Prioritizing and Optimizing Funding for Failing Infrastructure: A Case Study from North Carolina

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ABSTRACT

In *Buried No Longer: Confronting America's Infrastructure Challenge*, the American Water Works Association (AWWA) concludes that restoring existing water systems as they reach the end of their useful lives and expanding them to serve a growing population will cost at least $1 trillion over the next 25 years. Prepared every four years, the American Society of Civil Engineers' (ASCE) most recent Report Card cites over $3.6 trillion is needed in infrastructure investment by2020. ASCE has given a grade of D to both the nation's water and wastewater infrastructure. State and local governments across the county are struggling to meet required investment levels and maintain levels of service that protect public health, safety, and welfare.

North Carolina has developed an approach that is unique among the states at better prioritizing and optimizing its water and wastewater investments. In 2013, the North Carolina General Assembly consolidated its five major water-related infrastructure funding programs into one division of government (Division of Water Infrastructure) and created a nine-member State Water Infrastructure Authority (SWIA). The five funding programs include: the federal-state Clean Water State Revolving Fund (CWSRF loan program), the federal-state Drinking Water State Revolving Fund (DWSRF loan program), the federal Community Development Block Grant-Infrastructure (CDBG-I) grant program, the State Wastewater Reserve program (grants and loans) and the State Drinking Water Reserve program (grants and loans).

The new system in North Carolina is considered a great success. For the first time in the state's history, and in the midst of a national infrastructure crisis, state and local governments have a common way to view all of their funding programs. Projects that previously did not meet the criteria for state grants can now be offered low interest SRF loans without time delay or new application. Projects that qualify for more than one program can now leverage funding availability across different programs in a seamless manner. The program is unique from a national perspective.

KEYWORDS

Clean Water State Revolving Fund; Drinking Water State Revolving Fund; Community Development Block Grant; State Water Infrastructure Authority; failing infrastructure, master plan; prioritization; optimization; regionalization; asset management; finance

INTRODUCTION

North Carolina Session Law 2013-360 established the State Water Infrastructure Authority (SWIA) and the Division of Water Infrastructure (Division) within the North Carolina Department of Environment and Natural Resources (NCDENR). The primary purpose of this action was to consolidate the major water-related infrastructure funding programs within one division and one department of state government, and to give final approval of action to an appointed authority in order to optimize the different funding sources.

The SWIA board consists of nine members: three from state government – NCDENR, Commerce, Treasury; two appointed by the Governor; two appointed by the House Speaker; and two appointed by Senate Pro Tem. The legislation mandated that SWIA address the following 12 items:

1. Review recommendations for grants and loans submitted to it by the Division of Water Infrastructure (determine the final rank of applications and select the applications that are eligible to receive grants and loans)
2. Establish priorities for making loans and grants, consistent with federal law
3. Review the criteria for making loans and grants and make recommendations, if any, for additional criteria or changes to the criteria
4. Develop guidelines for making loans and grants
5. Develop a master plan to meet the State's water infrastructure needs
6. Assess and make recommendations on the role of the State in the development and funding of wastewater, drinking water, and stormwater infrastructure
7. Analyze the adequacy of projected funding to meet projected needs over the next five years
8. Make recommendations on ways to maximize the use of current funding resources (federal, State, local) and ensure that funds are used in a coordinated manner
9. Review the application of management practices in wastewater, drinking water, and stormwater utilities and to determine the best practices
10. Assess the role of public-private partnerships in the future provision of utility service
11. Assess the application of the river basin approach to utility planning and management
12. Assess the need for a "troubled system" protocol

The concurrent consolidation of major water infrastructure funding programs brought the separate administration of NCDENR's Clean Water grants and loans program, NCDENR's Drinking Water grants and loans, and the water and wastewater components of the NC Department of Commerce's Community Development Block Grant (CDBG) programs under one Director housed within NCDENR and called the Division of Water Infrastructure. Staff was re-organized and re-deployed into a common location. By the legislation, the Division Director controlled all aspects of the combined staff and served as chairman of SWIA. The politically

appointed SWIA board was granted discretionary power to make final decisions for all grant and loan awards under its span of control.

METHODOLOGY

SWIA decided shortly after its inception in January 2014 that concurrent progress was needed on all 12 charges from the General Assembly by the end of 2014. Initial priority was given to the first four charges of the list of 12 since these were needed as part of the on-going grant and loans programs and because by law the projects were required to be awarded by SWIA rather than by staff. To consolidate the planning and general thinking by the Division and by SWIA, the twelve were grouped into four categories:

1. Distribution of loan and grant funds
2. Define water infrastructure needs and funding, and develop a State Water Infrastructure Master Plan
3. Assess emerging practices in utility planning and funding
4. Assess the need for "troubled systems" protocol

Several overarching philosophies drove the methodology. A commitment was made for staff to complete as much of the ground work as possible without the use of outside consultants, with the underlying desire to evaluate and implement changes to the program as fast as possible. Similarly, SWIA decided to avoid establishing standing committees and instead to use the board meetings as interactive work sessions. The board also decided to conduct a series of topical presentations from external subject matter experts in order to gain consensus understanding and to be in a positon to more promptly address all 12 charges from the legislature. Members of the staff and board participated in asset management on-line training from US Environmental Protection Agency (USEPA) and completed the fours levels of asset management certification by the Buried Asset Management Institute. In addition to the training conducted by staff for units of local government prior to each round of grant and loan applications, another major commitment involved outreach by senior staff and board members to stakeholder groups through conference presentations and journal articles in order to establish a broader awareness of the new program.

DISCUSSION

A number of issues and concerns regarding water and wastewater infrastructure in North Carolina were identified and ultimately helped shape implementation. These included:

- Ensuring that grant funds are being awarded to the most economically distressed communities by considering the relative affordability of a project for that community compared to other communities in the state.
- Stretching the use of limited grant funds by pairing grants with loans when financially feasible for a community.
- Broadening the use of grant funds to encourage water and wastewater utilities to become more proactive in the management and financing of their systems.

- Focusing on aging and critical infrastructure through the use of risk-based analysis methods to define, prioritize and fund projects.
- Enabling utilities to attain long-term viability by establishing organizational excellence and operating with a business mindset.
- Establishing utility revenues to provide appropriate infrastructure funding by putting in place strategies to generate the revenue needed to address not only predictable problems through short-term preventative operations and maintenance but also long-term capital improvement projects.

Relative Affordability and Stretching the Use of Limited Grant Funds

A new approach to determining eligibility for grant funds and setting the amount of a grant to a percentage of overall project costs was needed to ensure that limited grant funds are awarded to the most economically distressed communities. Previously, the economic tier of a county was the primary way in which economic distress was identified. SWIA recognized that tier designation may not accurately reflect the economic conditions within individual communities in a county. For example, the needs of an individual community within an overall "least distressed" county could be overlooked and the community would be ineligible for grant funding when in fact that specific community may be rural and highly economically distressed. In addition, while a county's tier may improve due to overall economic indicators in the county as a whole, an individual community could remain economically distressed; this is particularly possible for small, rural communities within counties that are located adjacent to growing urban centers.

The new approach examines the relative affordability of a project for a community as compared to other communities in North Carolina based on factors including water and sewer service rates, median household income, poverty rates, employment rates, population of the served community, and past expenditures by the community on water infrastructure compared to that community's capacity for financing water infrastructure improvements. One of the goals of this approach is to identify communities that can afford to take on debt through loan financing to ensure that they are provided less grant dollars.

A challenge in coordinating and fully leveraging funding for all five of the water-related infrastructure funding programs was that each had different core methodologies for ranking and awarding projects. The three federal programs also had different required criteria. One of SWIA's most significant accomplishments was a major modification of the priority criteria across all funding programs in order to unify the criteria while still maintaining the unique focus of each program. These changes will make the application process less time-consuming and more straight-forward for applicants; and will enable the Division to propose tailored funding packages that might include a combination of both loan and grant funds from various funding sources. SWIA and Division staff worked collaboratively to evaluate and implement the progressive approach to coordinated project review and funding. Care was taken as key criteria were modified or outright changed, the weightings of key criteria were changed, and all programs were aligned to a 100 point scale.

While the grant and loan programs had previously been administered under a firm priority point system, SWIA now had the ability to apply broad discretion over awarding funds to projects. Much debate was focused on how SWIA should use this discretionary authority, which in the best case would assure funding was well aligned and optimized but in the worst case could make

the process a political quagmire. Initially, the awarding of "bonus points" was considered, but after much debate and technical trials, simple but clearly stated reasons for awarding projects in a manner that may differ from the points criteria was chosen as the standard operating procedure. Reasons for differing from the point system might include:

- Project purpose or benefits provide value reflective of priority system but does not expressly fit numerical point system.
- Project addresses unforeseen capital needs caused by unusable infrastructure such as construction deficiencies or premature material failure.
- Project enables leveraging of funds already secured from other sources that may be lost.
- Project serves area where a substantial number of residents were recently unemployed due to closing of large employer.

Broadening the Use of Grant Funds

SWIA recognized that the existing statutes limited the types of projects that could be funded with state grant funds. There was no ability to assist an applicant with any type of proactive activities, or to address utilities that were in compliance but struggling to remain viable, or to assist a "troubled system" in becoming more self-sufficient and less reliant on grants. A viable system is one that functions as a business enterprise, establishes organizational excellence, and provides appropriate levels of infrastructure maintenance, operation, and reinvestment – including reserves for unexpected events – that allows the utility to provide reliable water services now and in the future.

SWIA recommended and the General Assembly changed statutes to allow grant funds to be used for:

- Investigating the feasibility of voluntary merger/regionalization to help utilities that may be non-compliant, non-viable or seeking to improve their operations efficiency/become more competitive. Ultimately defining a potential option of joining with another utility. Non-viability can be attributed to a number of factors including inadequate utility revenue or loss of qualified operators which could potentially be remedied by merging or regionalizing operations. Evaluating public-private partnerships or other alternative methods of infrastructure funding can also be included.

- Identifying and assessing a utility's water and/or sewer infrastructure. The state's (and United States' as a whole) water infrastructure is approaching and sometimes exceeding its useful life. At the same time many utilities are facing lower revenues due to a loss of manufacturing customers and conservation. A utility may be unaware of the exact location, extent or condition of its infrastructure due to inheriting the system from a private entity or due to the loss of staff that are knowledgeable of the infrastructure. Without this knowledge, a utility may not be fully aware of its monetary needs in order to operate and maintain its system and may rely on grants to address problems as they are identified – often by catastrophic failure – and for which the utility has not budgeted. The broadened use of grant funds allow utility to acquire assistance in gaining knowledge of its system, developing costs for replacement/repairs/upgrades and continuous maintenance, evaluating its rate structure, and beginning a capital improvement program (CIP) to make the best decisions regarding the replacement of critical infrastructure.

As utilities better understand their infrastructure and quantify needs, SWIA will be able to develop a more comprehensive master plan to meet the State's water infrastructure needs, and the Division will have more complete information on which to base input to EPA's CWSRF and DWSRF needs surveys, which could then result in higher federal allocations to these programs in North Carolina.

Focus on Aging and Critical Infrastructure

The use of risk-based analysis methods to define, prioritize and fund projects is key to proactive infrastructure management work. SWIA is able to address this issue through the grants for asset inventory and assessment that will enable utilities to take steps to define and prioritize critical projects. SWIA also recognizes that some utilities responsible for water and wastewater infrastructure systems may not have the tools to quantify risks or to effectively communicate information to decision-makers and customers. The state may be able to provide ways to help communicate to local government leaders who make the final decisions about infrastructure funding regarding the risks and the costs to address the risk now compared to the costs related to deferring work into the future.

Enabling Utilities to Attain Long-Term Viability

SWIA recognizes that providing funds just to repair infrastructure without ensuring that the utility provider also takes steps to become viable may continue a pattern of the entity applying again and again for grant funds. The state can help encourage utilities to take proactive steps related to leadership, customer education and communication, finances and infrastructure management – including risk-based prioritization of needed projects. Such that a utility is prepared going forward to fund preventative system maintenance and operation as well as to provide funds for eventual renewal and replacement. Ways by which a utility can move toward functioning as a viable system for the long-term includes establishing organizational excellence and operating with a business mindset. SWIA is interested in focusing the state's limited funding resources on funding projects that will move a system toward viability. SWIA is developing methods to identify the best solutions by which a utility may become viable; these solutions may or may not involve construction of physical infrastructure. As discussed in a preceding section, SWIA is able to start addressing this issue through the grants for merger/regionalization feasibility analyses that will enable an entity to investigate the possibility of voluntary merger/regionalization options as a pathway to viability.

Establish Utility Revenues to Provide Appropriate Infrastructure Funding

Local governments and public authorities are required to essentially operate a utility system as a self-supporting business in which the monies are used specifically to provide services, goods, or facilities to the public for a charge. The rates and fees set by water service providers determine the amount of money that is placed into the utility fund. However, better proactive infrastructure management involves putting in place strategies to generate the revenue needed to address not only predictable problems through short-term preventative operations and maintenance but also long-term capital improvement projects. SWIA may begin to place additional emphasis on applicants to the funding programs demonstrating that its rates, fees and financial structure are appropriate to support its utility operations – funding not only capital needs but also long-term operation and maintenance costs including eventual renewal and replacement.

RESULTS

The program has been a great success over its first two years. First and foremost, the normal flow of funding to North Carolina's communities was not slowed by a major restructuring within the internal organization of the new Division or by the simultaneous creation of the new, politically appointed SWIA with final decision making power. Much credit belongs to both staff and the board for making a major transition occur without a loss of the timely distribution of funds as well as going "above and beyond" to anticipate and minimize unintended consequences of the transition on units of local government.

The performance of the new program led to the injection of new money in the program in the most recent state budget. The 2013 enabling legislation provided for the first time in nearly 20 years a source of dedicated funding. In the 2013 biennium, $8.5 million was provided in state-only funded grants and loans; in the 2015 biennium, this amount was increased to $27 million dollars. Additionally, the General Assembly passed an infrastructure bond referendum to be approved by the voters in March 2016. All $300 million of the bond program dedicated to water and wastewater infrastructure will be implemented under the new program.

The General Assembly also passed legislation based on SWIA's recommendation for new technical assistance grants (TAGs) for both regionalization assessments and for development of asset management programs. Both are seen as proactive activities rather than the historical reactive approach of only providing technical assistance grants for systems that had already fallen into severe non-compliance.

The Division and SWIA have already succeeded in establishing a common application form for all grant and loan programs, and common four category approach for all scoring (although points and sub-components vary per some program requirements), and establishing a common 100-point scoring system for all projects under all grant and loan programs. This approach has already led SWIA to justify immediately offering loans to communities who may have not obtained a grant due to the limited funding in the grant program. This in turn sets the stage for all loan and grant programs to move to having two applications cycles per year and each application cycle to provide units of local government with a full suite of options for maximizing grant and loan dollars for their projects.

CONCLUSIONS

One of SWIA's directives is to develop a master plan to meet the State's water infrastructure needs. Substantial progress has been made over the past year and its public release is set for April 2016. SWIA realized that many of the new processes implemented in these first two years were needed to develop consensus among the board in order to create a true vision for solving the state's water infrastructure problems. SWIA has determined that the state will best be able to meet its water infrastructure needs by ensuring utilities are, or are on a path to be, viable systems. A viable system is one that functions as a business enterprise, establishes organizational excellence, and provides appropriate levels of infrastructure maintenance, operation, and reinvestment – including reserves for unexpected events – that allows the utility to provide reliable water services now and in the future.

Taken as a whole, the goal of the new approaches, processes and systems developed and implemented by SWIA is to move utility systems toward viability and away from a potentially continuous cycle of reliance on grant funding. Through the work to date, the State of North Carolina has made meaningful progress is prioritizing and optimizing funding for its infrastructure challenges. More meaningful solutions and tangible results lie ahead. North Carolina's approach in unique among all of the states and serves as an example for others to more effectively address their infrastructure challenges.

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