NORTH CAROLINA
STATE WATER INFRASTRUCTURE AUTHORITY

November 1, 2015 Annual Report to:

- **Senate Appropriations Committee on Natural and Economic Resources**
- **House of Representatives Appropriations Subcommittee on Natural and Economic Resources**
- **Fiscal Research Division of the Legislative Services Commission**

Prepared by

The North Carolina State Water Infrastructure Authority

November 1, 2015

The State Water Infrastructure Authority appreciates that the North Carolina General Assembly incorporated all of the recommendations provided in its 2014 Annual Report into legislation during the 2015 session.

As a result, the Authority is better able to carry out its assigned duties and to provide enhanced coordination of the use of the monetary resources entrusted to it by the General Assembly to improve public health and the environment for all North Carolinians.

Pursuant to § 159G-72, the State Water Infrastructure Authority shall submit a report no later than November 1 of each year on its activity and findings, including any recommendations or legislative proposals, to the Senate Appropriations Committee on Natural and Economic Resources, the House of Representatives Appropriations Subcommittee on Natural and Economic Resources, and the Fiscal Research Division of the Legislative Services Commission.

On behalf of the Authority, please consider this as the formal submission of the 2015 State Water Infrastructure Authority Annual Report.

The Authority would be pleased to respond to questions or provide additional information as may be requested by the General Assembly.

The State Water Infrastructure Authority thanks the North Carolina General Assembly for its support throughout 2015 and looks forward to working to continue to streamline and unify the water infrastructure funding available to the residents of North Carolina.

The State Water Infrastructure Authority gratefully acknowledges the support provided by the staff of the Division of Water Infrastructure in conducting the Authority's business and in preparing this report.

NORTH CAROLINA
STATE WATER INFRASTRUCTURE AUTHORITY
November 1, 2015 Annual Report

The nine-member State Water Infrastructure Authority (Authority) was created by the North Carolina General Assembly in 2013 to assess and make recommendations about the state's water and wastewater infrastructure needs and the funding programs available to the state's local governments. Session Law 2013-360 established the Authority and also the Division of Water Infrastructure (Division) within the North Carolina Department of Environment and Natural Resources, thereby consolidating the major water-related infrastructure funding programs within one division and one department. A list of the current Authority members is provided in Appendix A.

The Authority's 2014 Annual Report contained a number of recommendations designed to enable the Authority to better carry out its assigned duties and to improve coordination of the monetary resources entrusted to it. The Authority is very appreciative of the General Assembly's consideration of the recommendations all of which were incorporated into the biennium budget for fiscal years 2015-2017 (Session Law 2015-241). The key benefits resulting from the new legislation include:

- 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; and
- Broadening the use of grant funds to encourage water and wastewater utilities to become more proactive in the management and financing of their systems.

The Authority appreciates that the General Assembly incorporated into legislation all of the recommendations provided in its 2014 Annual Report

The purpose of this report is to provide the legislative bodies with an overview of the Authority's activities in fiscal year 2015, to summarize concerns and issues discussed by the Authority regarding North Carolina's water infrastructure, and to provide recommendations to further study and address some of those issues.

State Water Infrastructure Authority Activities

The Authority has been working since January 2014 to meet the objectives defined in North Carolina General Statute 159G-71. The Authority's twelve powers and duties (provided in Appendix B) as defined in the General Statute can be grouped into four primary areas:

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

The focus areas are described below along with the Authority's activities in each area.

Focus Area 1 – Distribute loan and grant funds

The first four of the Authority's duties focus on distributing loan and grant funds from the five funding programs administered by the Division:

1. Federal-state Clean Water State Revolving Fund (CWSRF loan program)
2. Federal-state Drinking Water State Revolving Fund (DWSRF loan program)
3. Federal Community Development Block Grant-Infrastructure (CDBG-I grant program)
4. State Wastewater Reserve program (grants & loans)
5. State Drinking Water Reserve program (grants & loans)

One of the Authority's most significant accomplishments in 2015 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. This action supports the following goals of the Authority and the Division:

- Make the application process less time-consuming and more straight-forward for applicants; and
- Enable the Division to propose tailored funding packages that might include a combination of both loan and grant funds from various funding sources.

The alignment and changes made to the priority criteria support the Authority's ability to achieve the maximum beneficial impact from the limited funding resources available; this will be reflected in the Authority's infrastructure Master Plan, which is discussed below.

Focus Area 1 Accomplishments

- Major modification of priority criteria to unify criteria across the five funding programs while maintaining unique focus of each program
  - Supports integration of funding resources by pairing loan and grant funds
  - Furthers the Authority's ability to optimize the use of funding resources
- Awarded a total of $218 million in grant and loan funds (36% of requests)
  - CWSRF and DWSRF loans – $174 million ($287.4 million requested)
  - State Reserve Program grant funds – $5 million ($38 million requested)
  - CDBG-I grant funds – $39 million ($276.1 million requested)

In 2015, the Authority reviewed requests for $601.5 million in loan and grant funds and awarded a total of $218 million for projects from the fall 2014 and spring 2015 application rounds (see Figures 1 and 2). Similar to 2014, the total requests for funding outpaced the total availability of both loan and grant funds. However, in 2015, the requests for CWSRF loan funds were less than the dollars available, which periodically occurs due to the cyclical nature of loan requests. In one of its first steps toward integrating funding sources, the Authority offered remaining CWSRF loan funds to those State Wastewater Reserve high unit cost (HUC) grant applicants that did not receive grant funding.

In fiscal year 2014-2015, the General Assembly provided $5 million in recurring funds for the State Wastewater Reserve and State Drinking Water Reserve programs, targeted to projects in rural, economically distressed communities. The Authority applied this $5 million to the $38 million in requests. In its 2014 Annual Report, the Authority highlighted the significant funding gap that would likely continue. During its 2015 session, the General Assembly provided an additional $5 million in recurring state grant funds and $7.4 million in new nonrecurring grant funds, bringing the state grant funding to a total of $27.4 million for fiscal years 2015-2016 and 2016-2017.

Figure 1. Number of Applications Received and Funded – Fall 2014 and Spring 2015 Application Rounds
(Total number applications received: 313; total number applications funded: 105; see Appendix C for data)

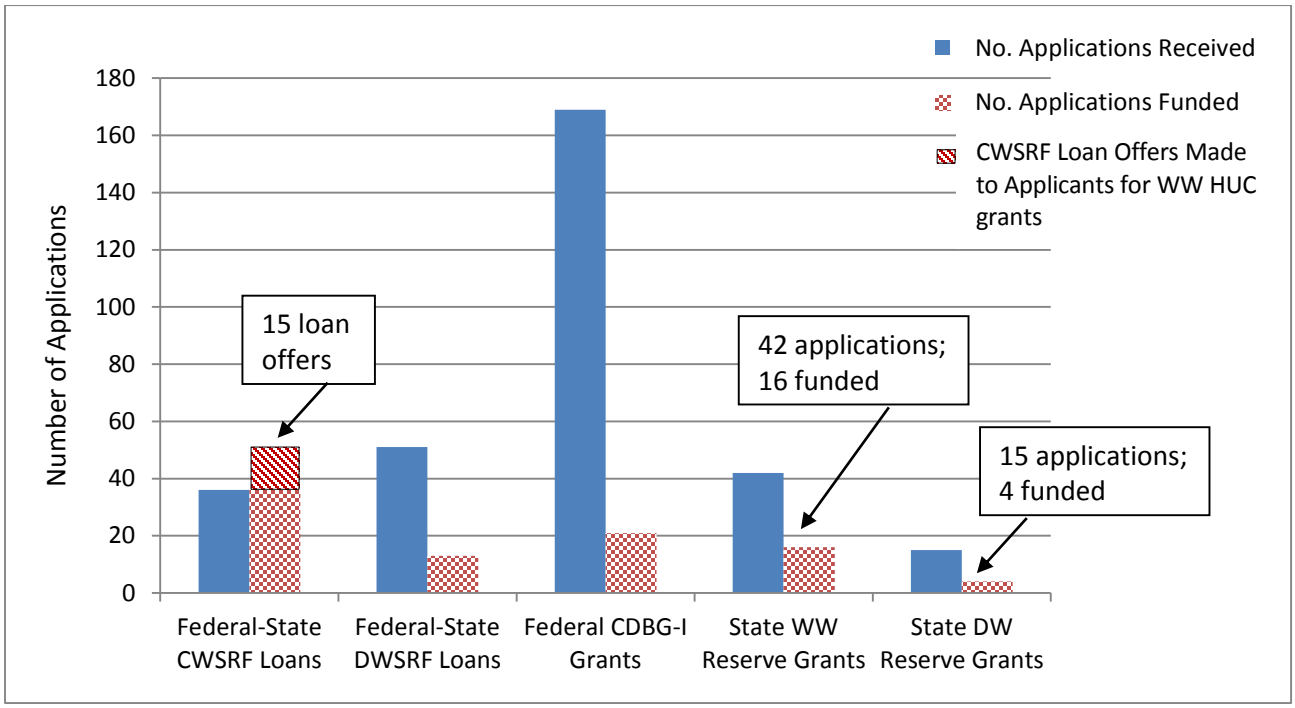
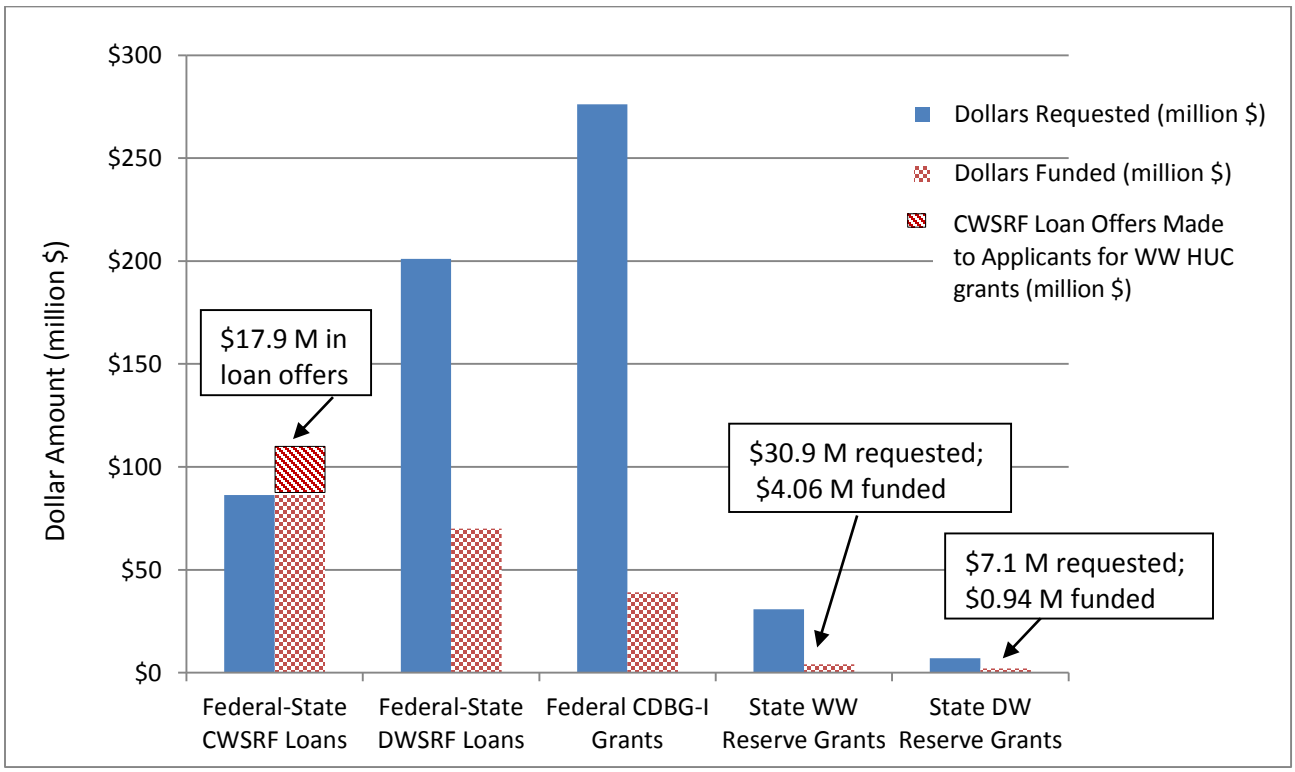


Figure 2. Amount Requested in Applications and Funded ($ million) – Fall 2014 and Spring 2015 Application Rounds
(Total amount requested: $601.5 million; total amount funded: $218 million; see Appendix C for data)



Focus Area 2 – Define water infrastructure needs and funding; develop Master Plan

The next four duties encompass defining the statewide water and wastewater infrastructure needs, examining funding sources and their adequacy to meet the identified needs, and assessing the role of the State to develop and fund water infrastructure. The Authority is also developing a Master Plan to meet the State's water infrastructure needs.

Focus Area 2 Accomplishments

- Developing initial Master Plan; draft in spring 2016
- Developing methods to optimize the use of funds

This focus area includes determining ways to realize the greatest beneficial impact from the current funding resources and to ensure that funds are used in a coordinated manner. The Authority is developing a method to help stretch the limited grant funds by pairing grants with loans when financially feasible for a community. This method will make use of affordability criteria which will determine the relative affordability of a project for a community compared to other communities in the state based on several factors. Within 30 days of adoption, the Authority is required to report to the Environmental Review Commission and the Fiscal Research Division regarding the affordability criteria implementation.

Master Plan Vision

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.

The Authority has drafted a vision for the Master Plan and is working with the Division to formulate the draft plan for release in the spring of 2016. Fostering long-term viability is one of the key issues identified by the Authority and is discussed further below.

Focus Area 3 – Assess emerging practices in utility planning and funding

These activities concentrate on investigating methods of utility planning, management and funding such as best management practices and alternative methods of infrastructure funding.

The new grants for asset inventory and assessments, included in the statutory changes, will enable utilities to take steps to become more proactive in the management and financing of their systems. These grants will help communities take steps to better understand their infrastructure needs by:

- Identifying system components and where they are located;
- Determining the condition of critical components;
- Establishing costs for replacement/repairs/upgrades (capital) and continuous operations and maintenance (O&M);
- Creating a prioritized list of projects to be completed; and
- Preparing a realistic Capital Improvement Plan (CIP) that includes critical projects.

Focus Area 3 Accomplishments

- Created paths toward viability:
  - Asset Inventory and Assessment grants
  - Merger/Regionalization Feasibility grants

Once the needs, costs and priorities are known, the utility will be able to take the next important step by determining how it will fund the most critical projects; this may include infrastructure funding applications to the Division along with other potential

actions such as rate structure analyses/adjustments. This information will enable a utility to make informed business decisions about the best use of its funds. Together, the goal of all of these activities is to move systems toward viability and away from a potentially continuous cycle of reliance on grant funding.

The Authority recognizes that some utilities seeking these grants may have already taken steps to address some of the work items listed above and for these entities it would be most beneficial to focus use of the grant funds on the information that has not been developed. The Authority will consider a range of approaches and deliverables depending on the level of information to which the utility has access.

The new grants for merger/regionalization feasibility analyses, included in the statutory changes, will enable entities to investigate the feasibility of voluntary merger/regionalization options. This analysis will help utilities that may be non-compliant or non-viable or seeking to become a more competitive utility provider improve their operations efficiency by defining a potential option of joining with another utility. Evaluating public-private partnerships or other alternative methods of infrastructure funding will be included in the analysis. The Authority recognizes that some entities may have concerns that they are "giving up their identity" or ceasing to exist as a unit of local government should they merge/ regionalize, but this is not the intent, and staff will work with potential applicants to help ensure they understand this issue.

Focus Area 4 – Assess need for "troubled system" protocol

This work area focuses on identifying both the factors that may cause some utilities to struggle with becoming or remaining viable, and activities that could address those factors. The Authority is working with the Local Government Commission (LGC) and Division staff to define some of the reasons that utilities may be considered troubled.

In general, a troubled system may lack sufficient financial or organizational capacity to function as a viable system. Some of the characteristics of such systems may include:

- Internal control issues, lack of audited financials, and low cash balances, based on Information gathered by the LGC; and
- Issues related to system size, water and wastewater system billing/revenue generation policies, utility rates, condition assessments, and affordability considerations.

Focus Area 4 Accomplishments

- Working with the Local Government Commission to define characteristics of troubled systems
- Tailoring a range of approaches and potential procedure/practice improvements that a system may implement

The Division reviewed information provided by the LGC to gain an initial understanding of factors that may be common to potentially struggling local government units (LGUs). The LGC has contacted 28 of the same LGUs for the past three to four years regarding issues such as internal controls, audited financials, low cash balances, etc. The Division identified that nearly 80% of these LGUs have several common characteristics:

- Populations of 2,100 people or less (ranges from 300 to 6,000 people);
- A median household income of about $37,000 which is below the state average of $45,300 (ranges from $16,000 to $55,000); and
- Four months or less of cash on hand (ranges from 0 to 24 months).

While an overarching protocol that could be applied to any system would be ideal, the Authority recognizes that the potential to be troubled may result from a number of different circumstances that may be unique to each community and require approaches tailored to an individual community's needs.

The Authority and Division staff are drafting a protocol and are considering the important role that the state may play in assisting such systems.

Issues Identified by the Authority

Through the Authority's work this year, three overarching issues for water and wastewater utilities were identified. These issues will continue to be discussed by the Authority and will be further addressed in the Master Plan.

1. Focus is Needed on Aging and Critical Infrastructure
    - Use of risk-based analysis methods to define, prioritize and fund projects is key to proactive infrastructure management.
    - The Authority will be able to start addressing this issue through the grants for asset inventory and assessment that will enable utilities to take steps to define and prioritize critical projects.

2. Attaining Long-Term Viability is Crucial
    - Ways by which a utility can move toward functioning as a viable system for the long-term include establishing organizational excellence and operating with a business mindset.
    - The Authority will be 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.

3. Utility Revenues Must Provide Appropriate Infrastructure Funding Levels
    - 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.

1. Focus is Needed on Aging and Critical Infrastructure

Large segments of the nation's critical infrastructure systems are 50 to 100 years old, and their performance and condition is worsening. But renewing and restructuring these critical systems to meet the challenges of the 21st century is a completely different task than that of building new systems to service new growth. Renewal efforts must take into account an extensive network of existing systems, urban development, construction processes, management practices, financing mechanisms, and regulatory mandates[2].

The number one concern related to infrastructure in North Carolina is the renewal and replacement of aging assets

According to the North Carolina Section of the American Society of Civil Engineers, renewal and replacement of aging infrastructure is the biggest issue for North Carolina. The degradation of existing assets in this state is occurring to a point that is beyond a practical means to resolve them. In many cases, infrastructure leaders have chosen to minimize efforts to address these issues and take a fix-it-when-it-breaks approach that is neither good for public costs or for reliable infrastructure[3]. A major shift in thinking is needed within the critical infrastructure sector to make risk analysis, management and communication the standard basis on which projects are developed and implemented[4].

Critical infrastructure includes "Systems and assets so vital…that the incapacity or destruction of such systems would have a debilitating impact on…economic security…[and] public health or safety…"[5] According to the Department of Homeland Security (DHS), water and wastewater systems are considered critical infrastructure and local governments are the key players responsible for these assets. Management activities recommended by DHS include:

A major shift in thinking is needed to make risk analysis, management and communication the standard on which projects are developed and implemented

- Develop a consistent approach to identify, determine risks of, and prioritize investment for critical infrastructure;
- Identify and implement a risk management approach;
- Ensure that funding priorities are addressed and that resources are allocated effectively; and
- Coordinate with partners to promote education, training, and awareness of critical infrastructure[6].

The Authority 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 about the risk and costs associated with critical infrastructure failure. Key information to communicate to local government leaders who make the final decisions about infrastructure funding must include a clear description of the risks and the cost to address the risk now compared to the cost of deferring work into the future.

Risk is the potential for an unwanted outcome resulting from an event and can be expressed as its likelihood and associated consequences

Decision-makers need clear information about the risks associated with their decisions and the cost to address issues now compared to the cost of deferring needed work

By providing the grants for asset inventory and assessment that will enable utilities to define and prioritize critical projects, the state will play an important role in helping utilities examine the purpose and value of critical infrastructure as well as the decision-making processes used to determine when, where and how to spend infrastructure fund dollars.

2. Attaining Long-Term Viability is Crucial

In its report "Guiding Principles for the Nation's Critical Infrastructure" the American Society of Civil Engineers states that "The long-term viability of any critical infrastructure system – no matter how resilient and sustainable it is – will ultimately rely on the *human and organizational stewardship the infrastructure system receives*." Effective organizations can control program outcomes through of technical oversight, coordination, control and change management, and effective communication.[7]

Through the grants for merger/regionalization feasibility analyses, an entity will be able to investigate the possibility of voluntary merger/regionalization options as a pathway to viability

The Authority recognizes that providing funds just to repair infrastructure without ensuring that the utility provider also takes steps to change its past practices may continue a pattern of the entity applying again and again for grant funds. Instead, a utility should be encouraged to take proactive steps related to leadership, customer education and communication, finances and infrastructure management – including risk-based prioritization of needed projects – so that it is prepared going forward to fund preventative system maintenance and operation as well as to provide funds for eventual renewal and replacement.

The Authority is interested in focusing the state's limited funding resources on funding projects that will move a system toward viability. As such, the Authority will work toward 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.

3. Utility Revenues Must Provide Appropriate Infrastructure Funding Levels

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, the Department of Homeland Security finds that the level of investment in operating and maintaining critical infrastructure has not been adequate, as evidenced by the deteriorating condition of many infrastructure systems[8].

Investment in operating and maintaining critical infrastructure has not been adequate as evidenced by the deterioration of many infrastructure systems

It will be important for an applicant to the funding programs to demonstrate 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.

Next Steps

In the coming year, the Authority will explore the following issues as it develops the Master Plan and will provide recommendations to the General Assembly to help improve the state's infrastructure as well as the decision-making processes used for investing in them:

- Identifying the best solutions by which a utility may become viable, which may or may not involve construction of physical infrastructure through:
  - Training for utility decision-makers focusing on the operation and funding of a utility as a business to protect public health and the environment
  - Developing and implementing asset management programs
  - Investigating the feasibility of voluntary merger/ regionalization options;

Providing funds to repair infrastructure without ensuring the utility takes steps toward becoming viable will likely result in the entity returning repeatedly for grant funding

- Educating and openly communicating with stakeholders regarding infrastructure needs and cost impacts;
- Engaging economic development associations, community colleges and regional governmental organizations in identifying solutions for non-viable water and wastewater utilities within and across their jurisdictions; and
- Coordinating with the Blue Ribbon Commission to Study the Building and Infrastructure Needs of the state.

The recommendations developed by the Authority in the next year will enable the Authority to better carry out its assigned duties and to provide enhanced coordination of the use of the monetary resources entrusted to it by the General Assembly to improve public health and the environment for all North Carolinians.

APPENDIX A

State Water Infrastructure Authority Members

The State Water Infrastructure Authority was created within the North Carolina Department of Environment and Natural Resources (now the Department of Environmental Quality) by Session Law 2013-360. The current members of the Authority are listed in Table A.1.

Table A.1. Current State Water Infrastructure Authority Members

Cite § 159G-70.(b)	Position Requirements	Name	Title	Appointing Authority
(1)	Director of Division of Water Infrastructure* / Serves as Authority Chair	Kim Colson – Chair	Director, Division of Water Infrastructure	Ex-Officio
(2)	Secretary of Commerce* / Familiar with Water or other Infrastructure Improvements	Dr. Patricia Mitchell	Assistant Secretary, Rural Development Division; Dept. of Commerce	Ex-Officio
(3)	Director of Local Government Commission* (Office of the State Treasurer)	Robin Hammond	Assistant General Counsel, Local Government Commission	Ex-Officio
(4)	Professional Engineer in Private Sector Familiar with Wastewater Systems	JD Solomon	Vice President, CH2MHILL	Governor
(5)	Knowledgeable about Federal Funding for Wastewater and Water Systems	Vacant	__	Governor
(6)	Knowledgeable about Urban Wastewater or Water Systems	Leila Goodwin	Water Resources Engineer	Senate Pro Tempore
(7)	Knowledgeable about Rural Wastewater or Water Systems	Charles Vines	Mitchell County Manager	Senate Pro Tempore
(8)	County Commissioner or Resident of a Rural County Knowledgeable about Public Health Services	Cal Stiles	Cherokee County Commissioner	Speaker of the House
(9)	Familiar with Wastewater, Drinking Water and Stormwater Issues and State Funding Sources	Maria Hunnicutt	Manager, Broad River Water Authority	Speaker of the House

* Or designee

APPENDIX B

Powers and duties of the State Water Infrastructure Authority (NCGS 159G-71)

North Carolina General Statute 159G-71 lists the following as the Authority's powers and duties:

1. Review recommendations for grants and loans submitted to it by the Division of Water Infrastructure
   - Determine the rank of applications
   - 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

APPENDIX C

2014-2015 Loan and Grant Program Applications Received and Awarded Funding in 2015

Table C.1 provides a summary of the applications received by the Division in September 2014 and March 2015 and awarded funding by the Authority in December 2014 and May 2015 respectively. Given the amount of funding available in each program, it is apparent than only a small percentage of the total requests were able to be funded.

Table C.1. 2014-2015 Loan and Grant Program Applications Received and Awarded Funding in 2015

Funding Program and Application Round	Number Applications Received	Number Applications Funded	Dollar Amount Requested	Dollar Amount Funded
Federal-State CWSRF (Sept. 2014 and March 2015 Application Rounds)	36	36	$86.4 million	$86.4 million
Federal-State CWSRF Loan Offers Made to Applicants for State Wastewater Reserve High Unit Cost Grants (Sept. 2014 Application Round)*	NA	15	NA	$17.9 million
Federal-State DWSRF (Sept. 2014 Application Round)	51	13	$201 million	$70 million
Federal CDBG-I (Sept. 2014 and March 2015 Application Rounds)	169	21	$276.1 million	$39 million
State Wastewater Reserve (includes High Unit Cost grants and Technical Assistance grants) (Sept. 2014 Application Round)	42	16	$30.9 million	$4 million
State Drinking Water Reserve (includes High Unit Cost grants and Technical Assistance grants) (Sept. 2014 Application Round)	15	4	$7.1 million	$0.94 million
Totals	**313**	**105**	**$601.5 million**	**$218 million**

* Applications for the State Wastewater Reserve High Unit Cost grants in Sept. 2014 far exceeded the amount of funding available. Therefore, the Authority approved offering CWSRF loan funds to those applicants to provide an alternate means of funding.

APPENDIX D

Endnotes

1. In Sept. 2015, Session Law 2015-241 changed the agency's name from the Department of Environment and Natural Resources to the Department of Environmental Quality.
2. National Academy of Sciences, National Research Council, Sustainable Critical Infrastructure Systems: A Framework for Meeting 21st Century Imperatives, 2009.
3. North Carolina Section – American Society of Civil Engineers, Infrastructure Solutions for North Carolina. 2012.
4. American Society of Civil Engineers, Guiding Principles for the Nation's Critical Infrastructure, 2009. http://dx.doi.org/10.1061/9780784410639.
5. §1016(e) of the USA Patriot Act of 2001 (42 U.S.C. §5195c(e)).
6. U.S. Department of Homeland Security, National Infrastructure Protection Plan (NIPP) 2013: Partnering for Critical Infrastructure Security and Resilience.
7. Supra at Note 4.
8. Supra at Note 6.