



RCAP Solutions works with communities to address a broad range of needs, including community infrastructure, and to promote public, environmental, and economic health.

RCAP Solutions is a member of the Rural Community Assistance Partnership. RCAP is a national network of regional nonprofit organizations that provide comprehensive, on-site technical assistance and training to help small, rural communities address their drinking water, wastewater, and other community development needs.

**RCAP
Project Highlights
2017**



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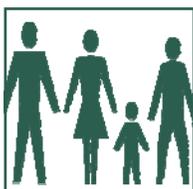
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151
COMMUNITIES

served with drinking water, wastewater and solid waste infrastructure projects, **resulting** in improved public health outcomes



**POPULATION
SERVED:
521,778**

**LOW INCOME POPULATION
SERVED: 135,239**



OVER 700
SCHOOLCHILDREN

and teachers directly impacted by RCAP Solutions **environmental** presentations and activities



71,540
HOUSEHOLDS

positively impacted by RCAP Solutions **training and technical assistance**



47
TRAININGS

resulting in **476 Individuals trained** on drinking water and wastewater topics



\$4.75
MILLION

in leveraged funds received by RCAP Solutions communities

Lake Hills Village Condo Association, Wolcott, Connecticut

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PROBLEM:

The Condo Association's water tank was on the verge of failure, was out of compliance for emergency preparedness, was unable to receive public funding for these upgrades and is in need of asset management planning for long term sustainability and affordability.

SOLUTION:

RCAP helped to complete an income survey to verify income eligibility, guided the Association through the application process for private funding, and will help develop asset and financial management plans for responsible future planning.

FUNDING SOURCE:

EPA

The Lake Hills Village Condominium Association formed and adopted their bylaws in 1981. The Board still consists of volunteer homeowners tasked with the care and upkeep of the buildings, grounds and facilities. As with all condo associations in Connecticut, Lake Hills is a non-profit and the board members receive no compensation for their service.

During a recent drinking water system inspection by the Connecticut Department of Public Health (CT DPH) Drinking Water Section, it was discovered that the 5,000-gallon water storage tank is at risk of imminent failure. The failure of the tank will leave the association unable to provide water to the residents of the 43 units. Additionally, due to recent changes in regulations, and to prepare for future emergencies, the system must install an emergency generator capable of running the system in the event of power loss by December 2018. RCAP Solutions was contacted by CT DPH to visit the system and complete an asset management plan under a state contract.

At the initial site visit it became evident that a water system improvement project including the replacement of the water storage tank and the installation of an emergency generator was needed first. RCAP staff began to create a corrective action plan and to discuss funding from the start. Previous projects had depleted the budget reserves and the Association did not have the funds to replace the failing tank. The immediate need did not allow the Association to wait for the State Revolving Loan Fund application to be re-



Wolcott, Connecticut.

leased, and the USDA Rural Development office stated that Wolcott was too large of a community to apply for their water system improvement fund.

Therefore the Association worked with RCAP to draft an application for a water system improvement loan from Communities Unlimited (CU), a revolving loan fund managed by RCAP's sister non-profit organization based in Arkansas.

RCAP assisted with soliciting cost estimates but the largest challenge lay in convincing the community of the value of their water system and their responsibility to maintain it. RCAP presented on the costs of running a water system and the responsibility of the Association to maintain their water system. Because the system had been neglected for too long, no state or federal agency was going to pay for the improvements, and if it failed, it would be even more expensive to provide emer-

gency water service and make the necessary repairs.

Also, in order to qualify for the CU loan, they would need to complete a Median Household Income Survey to verify their eligibility.

The system did qualify, but the board treasurer, the main contact on the application, left the board. The Association contracted Connecticut Condo Connection to manage the property and assist with the tank replacement project. RCAP is currently working with the board to find the needed application documents for submittal as soon as possible and hope to initiate work in the spring of 2017.

Once the tank replacement project is complete, the Association has agreed to work with RCAP Solutions on the completion of asset and financial management plans to prepare in advance for the future needs of the system and to become proactive instead of reactive.

Buckfield Village Corporation Asset Management Plan, Maine

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The Buckfield Village Corporation is located in rural Oxford County, Maine. North Pond, located north of Buckfield, serves as a water supply for the town of Buckfield. The water system maintains 180 connections that service approximately 600 customers. The district owns most of the undeveloped land around the pond, which creates a remote setting for good source water protection. Access to North Pond is available only by permissive trespass, since there is no developed public access for boats. Although shallow, North Pond water quality is above average.

As part of necessary improvements to the water system, the District financed an upgrade in 2015-2016 for \$377,117 to the storage tank and mixer which was originally installed



in 1960. The project rehabilitated the 56 year old 300,000 gallon Loring Hill standpipe to maintain service life longevity. The project enhanced water quality and ensured compliance with the Stage 2 Disinfection By-Products Rule (DPB). The system also has many cast iron and galvanized pipes which will need to be replaced over time. The distribution system has less than 5% water loss which is exceptional considering the age of the system. The system users recognize the importance of maintaining the water district's assets and support the capital improvements planned by the board.

RCAP Solutions assisted the Buckfield Water District by conducting a needs assessment to guide the efforts of an Asset Management Plan. RCAP Solutions assisted with the development of the system inventory and reviewed the attributes with the superintendent utilizing

the Check Up Program for Small Systems (CUPSS) asset management software.

RCAP Solutions will provide the results including an Equipment Replacement Cost Schedule and Capital Improvement Plan (CIP) to the Board in February 2017.

The Buckfield Village Corporation decision makers have the necessary information to identify needs for effective utility management and future upgrades. By implementing the CIP in their budget and rate setting process, the district can avoid a rate shock to the users and maintain future sustainability.

The Replacement Cost Schedule procured through this process is shown below. Capital expenditure for the following fifteen years is minimal and allows the district time to plan for remaining infrastructure upgrades.

PROBLEM:

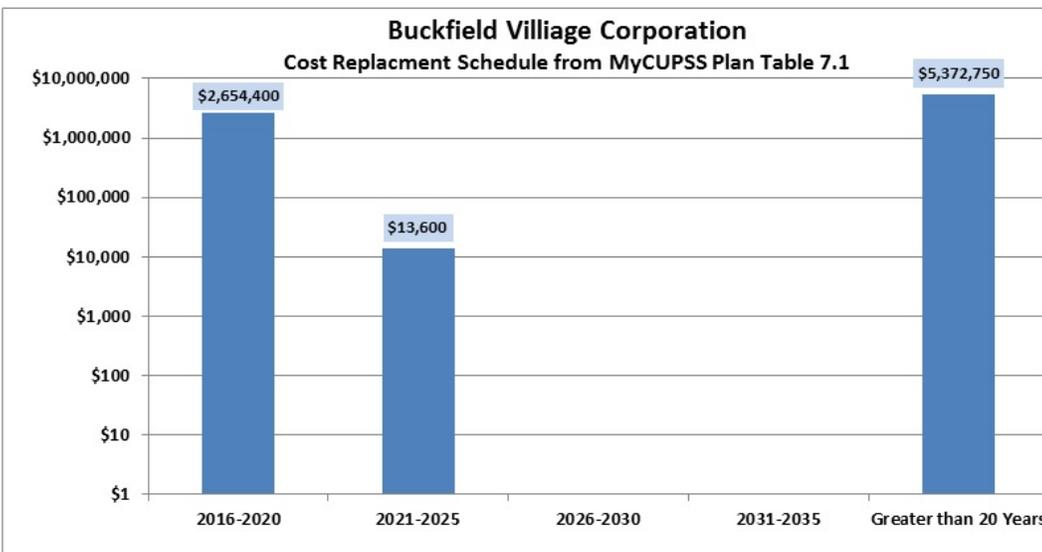
If receiving a Maine SRF loan, systems are required to complete asset management training and develop an asset management plan to help with financial sustainability. Buckfield received funding for a compliance project and needed to plan for the imminent replacement of outdated infrastructure.

SOLUTION:

RCAP Solutions, a national leader in asset management, conducted a needs assessment, collected system inventory and attributes, and using EPA's CUPSS software, created an asset management plan that Buckfield can use to ensure they have adequate funding to pay for future required system upgrades and they will not have to rely on state and federal grant and loan dollars but can be financially viable on their own.

FUNDING SOURCE:

EPA pass through
Maine SRF



Benefiting Community Infrastructure Funding: Richmond, Maine

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PROBLEM:

Richmond Utilities District has an outdated sewer treatment plant that is not meeting capacity needs but because of their inflated Census listed Median Household Income, which encompassed more residents than their system actually served, could not qualify for the most optimal funding package from state and federal funders.

SOLUTION:

RCAP Solutions was able to train the system on how to conduct a confidential income survey and when the needed response rate was not met, found a contractor to assist with a targeted door-to-door to help the community qualify. The district qualified for 75% grant from Rural Development, Maine SRF principal forgiveness and up to \$1M in grant funds from CDBG, making the much needed project feasible and also affordable to their lower income community.

FUNDING SOURCE:

USDA RD Technitrain

Rural America contains approximately 80% of the water sector infrastructure while servicing less than 20% of the population. Small to medium-sized rural water and wastewater utilities are faced with difficult decisions of customer affordability relative to replacing and upgrading aging infrastructure. The water and wastewater sector is a very capital-intensive business.

Customer rates should cover operation, maintenance, debt service and reserve funds to replace assets. However, financial management in the rural water sector does not usu-

ally work that way. Some believe that all infrastructure improvements should be paid by only those who directly benefit but because we all share in the general wellbeing and good health of our communities, federal and state loans and grants are available to moderate utilities' financial gaps and dampen user-rate shock.

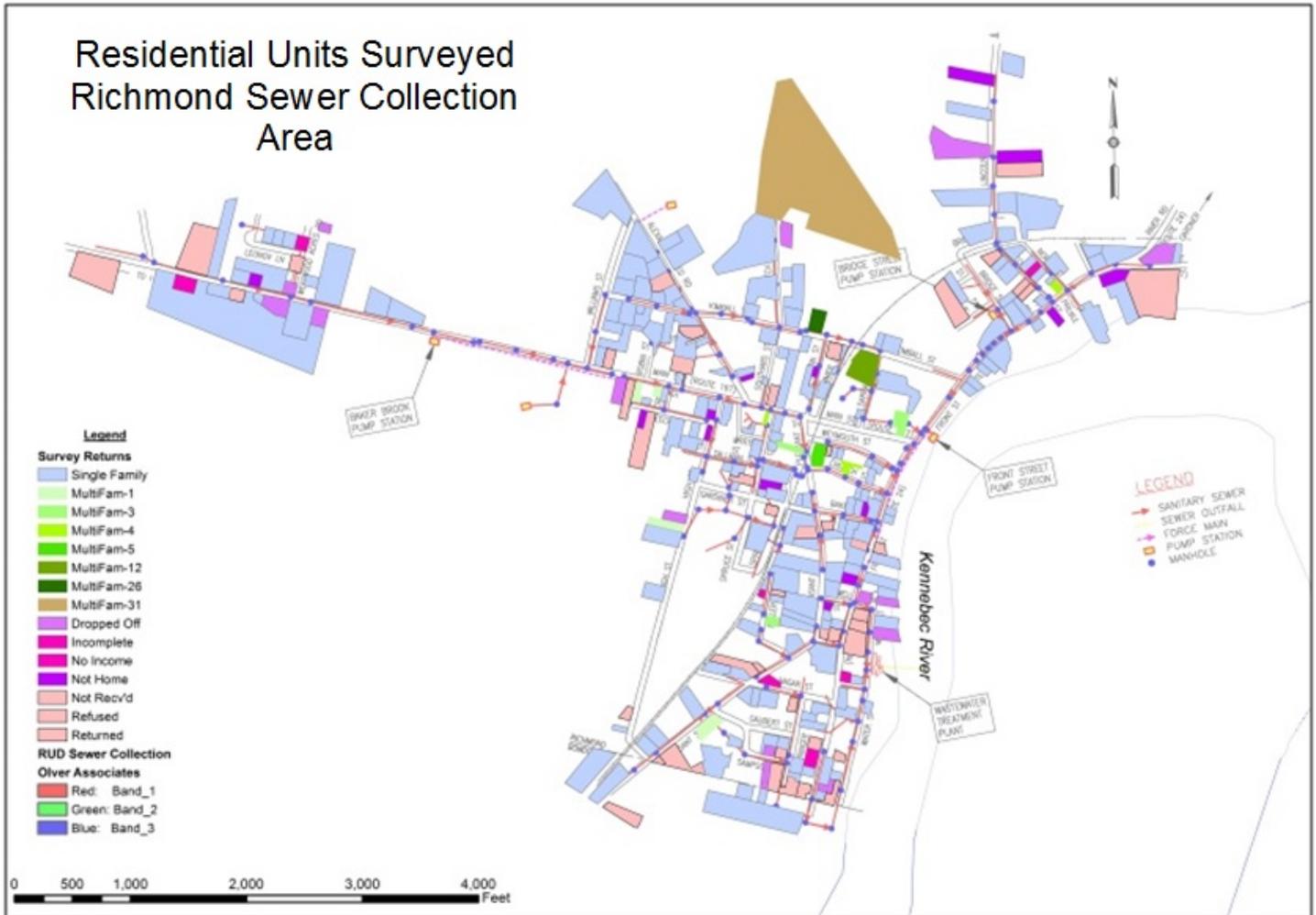
Community income surveys are a basic service provided by RCAP Solutions.

Census data may not truly reflect a utility's service area and also has a very high margin of error. Consequently, a targeted survey of the util-

ity's customers is necessary. Survey results reveal the median household income of the project area and help the utility to qualify for federal and state low-interest loans and grants; it also reveals what upgrades the utility can afford. Grant and principal forgiveness funding can save the utility and its users millions of dollars over the life of the loans.

RCAP was contacted by the Richmond, Maine Utilities District superintendent to conduct an income survey for a projected upgrade to their 1965-vintage sewer treatment plant. The Utility District provides sewage collection through 4,600





feet of pipe serving 566 customers. In 1989, the plant was upgraded for secondary treatment. During peak wet weather, flows are often greater than the plant's design capacity. Inadequate sizing of various processes poses challenges to the treatment plant to transform sewage into clean effluent for discharge into the Kennebec River. Various alternatives were studied and the District decided upon \$10.3 million in improvements.

RCAP trained District volunteers to collect surveys and RCAP processed the returns, analyzed the results and submitted the final reports to the three major funders: USAs Rural De-

velopment, Maine DEP's State Revolving Fund (SRF), and HUD's Community Development Block Grant Program (CDBG). Confidentiality was preserved throughout the process.

The system was unable to receive the required return rate on the surveys, so RCAP suggested that the District negotiate a contract with Maine Rural Water (MRW) to complete the needed door-to-door follow up. RCAP and MRW coordinated to finalize the work. RCAP facilitated report communications between the engineers, the District and funders to realize survey approval from Rural De-

velopment, Maine DEP and CDBG which qualified the District for 75% grant from Rural Development, SRF principal forgiveness and up to \$1M in grant funds from CDBG. Funding awards should be announced for the 2018 construction season.

Working together, the District, RCAP and MRW, with funding from USDA Technitrain, produced success for this important project to move forward to meet environmental compliance in the most affordable manner for the customers.

Assisting Community After System Explosion: Boxford, Massachusetts

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PROBLEM:

Andrews Farm's water storage tank exploded leaving most of the infrastructure damaged and the community without water.

SOLUTION:

RCAP Solutions helped the community winterize a new emergency connection with the neighboring community in case of any future incidents and is helping Andrew Farm through the arduous process of rebuilding their water system to ensure sustainable and affordable safe drinking water for its customers.

FUNDING SOURCE:

USDA RD Technitrain



Workers assess damage from explosion.

The Andrews Farm residential community is a designated low income community under Massachusetts's 40B law and is located in the Town of Boxford. On the request of USDA/RD, RCAP Solutions assisted the community with a system evaluation and asset management planning.

In June, 2016 the community's drinking water storage tank exploded which destroyed much of the water system's infrastructure including its pump house, leaving the community without running

water. To make matters worse, the insurance company denied the water system's claim, leaving the water system to re-build on their own dime without insurance funds.

Since then, RCAP Solutions helped the community to winterize its emergency connection with its neighboring community, and has also started the planning process of rebuilding the water system infrastructure. This work has involved collaboration and coordination between local, state and federal officials as well as con-

tractors and engineers.

RCAP Solutions intends to continue assistance to this community until the new system infrastructure is completely re-built and can provide potable drinking water to the community, as it did prior to the storage tank explosion.

Hyannis Water System: Hyannis, Massachusetts

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Hyannis Water System is located in the community of Hyannis, MA on Cape Cod with a year round population of about 14,000 but hosts as many as 100,000 people during peak summer vacation season.

The Hyannis Water System, which is managed by a larger company, United Water/Suez, contacted RCAP Solutions because the system had levels far exceeding the health advisory for PFAs in their Mary Dunn well located on the north side of town. Though the system's other two wells were not impacted, Hyannis needed immediate assistance to ensure all customers had access to safe drinking water. RCAP Solutions helped distribute emergency bottled spring water to residents impacted by the contamination on 12-hour seven day a week rotations, which ultimately cost the

system over \$200,000. RCAP was simultaneously helping to address a long term solution to fix the contamination problem for good.

RCAP Solutions helped the system's operators with back flow testing and cross connection surveying as well as additional third party coaching and oversight of the carbon filtration system installation and construction for the existing treatment plant and well field. RCAP reviewed planning specifications and drawings and helped take system components offline during installation, and ensured proper chlorination before bringing the upgraded system back online and in service. RCAP made sure that both the contractor and the water system were taking the

proper steps throughout the process to ensure eventual success—safe drinking water for all Hyannis residents and visitors.

Through EPA's much needed compliance grant funding, RCAP was able to provide support to Hyannis for both interim and long term water quality solutions, and now the system is in compliance, serving all residents and visitors water that meets all state and national safe drinking water standards. RCAP Solutions has committed to provide training and guidance each spring while the system does their annual flushing prior to the massive influx of visitors to the normally small town as well as provide emergency services and operations advice on an as needed basis.

PROBLEM:

The Hyannis Water System in Cape Cod, MA had a daunting amount of PFAs in the groundwater of one of their wells, far above the health advisory level. According to the EPA, PFAs over certain levels may result in developmental effects to fetuses during pregnancy or to breastfed infants (e.g., low birth weight, accelerated puberty, skeletal variations), cancer (e.g., testicular, kidney), liver effects (e.g., tissue damage), immune effects (e.g., antibody production and immunity), thyroid effects and other effects (e.g., cholesterol changes).

SOLUTION:

RCAP Solutions assisted with the distribution of temporary bottled spring water for community residents as an interim emergency solution, and then assisted with backflow prevention, cross connection control and project oversight for the installation a carbon filtration system to remediate the contaminants.

FUNDING SOURCE:

EPA



Emergency spring water for residents.

Honey Pot Hill Orchards, Stow, Massachusetts

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PROBLEM:

Honey Pot Hill Orchards was deemed a public water system by the primacy agency after almost 90 years of operation and received a compliance consent order with the possibility of fines.

SOLUTION:

RCAP Solutions helped the business with planning and then implementing an action plan and was able to get them into full compliance which included the training and certification of a water operator, and the submittal of a number of required documents including an emergency response plan, a cross connection survey, and a sampling plan.

FUNDING SOURCE:

EPA



Honey Pot Hill Orchards is a family run business located in Stow, Massachusetts, a small town of approximately 6,600 residents.

The Martin Family has owned and operated the farm for four generations, dating back to 1926. Since its inception, the farm has utilized one drilled well with no treatment for the labor residence, public bathrooms and operation of the cider press and snack bar.

In late 2015 the Massachusetts Department of Environmental Protection (MA DEP) recognized the well as a transient non-community public drinking water system because they serve at least 25 people more than 60 days per year. The owners were confused about the new designation with additional requirements and regulations.

The Martins were already dutifully complying with local, state and federal regulations governing their crops, business and employment practices. They contacted their local Farm Bureau, as well as their state representative, for assistance in resolving this issue without becoming a public water system. They were unsuccessful and the farm received an administrative consent order with

possible fines. The Martins reached out to RCAP Solutions and RCAP Staff met with them to review the order step by step and create an action plan, completing a first draft at the initial meeting.

The next step for RCAP was to cultivate communication between the Martins and MA DEP. RCAP was able to provide an emergency response plan and cross connection survey as required by the consent order. RCAP also helped one of the owners with the training necessary to become the licensed operator which all public water systems require.

Finally, RCAP drafted personnel plans, a sampling plan and other forms required by the order and assisted in their submission to MA DEP—all of which was provided free of charge with the use of Environmental Protection Agency (EPA) water system compliance funds.

Utilizing their experience with water systems and their existing relationship with MA DEP, RCAP was able to work with the business owners to bring their water system into full compliance, and RCAP was able to act as a liaison between the water system and the primacy agency to achieve the goals of both sides: continued provision of clean, safe water.



Honey Pot Hill Orchards.

White Lake Estates, New Hampshire

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White Lake Estates is a small community public water system in Tamworth, NH that serves 100 single family residences and supplies water to approximately 250 people. The distribution water lines are oriented in a grid system, which is ideal for two reasons: 1) maintenance can be performed with minimal disturbance to the customers and 2) continual movement in the grid reduces potential water quality issues associated with stagnant water. The distribution system, however, was installed 47 years ago and is in need of upgrades.

In the winter of 2015, White Lake Estates experienced a sharp increase in main breaks in both 4" and 2" line sections. The Homeowner's Association decided to move forward in replacing these sections of the distribution system.

Bruno Siniscalchi, Treasurer of White Lake Estates, enlisted RCAP Solutions to help move the project forward. Meetings were held with Bruno and the contract operator to discuss project

scope and construction costs. Through the support of USDA Technitrain funds, RCAP Solutions drafted, prepared, and submitted a final SRF application to the New Hampshire Department of Environmental Services (NHDES) to secure funds for the project.

As a cost saving solution RCAP worked with the funder to waive the need for the construction contractor to be bonded. This enabled contractors with only a line of credit to bid on the project, which opened up the opportunity for smaller local construction companies to compete. RCAP Solutions

maintained an advisory role through the bidding and construction phase of the project. The contract was awarded to Rotten Rock Hardscaping & Tree Service, Inc. This was ideal for the community leaders because they could sub-contract to the system's regular contract operator, FX Lyons, Inc., who is very knowledgeable about the system already.

Rotten Rock Hardscaping & Tree Service, Inc.'s bid came in low enough that they were able to increase the scope of work to include two extra streets worth of piping in the project. RCAP Solutions was there to help facilitate the change orders. The project was successfully completed on time and under budget. Now that the distribution replacement project is complete, RCAP Solutions is working with White Lake Estates to map the new system components and initiate an asset management program to help with future system financial sustainability.



Construction on main breaks at White Lake Estates.

PROBLEM:

White Lake Estates experienced a series of main breaks and needed assistance applying for state funding as well as managing and implementing the construction project once funds were awarded.

SOLUTION:

RCAP Solutions assisted the homeowner's association with their state funding application, walked them through the bidding process and was available during the construction process to ensure that the distribution repair project was completed on time and under budget.

FUNDING SOURCE:

USDA RD Technitrain

Township of Mt. Olive, New Jersey

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PROBLEM:

Mt. Olive's water system was experiencing extreme water loss from an unidentified leak.

SOLUTION:

RCAP Solutions helped the system to identify and fix the leak which brought them back to a normal level of water loss. RCAP has also been assisting them with Asset Management and Operations and Maintenance Plans to help ensure the proper maintenance and replacement of infrastructure over time.

FUNDING SOURCE:

USDA RD Technitrain and EPA

Mt. Olive is a rural town in northern New Jersey and is a fairly modern suburban municipality with abundant shops, stores and restaurants. It is a fairly complex water system that provides potable water and fire protection to several adjacent communities. The Township median household income is \$51,577 and 5.6% of residents live below the poverty level.

The New Jersey Department of Environmental Protection (DEP) referred RCAP Solutions to this project because the system was experiencing unusually high water loss that could not be identified. The DEP asked RCAP Solutions to assist the water department with identifying the source of the leak and to develop an asset management plan (AMP) to fund

equipment repair and replacement over time. Soon after RCAP began working on the project, funded under USDA RD's Technitrain program, a large leak was identified by the engineer that was flowing directly into a storm water collection system, which was why it had been so difficult to detect.

The leak was repaired and water loss rates returned to normal industry standards. RCAP is still working with the Township on the AMP that includes water sources, treatment process, storage facilities and the distribution system. In addition, RCAP staff recently began to work with the system on an Operations and Maintenance Plan (OMP), support funded by an EPA compliance grant. This plan will provide a written

document detailing how to operate the system to help familiarize any new operations staff. Because of the complexity of the water system, this will be a multiyear project. When the Asset Management and O&M plans are completed, the Township of Mt. Olive will have a better understanding of the various systems they operate and have a rate structure that allows them to replace critical system assets over time.



Mt. Olive, New Jersey

Forest View Mobile Home Park, Kirkwood, New York

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Forest View Mobile Home Park (MHP) consists of about 34 mobile homes that are served by both a community drinking water system and a sewer system. It is located on the southern border of New York near Pennsylvania in a rural residential neighborhood. The owner of the MHP initially approached RCAP to assist in documenting eligibility for the Community Development Block Grant (CDBG) program. The wastewater treatment system was an old, poorly functioning lagoon and the MHP owner was under consent with New York State Department of Environmental Conservation (NYSDEC) to replace it. Broome County Planning Department had offered to host the application on behalf of the owner, recognizing that neither she nor the MHP residents had the wherewithal to take on such a big project.

RCAP Solutions, through HHS funding, helped complete an income survey, guiding the owner through the steps and helping to collect surveys from residents to meet the required 95% return rate. The survey documented a Median Household Income of \$20,528 and a percentage of Low-to-Moderate-Income (LMI) Individuals of 84.98%, well over the required LMI threshold of at least 51%. Most of the residents require some sort of

government assistance to even maintain a home. A CDBG grant of \$127,000 was awarded and the upgraded wastewater treatment system is currently in the design phase.

In the interim, RCAP Solutions followed up with the park owner on operational questions that had come up regarding the drinking water system. RCAP Solutions began by assisting in the creation of a set of Standard Operational Procedures (SOP's) for the system since it is operated by a single contractor. In the event that the Operator could not be there, the SOP's would guide the owner or another operator through the daily activities to keep the system functioning and in compliance, assistance supported by an EPA compliance grant. It soon became apparent that there were other problems: structural issues associated with the aging distribution system, one of the wells was under-producing, and there was no storage beyond the two small pressure tanks. The issue of water shortage gradually became urgent, after leak investigation and repair had failed to solve the now-chronic water shortage.

RCAP Solutions helped the MHP to investigate the cause of the under-producing well and secure

the services of a reputable well driller to deepen the well and install a larger pump, but larger issues associated with the overall system condition remained. RCAP Solutions helped the community reach out to CDBG program administrators to determine if the project would likely be considered competitive, and to again secure Broome County as the CDBG application host to upgrade the drinking water system. RCAP Solutions also helped in obtaining proposals for engineering services for the Preliminary Engineering Report. RCAP Solutions will continue to assist the system by facilitating project planning, helping with the CDBG application, and completing the SOP's.



Forest View Mobile Home Park Water Operator at Treatment Building 1 in 2016.

PROBLEM:

Forest View Mobile Home Park needed to upgrade its aging and poorly functioning water and wastewater systems but required assistance to qualify for government funding as well as additional technical and managerial support to ensure system viability.

SOLUTION:

RCAP Solutions completed an income survey which resulted in a grant award for upgrades to the wastewater system. RCAP also helped to identify technical and managerial deficiencies associated with the drinking water system, and is assisting with project planning, developing Standard Operations Procedures, and completing a funding application for water system upgrades.

FUNDING SOURCE:

HHS and EPA

Blossburg Borough, Pennsylvania

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PROBLEM:

Blossburg, like many rural communities, has aging infrastructure in need of replacement. They also lacked an updated asset inventory and up to date maps of their water and sewer systems; adequate funding has been a hurdle to all of these needs.

SOLUTION:

RCAP was able to assist the community in a complete inventory of all of their assets using GPS technology and was able to create GIS maps which the borough can access to help with day to day operations and long term planning.

FUNDING SOURCE:

USDA Rural Community Development Initiative

Blossburg is a rural community located in northern Pennsylvania in Tioga County. Blossburg originated as a coal mining town in the early 1800's and the industry thrived for nearly 150 years.

Coal mining has given way to natural gas in recent decades and Blossburg has experienced several 'boom and bust' periods from this industry. The population of the borough was 1,538 in 2010, decreasing from 1,956 in 1960. The median household income level was \$34,924 in 2010, more than \$15,000 lower than the Pennsylvania state median.

Many rural communities in Pennsylvania face significant technical, managerial, and financial issues with their water and wastewater systems. Blossburg Borough is fortunate to have very competent leadership and a capable staff, but often faces issues with aging infrastructure and lack of funding. Additionally, the water and sewer authority needed an updated asset inventory and updated water and wastewater system maps.

In 2014, USDA Rural Community Development Initiative awarded RCAP Solutions a grant to provide GPS and GIS mapping services to a number of rural low income communities including Blossburg. The borough manager and public works department have been very involved and supportive of every aspect of the RCAP project. Over a four week period in spring 2016, RCAP and the Blossburg Borough authority staff completed a comprehensive GPS inventory of the water and wastewater system. This data was then transferred to a GIS mapping system.



RCAP Solutions also partnered with the Tioga County GIS Department and the Tioga County Source Water Protection Coalition to create an online water and wastewater web application to view the authority's data.

This project allowed Blossburg Borough to have an accurate, detailed inventory of their assets, as well as access to an online GIS platform to view their system maps.

This will help them immensely with the effectiveness of their day to day operational work and will also assist with long term planning. Additionally, RCAP Solutions was able to network and establish important relationships with several Tioga County departments and has become very involved with the Source Water Protection Coalition.



Blossburg Public Works Department Members.

Brave, Pennsylvania

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The village of Brave is a tiny hamlet on the banks of Dunkard Creek in southwestern Pennsylvania. About 100 years ago, Peoples Natural Gas Company of Pittsburgh decided this community was suitable for the largest gas compressor station in the world. The compressor remained in operation from 1906 to 1959. Two dams were created by Peoples Natural Gas and other amenities were added including public water, public sewer, telephone service, an elementary school and an ice plant. Today Brave is considered a census-designated place in Wayne Township, Greene County Pennsylvania. The population is approximately 200 with about 80 household connections.

The Brave Wastewater Treatment Plant provides service to the village of Brave with a service area of approximately two miles. The biggest concern is the poor condition of the aged treatment plant and collection system.

The Brave Water Authority purchases water from the Morgantown Utility Board located in Morgantown, West Virginia, which draws raw surface water from the Monongahela River and Cobun Creek Reservoir.

Greene County personnel have worked steadily to keep the Brave Water and Sewer Authority moving forward through hard times but requested additional RCAP technical assistance and support for Brave and a number of similar small systems. Throughout 2015 and 2016, RCAP met with the Brave Water and Sewer Authority members to assess their priority needs and plan an approach that ensured the viability and financial sustainability of this system. This technical assis-

tance plan included assisting the utility to preserve and update their maps and generate data sets of their water and sewer system that would allow the Authority President and Operator to develop an overall asset inventory of his system. This entailed a thorough walkthrough of the entire collection and distribution system to georeference and geolocate manholes, hydrants, curb stops, meter pits, valves and other physical assets of Brave's water and wastewater infrastructure.

This support was necessary to put better tools like updated maps in the hands of the Authority to prepare for future projects. In under a week of field time, RCAP collected over 300 data points for this system, reviewed this data with Operator and Manager, John Brookover, and created a draft map that was provided to the system for review.

Final maps were recently provided to the system and Brave is pleased with the results. The data sets were also shared with Greene County so that the county has a more complete record of the system as well.

RCAP also noted the need for the system to renew their National Pollutant Discharge Elimination System (NPDES) permit, which has been recently completed. RCAP staff also reviewed and made recommen-

dations regarding budgeting practices for this small system. Through ongoing technical and financial assistance related to budgeting and financial audits, RCAP staff is helping the system to remain financially viable. The Brave Water and Sewer Authority has made improvements to the wastewater system and they are looking at improvements to the water system including tank painting, meter replacement and waterline extension.

Outcomes of this RCAP technical assistance, funded through the USDA Rural Community Development (RCDI) program, are improved public health, improved economic vitality, and the empowered and increased capacity of the system operator and board.



John Brookover, Brave Water and Sewer Authority, President and Operator, reviews the new maps.

PROBLEM:

Over the years, Brave has faced serious financial challenges because of low population and aging infrastructure.

SOLUTION:

RCAP Solutions developed a technical assistance plan with the Water and Sewer Authority to ensure long term viability and financial sustainability which included asset mapping and management assistance.

FUNDING SOURCE:

USDA Rural Community Development Initiative

Gilberton, Pennsylvania Sewer Department

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PROBLEM:

Gilberton Sewer Department was on the path to defaulting on their USDA debt service caused by issues such as staff turnover and a high percentage of delinquent customer accounts.

SOLUTION:

RCAP Solutions trained the system's new staff on system finances and management, helped the system develop a reasonable rate increase and also helped to launch a campaign to reduce the number of delinquent accounts all of which helped the system become more financially viable and meet all of the requirements of their debt service.

FUNDING SOURCE:

USDA Rural Community Development Initiative

This rural area in north central Pennsylvania once thrived during the industrial revolution due to its proximity to vast quantities of high grade coal. Recently however, this region has experienced hard times with the demise of the coal and related industries. Jobs are scarce as indicated by a median household income of \$24,792 and 26.1 % of residents living below the poverty level.

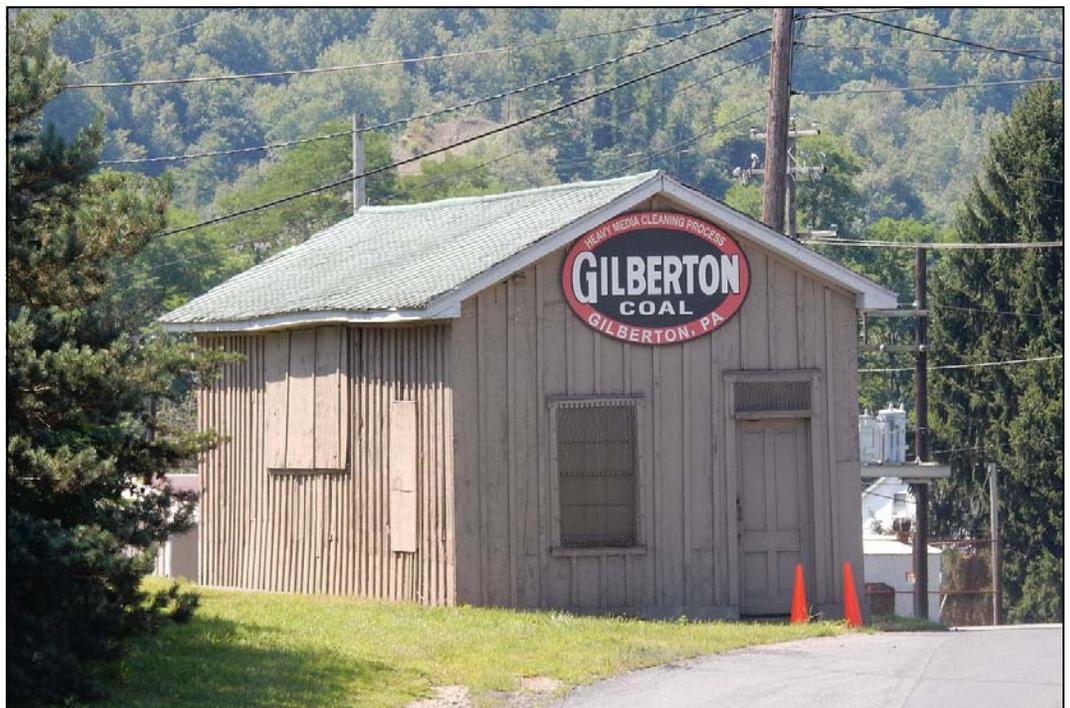
The USDA referred RCAP Solutions to the Borough, concerned they might default on their debt service obligations. A high number of delinquent customer accounts were negatively affecting the system's revenue flows. In addition, the manager resigned and was replaced by a new secretary that had little municipal experience. RCAP staff quickly responded to the USDA request for technical assistance by meet-

ing with the secretary and training her in municipal government and familiarizing her with files and reports in the office. The delinquent policy regulations were located and reviewed. The existing policy was deemed insufficient and was updated with RCAP's help. A public relations campaign was undertaken to explain the sewer department's financial situation and offering to waive penalties and interest, if customer balances were paid in full. This program had remarkable success and Gilberton was well on their way to financial solvency.

A devastating flood hit the town and 20% of its customers were lost due to destroyed or condemned homes. RCAP worked with USDA staff to re-amortize their debt service. A condition of the refinancing was a rate increase and that two reserve accounts for ongoing

system maintenance be fully funded at \$30,000 each. RCAP staff worked with the system to calculate a recommended rate increase. RCAP continues to work with the sewer department on annual budget development to ensure that revenues are sufficient to cover operations & maintenance expenses and debt service obligations.

The system has demonstrated fiscal responsibility and will be a viable financial entity for the foreseeable future. In addition, RCAP helped Gilberton with developing an "RFP" to hire contract operators resulting in savings to the Borough and a higher quality of operations and reporting. RCAP has conducted security training and emergency response planning to better help the system respond to any emergency, natural or man-made.



Gilberton Coal, Gilberton, Pennsylvania.

Rural Barrios in Juana Díaz, Puerto Rico

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Capitanejo, Guaraguao, Guayabal and Rio Cañas Arriba are rural barrios in Juana Díaz, Puerto Rico (PR) which are served through a USDA-RD Solid Waste Grant.

Since the fall of 2014, RCAP Solutions has provided technical assistance to overcome one of the most noticeable problems in these communities: the improper disposal of solid waste. Even when the municipality provides services such as weekly trash collection and monthly or bimonthly debris removal, many community residents do not participate in these initiatives. This demonstrates a current lack of interest or knowledge about how to solve their mounting solid waste disposal problems. The most probable reason for this behavior is a lack of environmental education and a low level of awareness of both the problem and its short and long term consequences.

Limited resources and an emphasis on funding and support in urban areas make it challenging to educate and assist rural residents. Important government supported initiatives like the *Single Use Plastic Bag Ban* (PR ACT 247), which went into effect on December 31, 2016 are very important because they pique the interest of not just urban but also rural communities.

RCAP has conducted eight workshops this year about the reasoning behind the passage of the “Plastic Bag Ban” in rural community schools to educate both students and teachers. They have learned the importance of this act and how they will benefit in terms of their health and the improvement of the surrounding natural environment.

The main goal of the initiative and RCAP’s work around Solid Waste in PR is to initiate a process in which

reduce, reuse and recycle can be a part of the local culture. A change in adult behavior can be promoted through the education of their children concerning solid waste problems and simple, affordable solutions. The kids have and will continue to assist RCAP in its efforts to modify the community’s learned bad habits and transform them into new positive ones.

*“It’s been an excellent experience for our students to participate in the RCAP Solutions Workshops. The ways in which the concepts were taught were great: age appropriate for our students, very concise, using appropriate vocabulary, and captivating students’ attention. All teachers have expressed positive feedback. **Our students are putting into practice what they learned in the workshop...and we hope to receive more workshops about recycling soon.**”*

Prof. Juan Cesari Delgado,
Director of Capitanejo School.

PROBLEM:

In Puerto Rico, there is a low level of community awareness about solid waste problems and potential solutions

SOLUTION:

RCAP Solutions assisted in the passing and implementation of and outreach around the Single Use Plastic Bag Ban in PR as well as promoting the use of reusable bags to decrease solid waste generation

FUNDING SOURCE:

USDA RD Solid Waste

Students in Puerto Rico learn the value of recycling through educational workshops.



Limones Aqueduct: A Community in Development

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PROBLEM:

Limones, over time, has needed assistance in increasing their technical, managerial and financial capacity to be more independent and sustainable to continue to provide safe and affordable drinking water to their community.

SOLUTION:

RCAP Solutions has provided ongoing technical assistance and training to the community since 2011 and most recently completed a sanitary survey on the system and helped to develop an Emergency Response Plan. RCAP will also be developing a hydrologic map to analyze potential threats to source water quality.

FUNDING SOURCE:

USDA RD Technitrain



The Limones community drinking water system in the Barros barrio is located at the center of Puerto Rico in the municipality of Orocovis, a predominantly agricultural area with crops of coffee, tobacco, fruit and livestock.

The Limones community aqueduct system is legally registered and active according to the Puerto Rico State Department, and with the Department of Health (DOH), it is registered as a public water system. They are a well-organized system that is administrated by an elected Board of Directors with two drinking water operators, one licensed and the other with years of experience, as well as other community members that assist as volunteers. These operators provide the maintenance and operation the system needs. The aqueducts also have a receiving office for clients, which coordinates the administrative and financial work.

Limones aqueduct provides drinking water to 250 customers that include families, a Head-Start, small businesses, a community center and a municipal park with walking facilities. The water system has a very productive deep well that provides 132 GPM and has two concrete tanks with a 14,000 gallon storage capacity. In case of energy

failure, the system has a generator that can operate the well.

The water is treated and disinfected with liquid chlorine at distribution. The system performs the required drinking water analyses with a private lab and is in compli-

ance. The current rate charged to clients is low: \$10 to families and \$25 to businesses every month. The administration of the finances is very important for the operation of the system to ensure customers pay their monthly bill on time. The Board of Directors strives always to comply with the requirements of DOH in order to improve their technical, managerial and financial (TMF) capacity and take recommendations for their staff when needed. Under its USDA Technitrain program RCAP Solutions has been providing technical assistance and training to ensure the system stays in compliance and is using TMF best practices to be as organized and sustainable as possible

since 2011.

The drinking water system needed a sanitary survey performed, which RCAP assisted with, to identify areas that need improvement such as the development of an emergency response plan (ERP) and the development of a hydrologic map to identify possible sources of contamination that could affect the source water. RCAP Solutions has almost finalized the ERP and will help complete the map as part of their technical assistance this year.

Limones is very happy to have RCAP Solutions as a resource to provide advice, guidance and direction and to keep the system in compliance with the Safe Drinking Water Act for the benefit of the public health of their drinking water customers.

“RCAP Solutions, through Josefa Torres, came to our community to perform work and has continued to assist our community over time. We are very thankful for her because now we have another resource assisting us.”

Ana Torres, Limones Board President.



Water tanks in Limones Community.

Community of Jacoboa Higuero, Patillas, Puerto Rico

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The community of Jacoboa Higuero, composed of 28 families (140 people) was without a proper Water Board for many years with only a couple of volunteers managing their water system.

The water system was falling behind and needed to get into compliance with the Safe Drinking Water Act. The system consists of one well and two distribution tanks. They have chlorine treatment installed but it was not operating consistently, and they were having problems with positive bacteriological sampling results which is a very serious threat to the public health of the local residents.

RCAP Solutions assisted the community with the development and education of a new Water Board. The newly appointed Board president received assistance from RCAP Solutions with a correction plan to soon comply with the Sanitary Survey from the Department of Health, the Primacy Agency. They started to gradually improve their water system following the needs assessment and plan provided by RCAP Solutions.

RCAP Solutions conducted Board trainings including leadership development and the basic knowledge of water as a shared community resource. RCAP Solutions provided the Board president

with guides which were created by RCAP Inc. as tools for small rural communities, related to the Managerial, Technical and Financial aspects of drinking water system operation. RCAP Solutions also explained how to use them as guidance to keep the entire Water Board educated.

The Board keeps improving their water system; they developed a new billing form and a schematic of the distribution system. The water system is now consistently providing the correct chlorine treatment and sending the monthly chlorine reports to the Department of Health as well as a copy to RCAP Solutions to maintain compliance.

PROBLEM:

Jacoboa Higuero has been without a community water board for many years

SOLUTION:

RCAP Solutions assisted the community with the development and education of a Community Water Board as well as a number of Safe Drinking Water Act compliance issues.

FUNDING SOURCE:

EPA



Jacoboa Higuero Community water system.

Tiverton Four Corners, Rhode Island

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PROBLEM:

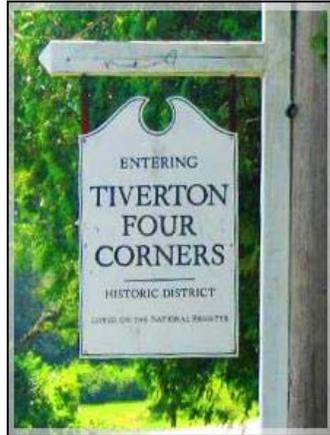
Tiverton Four Corners was out of compliance with the RI Department of Health because they were not taking or turning in adequate water samples and their contract operator was outside of the required distance in order to provide them with adequate service.

SOLUTION:

RCAP Solutions helped the system owner/manager find a new contract operator that met all licensure and distance requirements who could then help the system to develop and follow proper sampling and O&M protocols to ensure ongoing compliance.

FUNDING SOURCE:

EPA



Tiverton Four Corners is a small village encompassing the town center of Tiverton, Rhode Island and is made up of a number of historic buildings from the earliest settlers and private residences which are all part of the Tiverton Four Corners public drinking water system.

The system's one groundwater well serves a total of six connections and is categorized as a non-transient non-community drinking water system. The system had multiple violations for failure to take the correct samples and report them to the Rhode Island Department of Health (DOH). With a closer look, they found that the system needed technical assistance to understand and comply with local, state and federal regulations.

As with many small drinking water systems, running a water system is not their primary occupation. The manager is a business owner running many operations all serviced by the system. He is responsible, attentive and well-liked by all of the tenants. However, the licensed operator contracted to maintain the system was too far away to adequately provide service. The system owner also installed water softening

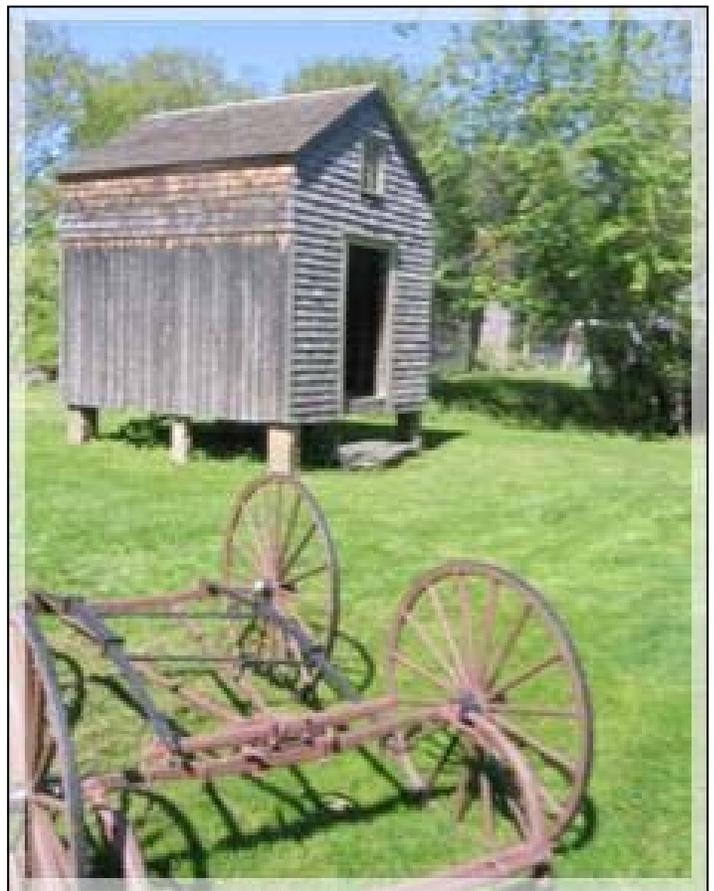
treatment units at multiple entry points to the system to address hard water that stained the fixtures and affected the water's taste.

Prior to the initial site visit, RCAP Solutions contacted multiple local contract operators with adequate licensure and within the required distance.

During the site visit, RCAP was able to discuss the concerns conveyed by the pri-

macy agency and gain an understanding of the owner's challenges. RCAP assisted by reviewing multiple cost estimates for contract work, and clarifying the various tasks and costs.

By acting as a liaison between the state agency and the owner of the drinking water system, RCAP was able to assist the system to regain and maintain compliance with the provision of safe water.



Corn Crib (c. 1770) (Located on the property.) This corn crib was part of the Soule-Seabury property. It is one of the oldest corn cribs on the Sakonnet peninsula.

Source: TivertonFourCorners.com

Waitsfield Water System, Vermont

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Waitsfield Water System is a community water system that provides service to Waitsfield Village and Irasville, Vermont. The Water Commission, the official entity responsible for the management of the water system, established a policy of periodic ordinance and rate review when it formed in 2012. With water usage data available for the first four years of operation, the Water Commission needed to review their rate structure and reserve allocations accordingly but had never been through the process. The Water Commission enlisted the assistance of RCAP Solutions to provide technical expertise and training for this purpose. While RCAP Solutions often works with communities that have aging mains, crumbling infrastructure, and outdated rate schedules, USDA recognized the opportunity that newer water systems have to establish policies that support continued financial viability.

RCAP Solutions worked extensively with the Water Commission to investigate issues surrounding a complicated rate structure and fee system, to project the impact of changing the rates, and to conduct a review of water system ordinances and reserve allocations. RCAP Solutions conducted a technical, managerial, and financial assessment to provide insight into the operation of the system.

The Water Commission was interested in providing a transparent process for their ratepayers; following the completion of an asset management plan and a rate

study, the project was capped off with presentations to the Water Commission and to the community in a series of public meetings. During these meetings, RCAP Solutions communicated the value of the water service, recommended changes to the rate and fee structure, and identified necessary modifications to local ordinances in support of the changes. The project resulted in recommendations to the Water Commission, which they are acting upon, to ensure the delivery of a cost-effective, fair, and financially viable service to the ratepayers.



“Without the assistance of RCAP Solutions, the Water Commission would not have been in a position to hire a consultant to conduct the review and to write the asset management plan. The financial benefit to our small community in this regard is significant, allowing the Commission to keep water rates as low as possible and to spend its limited resources on the supply of safe drinking water. The technical assistance and guidance provided to the community by RCAP Solutions is an invaluable resource and we fully support the continued funding of this vital work.”

Town Administrator

PROBLEM:

Waitsfield Water, formed in 2012, after four years of usage data, needed assistance with a rate adjustment to ensure continued service of safe water supply and a reserve fund allocation for future repairs but did not have the internal knowledge or experience to complete these tasks.

SOLUTION:

RCAP Solutions guided the system through this daunting fiscal process with a rate study and asset management plan. The system will adopt these necessary but also affordable recommendations because of Board, staff and community support, which may not have been possible without RCAP.

FUNDING SOURCE:

USDA RD Technitrain

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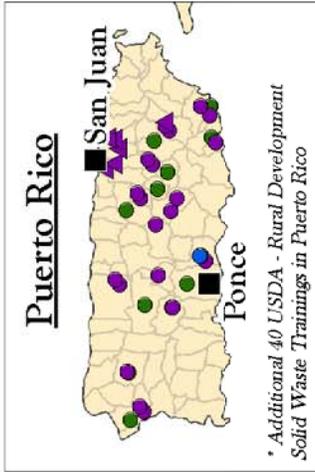
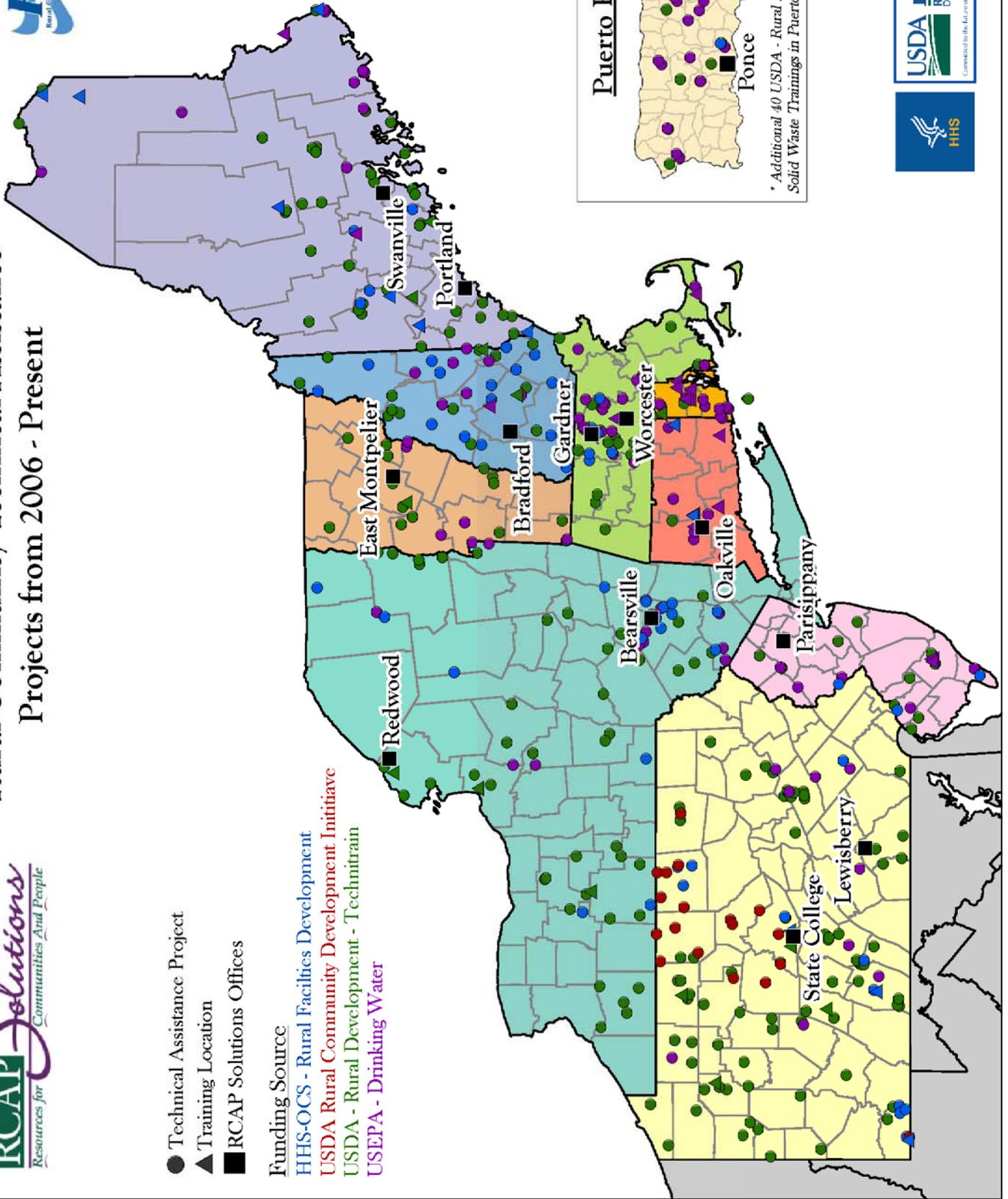
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- Technical Assistance Project
- ▲ Training Location
- RCAP Solutions Offices

Funding Source

- HHS-OCS - Rural Facilities Development
- USDA Rural Community Development Initiative
- USDA - Rural Development - Technitrain
- USEPA - Drinking Water

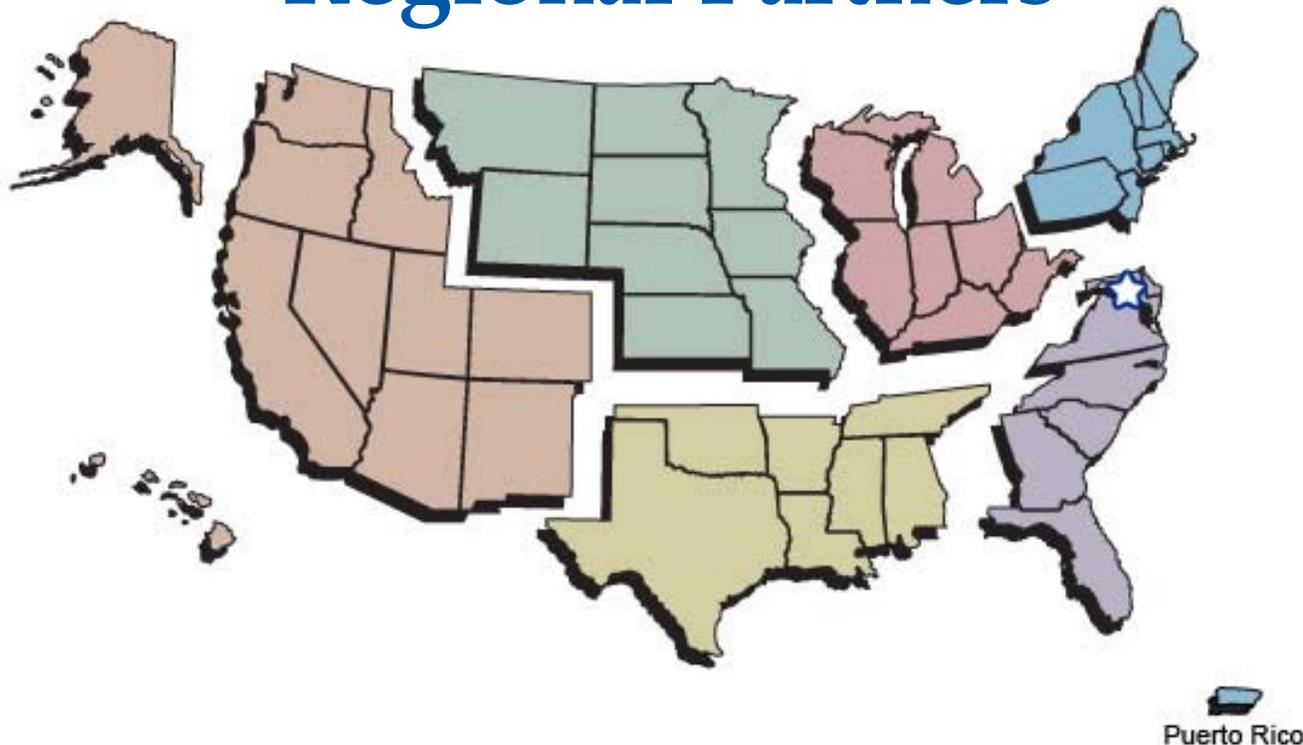


The Rural Community Assistance Partnership (RCAP) is a national network of nonprofit organizations working to ensure that rural and small communities throughout the United States have access to safe drinking water and sanitary wastewater disposal.

The six regional RCAPs – its partners or affiliates – provide a variety of programs in their section of the United States to accomplish this goal, such as direct training and technical assistance; leveraging millions of dollars to assist communities develop and improve their water and wastewater systems.

The work in communities is coordinated and carried out by each of RCAP’s regional partners. The network includes a national office in Washington, D.C., that coordinates funding, reporting and finances for the programs and handles communications at a national level for the network. For more information, visit www.rcap.org.

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