydrants. Valves that are frozen or rusted shut, and not easily opened by fire departments when needed, could jeopardize both life and property.

A more exotic function is that hydrants supply a source for water cannons that are sometimes used to break up riots and other civil disturbances.

Fun Facts for You

Most members of the general public are unaware as to the meaning behind the color-coding of hydrants. In a nutshell, the color of the bonnet or cap provides information for the fire department (which in the case of large blazes, can include units from other municipalities called in to assist under mutual aid who may not be as familiar with the local system) as to the flow that can be expected. These four basic color codes are as follows:

BLUE—1500 gallons or more per minute
GREEN—between 1000 and 1499 gallons per minute
ORANGE OR YELLOW—between 500 and 999 gallons per minute
RED—below 500 gallons per minute

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According to Wikipedia, hydrant bodies are also supposed to be color-coded. These colors and their meanings are as follows:

WHITE—public system hydrant
YELLOW—private system hydrant, connected to public water main
RED—special operations hydrant, often intended to identify flush hydrants for system maintenance only
VIOLET—non-potable source of supply, such as a pond or lake

Of course, municipalities have been known to deviate from these standards and often use their hydrants as promotional artwork, similar to the concept of painting the town's water tower in school colors. Many towns and some rural supply districts marked the nation's Bicentennial in 1976 by painting their hydrants in a red, white, and blue motif. An example of how this backfired in one small community was when an old abandoned house was razed. Clearing away the nearby brush revealed a fire hydrant that had been missed when the other hydrants in town had been repainted many years previously. The embarrassing oversight revealed the need for a cataloged inventory of all hydrants on the local system along with complete service records, a good practice in asset management which could be assigned jointly to the water system personnel and the local fire department.

A Closing Thought

Although no longer an "Ancient Chinese Secret", fire hydrants in some form have been around almost as long as humans have lived in proximity to one another and assumed common responsibility for sharing the essential element of water. It appears likely that the same basic concept will continue to be an often-overlooked but vitally important part of our lives for many generations to come.

Private Wells

by Jesse Campbell

You walk into the kitchen and draw a glass of water from the sink to quench your child's thirst. You do not question if the water is safe to drink because you believe someone else is responsible for providing you with safe, clean drinking water. But, what happens when you are the owner, operator, and consumer. Who is responsible for ensuring the water is safe to drink? If you can't figure it out, looking in the mirror will give you a hint!

This is reality for the over 15 million U.S. Households that rely on private well water as their primary source of drinking water. These water systems are not regulated by the U.S. EPA, states or local regulatory agencies. The individuals maintaining these private systems are not licensed water operators or utility managers; they are the rest of us. In most cases, they do not know, what they do not know; so they are unaware of the risks associated with managing their private well.

Having a private drinking water source can be very rewarding but it is also a major commitment. It is definitely not a file and forget system. There are financial, maintenance, and testing requirements which must be planned for, completed, and followed up on to maintain a safe well. Something as simple as a missing well cap or a mismanaged piece of treatment could contaminate the system and cause major health concerns. Without proper testing and follow up maintenance or treatment your friends and family may be exposed to contaminants without any knowledge of their presence. Furthermore, when a piece of the system breaks it can be costly to repair or replace. Without proper financial planning you may be leaving your family without access to any water for an extended period of time. As a private well owner, obtaining as much knowledge as possible about where your water comes from, how your well and distribution system works, the components of the system, and how to maintain the water quality is essential. Knowledge about your system is a key step to maintaining that piece of mind that your water is safe and healthy. Don't gamble with your friend's and family's health with each glass of water that comes out of the tap.

> *"It would be fair to say that we didn't even know what we didn't know in regards to well ownership, usage, and safety."*
>
> **– Well Owner John Waller**

You are responsible for your well and your own drinking water when it comes from your private well. But that is not the only danger. You share your ground water source, the aquifers. It takes everyone in the community to protect the groundwater that is within the aquifers. When contamination occurs it does not only effect the private well in question but also the neighboring wells. Every well, regardless of its intended use, irrigation, drinking, or livestock poses a potential risk to the groundwater of an area. As a community, it is essential there is continued education and efforts made to ensure everyone is protecting the groundwater. This begins with proper well care, maintenance and testing and continues through proper waste disposal, public health and conservation programs. A proactive approach to groundwater protection at the community level helps support the individual home owner's efforts, promotes public health and protects the drinking water for future generations.

CASE STUDY: PENDLETON MOBILE HOME PARK, MISSOURI

by Jeffrey Kormann

His choices boiled down to closing the mobile home park and dislocating approximately 20 residents, or trying to find a solution that would keep people in their homes while satisfying the requirements of the State primacy agency. Sometimes life requires us to make difficult decisions. John Pendleton, the owner of a mobile home park and small engine repair shop in rural Callaway County, Missouri, began receiving correspondence from the Missouri Department of Natural Resources (MO DNR) indicating his State-permitted wastewater treatment facility was in chronic violation of the Clean Water Act. He wanted to keep it open. He wanted to do what was right. He needed help and MAP played a significant role in identifying the problem and finding a solution.

"When I first contacted the folks at MAP, I was unsure of what to do or where to start. It's been a long road to get from where we were to where we are, but we're in a good place now and MAP helped us get there." – John Pendleton

The first hurdle John and his family business faced in this process was trying to determine the causes for failure of their innovative process. The park had installed a process which used septic tanks, a two-stage wetland bed for filtration of nutrients, and then discharge the remaining effluent into the classified receiving stream. The system, which had been installed in 2000, generally performed well in addressing biological oxygen demand (BOD) and total suspended solids (TSS), but failed consistently to meet permitted limits for the removal of ammonia and disinfection. Performance was further compromised by a misunderstanding in which Pendleton acted on a recommendation by officials to remove deep-rooted vegetation from the berm and mowing the wetlands beds on a weekly basis. That activity was stopped upon discovery by MAP Technical Assistance Provider (TAP) Kristina Hartley during her initial site visit in 2016. The mowing affected key components and caused long-term damage to the system. It was obvious by then that major changes would have to be made to the system and its operation, in order to have a realistic chance of meeting the current permitted limits and avoiding significant enforcement actions from MO DNR.

Recognizing the need for evaluation of the system by a professional engineer, Hartley began a lengthy and often-frustrating search. She finally connected with an expert in the design of small treatment systems. Dennis Sievers, P.E. out of Columbia, MO, who committed to helping Pendleton find a solution. Sievers chose to redesign the current system to function as a no-discharge facility through installation of a drip irrigation process. This option he deemed feasible given the ability to incorporate the four existing septic tanks and take advantage of the natural gentle slope of the available land. Ultimately the decision had to be made to abandon the wetlands altogether and install a Delta Ecopod aerobic treatment unit as part of the overall process.

Getting a new treatment design on the drawing board represented a significant step forward, but the path ahead was by no means smooth for John Pendleton and the people who were dependent on finding a solution. MAP TAP Jeffrey Kormann began working Pendleton. As Kormann was becoming familiar with the project and the family, correspondence from MO DNR offered a reminder that the current system was continuing to operate in non-compliance. In February of 2017, Pendleton met with MO DNR to let them know they were serious about fixing the system, but they needed additional time. MAP often served as the liaison to help Pendleton work through a complex maze of regulations, requirements, and jurisdictions to make the improvements a reality.

One of the most challenging areas of the project, administratively, was the determination of oversight jurisdiction for the new system. The current Operating Permit had expired, and a decision had to be made on whether to renew it given that plans were in the works for a new system that would require a different permit level. Since the initial plan using the wetlands went away, the new system could use a no-discharge permit process. A no-discharge process with flow of less than 3,000 gpd does not fall under State jurisdiction, but is classified as an onsite wastewater system under the jurisdiction of the Callaway County Health Department. MO DNR agreed to allow the Pendleton's to delay renewal of their Operating Permit, pending what was hoped would be a rapid installation of the new system.

The next step was finding a contractor who would take on such a small project and complete it in a timely, affordable manner. This also proved difficult, but perseverance finally paid off in a favorable bid from Buscher Backhoe Service of Freeburg, MO. Owner Marty Buscher sat down with MAP and John Pendleton in January of 2018 for a pre-construction meeting which gave all parties hope that the system could be installed that spring. Instead, they faced a myriad of delays and unexpected challenges which threatened to unravel the entire effort. By late fall, however, the contractor was finally able to take advantage of favorable conditions to get the drip irrigation system installed, tested, and approved by the County just as winter weather began making an early appearance in mid-Missouri.

Today the drip irrigation system is continuing to operate as designed, and although the muddy conditions have prevented the contractor from closing the wetlands in accordance with MO DNR requirements, John Pendleton has succeeded in what he set out to do. MAP is proud to have played a supporting role in helping a small private system attain regulatory compliance, keep people in their homes, and safeguard the surrounding natural environment.

MIDWEST ASSISTANCE PROGRAM

SOURCE

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Source Mission:
To provide information for the clients of the Midwest Assistance Program so they better understand the programs and services MAP offers to help them improve their communities and tribal associations; and to showcase the expertise of MAP employees.

FIND US ON FACEBOOK!

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Midwest Assistance Program
serving rural communities since 1979
RCAP NETWORK MEMBER

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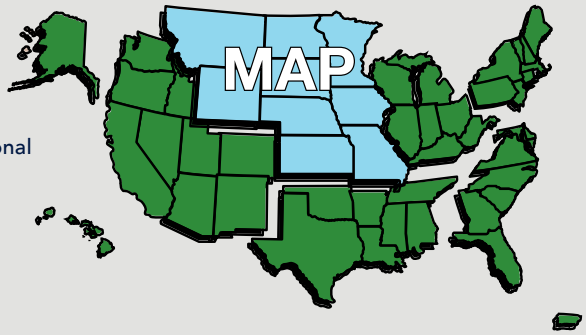
The Midwest Assistance Program (MAP) is a member of The Rural Community Assistance Partnership (network). RCAP is made up of a total of six regional partners including MAP.

RCAP Regional Breakdown



MAP has been helping communities and tribal nations meet their infrastructure and development needs through information, resource management, expertise and technical assistance since 1979. MAP provides solutions to more than 400 such communities each year in Iowa, Kansas, Minnesota, Missouri, Montana, Nebraska, North and South Dakota and Wyoming. Through individualized support from MAP staff, residents are given the knowledge and tools to revitalize their communities. MAP staff members live in the communities served and have a deep commitment to the strength, vitality, and future of rural America.

GSA Contract Holder
Contract GS-10F-0025T

Midwest Assistance Program has been designated and approved vendor by the General Services Administration, which means:

- MAP is already a GSA-approved contract holder
- Agencies can bypass the full request-for-proposal process and come directly to MAP
- Less delay getting projects underway

MAP is the first member of the RCAP network to receive this designation.