**New York Water Environment Association Testimony**
**For Environmental Conservation Hearing**
Presented by: Joseph Brilling
Monday February 13, 2017 – Hearing Room B
Legislative Office Building, Albany, NY

15

NYWEA
LEADING THE WAY IN WATER QUALITY MANAGEMENT

My name is Joseph Brilling, I am a wastewater professional with over 27 years of experience protecting public health and the water environment. I have the privilege of serving as the executive director of the Washington County Sewer District, that is responsible for the operation, maintenance, and administration of a treatment plant with a permitted flow of 2.5 million gallons per day and a collection system of approximately 80 miles of pipe, with a large percentage of combined sewer area.

I am an involved Utility member of the New York Water Environment Association also known as (NYWEA). NYWEA is a Member Association of the Water Environment Federation – which is the leading international organization dedicated to the wastewater industry. NYWEA is a non-profit, professional organization that serves the best interest of the public by promoting sustainable clean water quality management through science, education, and training. It is made up of over 2,500 members across the State with great diversity ranging from treatment plant operators from small Villages, top level officials in New York City government, academics and students, regulators, engineers of all types, environmental scientists, and other interested professionals. NYWEA also has a robust Utility Executive's Committee with broad state wide representation that provides unity and strength to address the growing regulatory and financial challenges facing wastewater utilities.

NYWEA members are seeing a shift in terminology to better reflect what physical, chemical and biological processes take place at wastewater treatment plants, now also referred to as water resource recovery facilities. The important work these utilities carry out 24 hours/day – 7 days a week saves lives. Water resource recovery facilities (WRRFs) receive the sewage we all produce and "recover" valuable resources from it, principally water. In addition to protecting public health and the environment, many WRRFs generate energy, extract and find uses for nutrients, use the treated effluent in beneficial ways, and innovate with technological and financial partners.

Organizations like NYWEA, Washington County and all wastewater utilities in the state, recognize the critical role that proper sanitation plays in protecting public health, improving the water environment while promoting economic development and recreational opportunities. We are also keenly aware of the fiscal challenges faced by local governments when attempting to budget or finance clean water infrastructure projects. Local governments understand their fiscal responsibilities, but we cannot fund these needs without financial assistance.

Washington County Sewer District was formed in 1984 to maintain improvements to water quality and to meet new regulatory requirements. Our District has tremendous clean water infrastructure needs including approximately $26 million for our Long Term Control Plan (LTCP) implementation alone. That $26 million cost is for a district that provides wastewater treatment and collection to a population of approximately 15,000. Washington County Sewer District is one of over 600 wastewater treatment facilities in New York State that serve 1,610 municipalities, providing wastewater treatment for more than 15 million people across the State. Functioning clean water infrastructure is vital to a community's viability, future economic prospects and competitiveness. Deferring maintenance of sewer and water assets leads to rapid deterioration, reducing service life and greatly increasing the cost of repairs.

According to NYSDEC 2008 report "Wastewater Infrastructure Needs of New York State", the conservative costs of repairing, replacing and updating New York's aging and deteriorating wastewater and water infrastructure, over the next 20 years, are $36.2 billion and $38.7 billion, respectively. It should be pointed out that this report is now nine (9) years old, so it is expected that current costs are likely higher than the 2008 report stated. This report also indicated that 30% of the State's sewage collection systems are beyond their expected useful life.

In the face of this tremendous need, New York has stepped up as a national leader with the creation of the Water Infrastructure Improvement Act of 2015 (WIIA), a $400 million, three-year grant program in the New York State budget. The Governor's budget proposes an additional $2.0 billion investment in the WIIA through the year 2022, with potential uses proposed beyond infrastructure investment. NYWEA is appreciative of the proposed extension and increase in funding for this program, but also realizes the needs are much greater.

NYWEA also supports the proposed $5 billion Clean Water Bond Act.

Some statistics that highlight the fiscal needs and constraints faced by local WRRF's:

- Under10 % of total local government expenditures have been directed toward infrastructure for the past 10 years. It has not kept up with the rate of inflation for construction costs and materials. In addition, municipalities are subject to the "Tax Cap" constraints, further reducing infrastructure reinvestment which results in deferred maintenance of sewer and water assets leading to rapid deterioration, reducing service life and greatly increasing the cost of repairs. It would be desirable to have clean water capital projects exempted from the Tax Cap.

- A disproportionate share of the wastewater financial burden is borne by metropolitan areas which are financially distressed with low household median incomes and mandated implementation of combined sewer overflow long term control plans.

- Municipalities from across the state rely on NYS Environmental Facilities Corporation for low cost loans. The NYS Environmental Facilities Corporation develops a list (Intended Use Plan) of annual and multi-year projects that municipalities and other entities have deemed necessary to meet continued environmental protection, compliance and efficient operation and maintenance of facilities for both clean water (i.e., wastewater) infrastructure and drinking water infrastructure. While the lists are a representative compilation of pertinent projects, it is not a compilation of the entire universe of projects within New York State that require attention, since there are additional projects that the municipalities have not submitted to EFC. Municipalities are frequently reluctant to take additional loan obligations as they are subject to the "Property Tax Cap" fiscal constraints that limit their ability to borrow funds for critical water and wastewater infrastructure projects.

- Over 20 years, each $1.00 invested in sewer & water infrastructure returns $2.03 of local, state and federal tax revenue. Over time, clean water investments pay for themselves and produce tax revenue for future spending.

- Besides the normal operation and maintenance of these utilities, natural disasters or other emergency situations (toxic spills, discovery of harmful contaminants in water supplies) have adversely impacted NY's infrastructure. These costs are in addition to already strained finances hindering municipalities from investing in necessary water and sewer infrastructure needs.

Investment in water infrastructure not only protects public health and the quality of our lakes, rivers, streams and open water bodies; it is a significant driver of economic development and job creation.

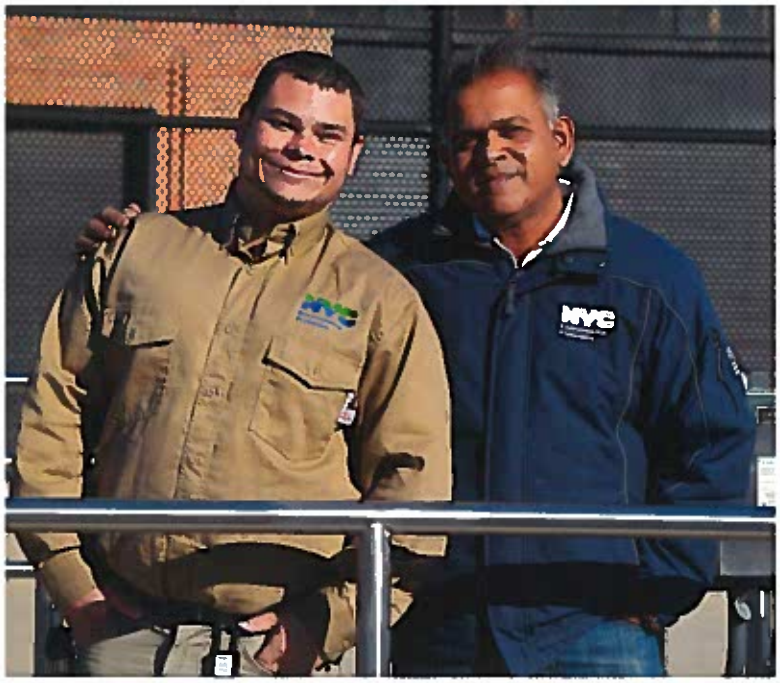
Nationwide, local governments are the main investors in water and sewer systems. For all public spending on water and wastewater facilities, state and local governments account for 96%, the federal share is 4%. In the future, it will take funding coming from federal, state, and local governments together to improve water quality and sustain our utilities.

Investment in clean water infrastructure shouldn't just be local government's responsibility as it is appropriate to represent that cleaner water doesn't just benefit the adjacent locality but the entire State of New York. It is time to reinvigorate the past practices, partnerships and investments between state and local government that enhanced the quality of life of all New Yorker's. In 1966, the Rockefeller Pure Water's Program led the nation with an investment of $1 billion dollars towards wastewater infrastructure that provided an unquestioned partnership between state and local government. New York State once again has an opportunity to set an example for the entire nation with creation of a dedicated fund. Investment in water is the right thing for local government, public health, the environment, the economy, job creation and recreational opportunities.

Thank you for this opportunity to be here today.

NYWEA
LEADING THE WAY IN WATER QUALITY MANAGEMENT

# Sustaining and Enhancing New York's Clean Water: Required Investment in Vital Infrastructure



# A utility's most vital assets: People & Infrastructure

NYWEA

nywea.org

## Who is NYWEA?

*The New York Water Environment Association, Inc. (NYWEA), founded by water quality professionals in 1929, is a nonprofit educational organization. Historically, NYWEA members helped lead the way to New York's clean water programs and accomplishments. Today, NYWEA's 2,500 members protect and enhance the state's water resources for future generations.*

*NYWEA's mission is to serve the best interest of the public by promoting sustainable clean water management through science, education, and training. NYWEA serves its members by providing opportunities to expand their knowledge and by cultivating a forum for members to play a vital role in shaping an environmentally sound future.*

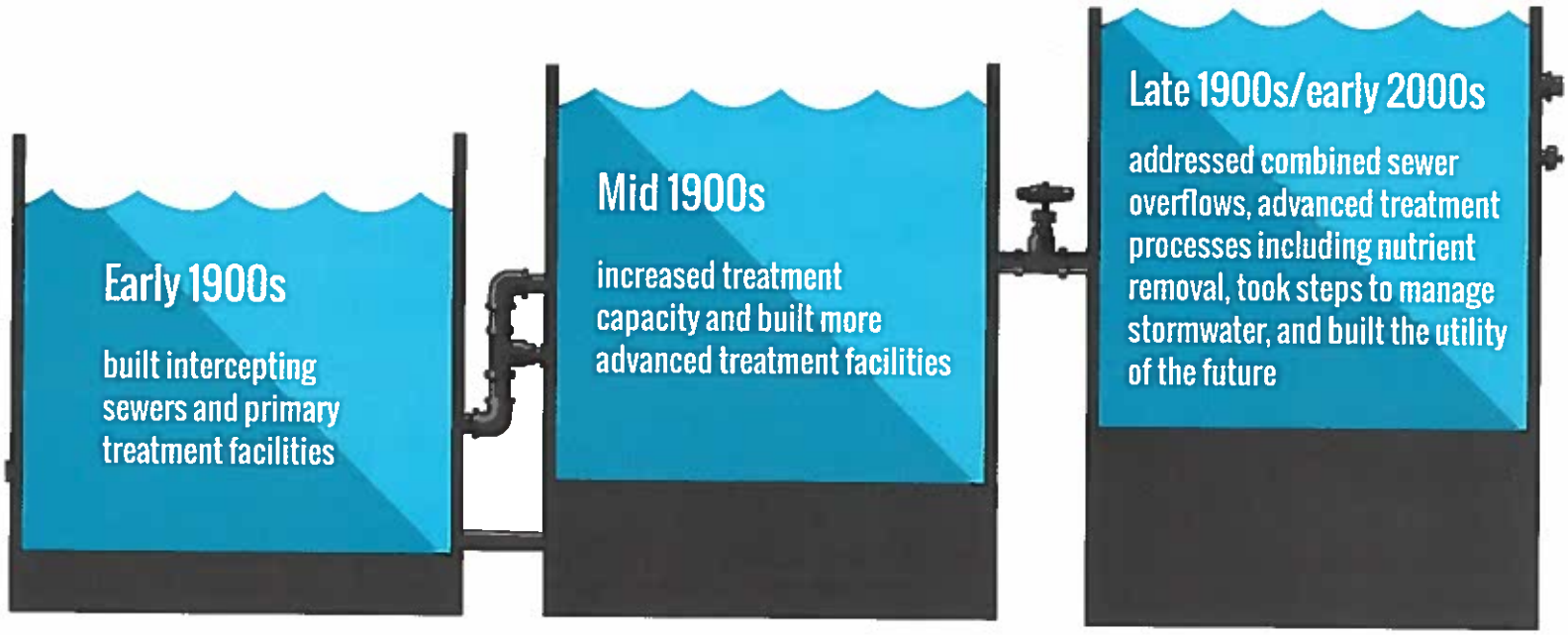
*Members come from diverse backgrounds as facility operators, engineers, scientists, technicians, local and state government officials, educators, and equipment professionals. The organization consists of seven local chapters that carry out educational and social networking opportunities.*

*The purpose of this document is to enhance the value of water quality issues with the general public and elected officials and illustrate the value of protecting water quality.*

For more information, visit www.NYWEA.org, or contact us at 315.442.7811.

*Design support provided by the Syracuse University Environmental Finance Center.*

# Historical Steps for Water Treatment in New York State




## What is a Water Resource Recovery Facility?

We all **consume** water and **create** waste. When we turn on a tap or go for a swim, we want clean water. Thanks to 610 water resource recovery facilities (formerly referred to as wastewater treatment plants) serving over 15 million people across New York State, the water we put down the drain is collected, cleaned, and safely **returned** to the environment.

Water resource recovery facilities (WRRFs) receive the sewage we all produce and **"recover"** valuable resources from it, principally water. In addition to protecting public health and the environment, many WRRFs generate energy, extract and find uses for nutrients[1], use the treated effluent[2] in beneficial ways, and innovate with technological and financial partners.

## Public Health Benefits

Before the 20th century, sources of clean water were **unreliable** and waste removal was often an open gutter in a town's streets, flowing to the nearest cesspool, stream, or lake. Everyone was at risk for **water-borne diseases**, like typhoid fever and cholera which were prevalent and are especially lethal to children.

When scientists discovered these diseases were spread by **fouled water**, providing clean water to protect public health became a priority. In the early 20th century, many communities in New York State from Buffalo to New York City built their first clean water systems. In major US cities, plunging mortality rates correlated with clean water delivery and basic sewage treatment.

1 Nutrients like nitrogen and phosphorus, are necessary to ecosystems but must be managed in wastewater. WRRFs manage nutrients to prevent the release of excessive amounts, which can degrade water quality

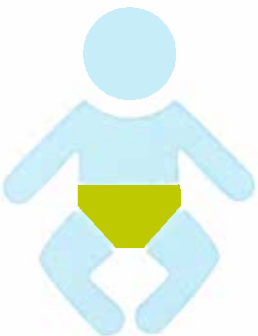
2 Effluent is treated wastewater which is typically released to surface waters but can be used in certain applications for irrigation and other purposes

In a 2007 survey, **British Medical Journal** readers selected the "sanitary revolution" — the introduction of clean water and sewage disposal — as the most important medical advancement since 1840, when the journal was first published. **Sanitation was rated more important than anesthesia, the development of antibiotics, and the advancement of vaccines.**

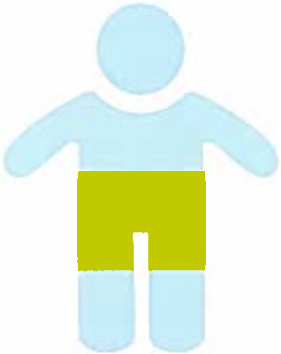
**Thanks to WRRFs and the vital services provided, water-borne diseases that threatened New Yorkers in the past are no longer a significant public health threat.**

**Between 1900-1936, adoption of clean water technology was responsible for a:**

**↓75%**
**infant mortality rate**



**↓67%**
**child mortality rate**



**↓50%**
**overall mortality rate**

D. Cutler & G. Miller, 2004. The Role of Public Health Improvements in Health Advances: The 20th Century United States. National Bureau of Economic Research Working Paper 10511, Cambridge, MA

# Environmental Benefits: We've Come a Long Way!

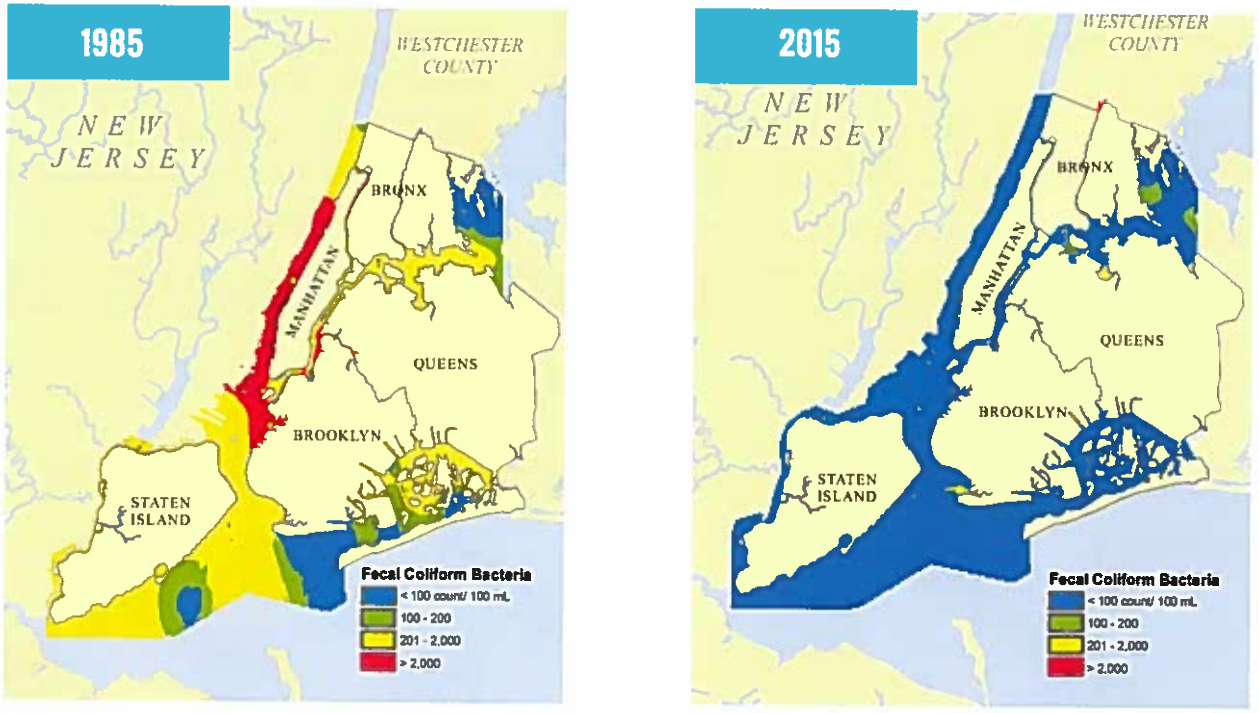
## Contamination

At the beginning of the 20th Century, levels of sewage treatment varied and every day millions of gallons of waste flowed directly into streams, rivers, lakes, harbors, and ultimately the ocean. Contamination **degraded** New York's freshwater and coastal environments.

In the early 1900s, birds disappeared and boat captains noted the water in New York City's polluted harbors killed barnacles attached to ship hulls. Skippers sailed into Newtown Creek in Brooklyn as a cheap way to plug leaks and caulk their boats with the **copious oil** and tar floating in the water. In 1935, the New York Department of Health found that lack of sanitation infrastructure in the City of Buffalo caused a "menacing nuisance" of **pollutants** in the Niagara River.

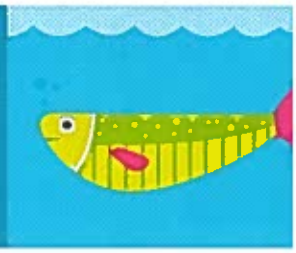
## Pure Waters Bond Act

Improvements advanced in the first half of the 20th Century, however, waterways were still severely impaired across New York State. In 1965, New Yorkers approved a **billion dollar bond issue** for a clean water program that became a model for the Federal Clean Water Act in 1972. The Pure Waters Bond Act assisted municipalities to **protect** public health and **restore** waterways through investment in wastewater infrastructure. Local governments, supported by the Act, created sewer systems to better manage society's wastes and built on **progress** made earlier in the century. More advanced treatment plants, equipment, and new sewers were built across New York State, primarily funded by the Federal Clean Water Act. Water quality **improved** as new and upgraded facilities began operating.




Due to infrastructure investment, bacteria samples in New York City waters measure well within regulatory requirements.
Image: NYC Department of Environmental Protection

Since the 1970s, environmental conditions steadily improved. Levels of bacteria and the presence of excessive nutrients, like nitrogen and phosphorus, dropped. Dissolved oxygen increased in waterways, benefiting fish and wildlife populations. Plant and animal life in and around New York's waters recovered, providing excellent fishing and recreation opportunities.



**New York's public health, economy, and environment have been improved because all levels of government invested in vital infrastructure and services to protect water quality!**

## Economic Benefits: By the Numbers

New York's economy runs on our vital water infrastructure. Public infrastructure investments create positive economic activity and jobs.

**Over 20 years, each $1.00 invested in sewer & water infrastructure returns $2.03 of local, state and federal tax revenue.[3]**
**Over time, clean water investments pay for themselves and produce tax revenue for future spending.**

**Every $1 million of federal infrastructure spending generates[4]:**

- 16.5 jobs, each paying $60,000
- $2.95 million in US economic output

**Construction trades benefit from public infrastructure investments. In a recent survey, northeastern water utilities plan to spend 85% of their capital budgets on construction over the next decade.[5]**

**Over 10 years, New York City Department of Environmental Protection provides[6]:**

- 23,200 annual jobs
- $46.3 billion in economic output

**Clean water matters to all of us! When we have clean water we can build an economy that would otherwise be at risk.**

3 I. Cohen et al., 2012. The Economic Impact and Financing of Infrastructure Spending. College of William & Mary, Thomas Jefferson Program in Public Policy, Williamsburg, VA.
4 Water Environment Federation & WateReuse. 2016. The Economic, Job Creation, and Federal Tax Revenue Benefits of Increased Funding for the State Revolving Fund Programs. Alexandria, VA.
5 A. Quinn et al., 2014. National Economic and Labor Impacts of the Water Utility Sector. Technical Report. Sponsored by Water Research Foundation and Water Environment Research Foundation, AECOM, San Francisco, CA.
6 A. Quinn et al., 2014.

## Adding 1 job in water and sewer infrastructure systems creates 3.68 jobs in the national economy[7]

7 R. Krop et al., 2008. Local Government Investment in Municipal Water and Sewer Infrastructure: Adding Value to the National Economy. US Conference of Mayors, Mayors Water Council, Washington, D.C.

# Innovation: New York is a World Leader

New York is at the **forefront** in clean water practice and technology. Today, green infrastructure and energy generation are some new ways WRRFs keep New York's water clean and promote sustainable practices.

Green infrastructure captures rainwater for on-site use or allows it to soak into the ground to recharge groundwater, using **natural** systems to reduce the volume of water entering sewer systems and/or reduce pollutants. Green infrastructure can also **beautify** neighborhoods.

The Buffalo Sewer Authority implemented a neighborhood green streets program; Lake Placid Village created new wetlands when replacing a 100-year old trunk sewer; and the Village of Oakfield, near Batavia, New York, added a reed bed to their facility's treatment process. Utilities both big and small are incorporating green infrastructure into their systems to enhance the services they provide.

WRRFs are decreasing their net energy use at their facilities by installing:

- solar panels
- aeration system upgrades
- process optimization measures
- LED lighting
- biogas capture and storage
- heat recovery systems

These **smart** investments save energy and money and reduce greenhouse gas emissions.

WRRFs are now the "utilities of the future," from self-contained managers of waste focused on regulatory compliance, to managers of valuable resources engaged in new engineering, technologies, and methods of finance. This **innovation** occurs through collaboration with governments, operators, engineers, scientists, professional organizations, and the financial sector.

**The vital services provided by WRRFs have become more innovative and "green" while sustaining and enhancing water quality!**

## Spotlight: Onondaga County Department of Water Environment Protection in the Onondaga Lake Watershed

Onondaga County's innovative WRRF filtering and settling system upgrades dramatically improved Onondaga Lake's water quality by decreasing nutrients.

The separate "Save the Rain" program limits stormwater pollution using a combination of green and gray infrastructure.

Save the Rain earned Onondaga County the U.S. Water Prize in 2013, through installation of green roofs, green streets, rain gardens, and residential rain barrels, while employing local youth on many of these initiatives.

## Spotlight: Albany County Sewer District in the Hudson River Watershed

The Albany County Sewer District sends treated effluent to Empire Generating Company's power plant in the Port of Rensselaer, to be used as cooling water for the plant's turbines. Empire Generating Company paid for all construction costs to transfer the treated water. It is the largest beneficial use of secondary effluent in New York State.

The District upgraded disinfection processes and is using green infrastructure as part of a long-term plan to protect the Hudson River.

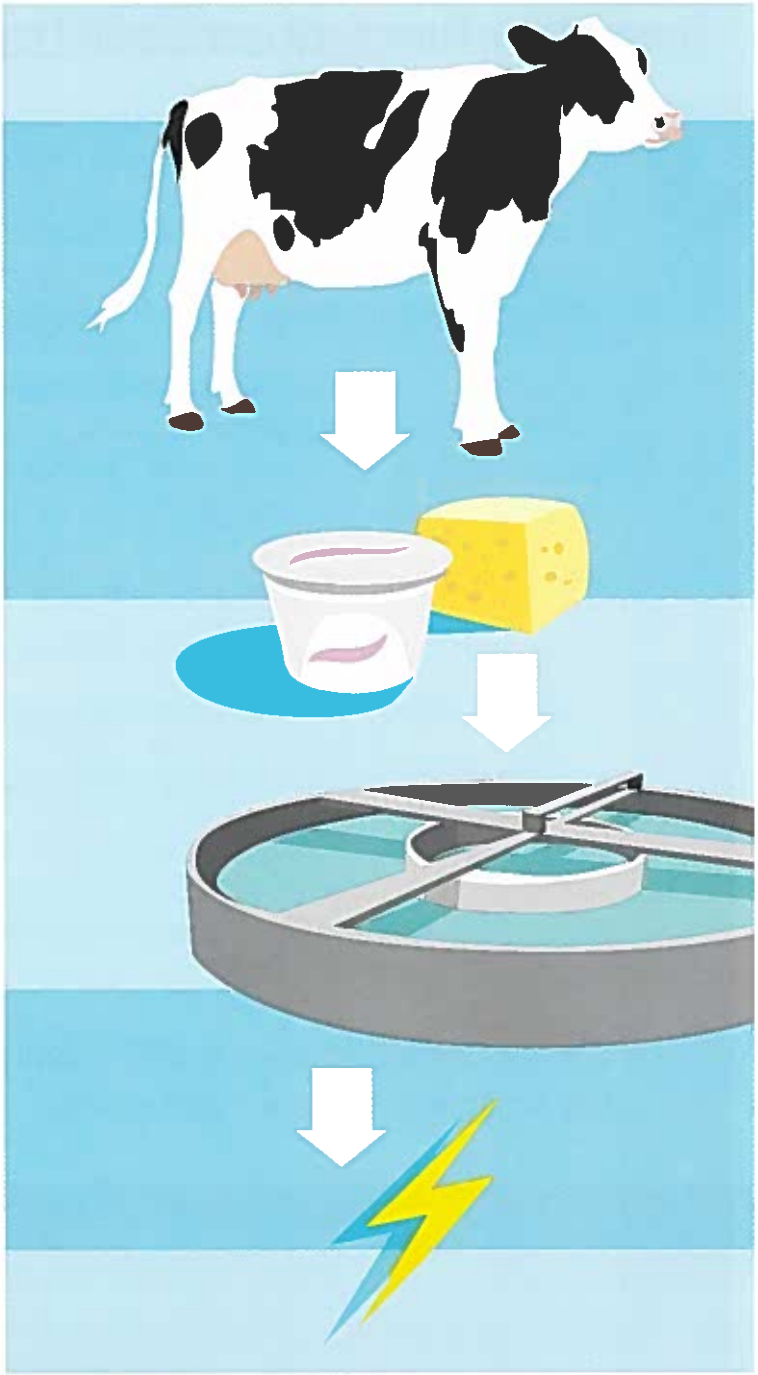
## Spotlight: Gloversville-Johnstown Joint Wastewater Treatment Facility in the Mohawk River Watershed

With a first-in-the-nation project, the Gloversville-Johnstown facility generates 100% of its power using the biosolids in its facility supplemented with whey from cheese and yogurt manufacturers.

Additional generated power is sent to the electrical grid, supplying energy for 200 homes.

This partnership allowed FAGE USA to invest $150 million to double production, employed hundreds of construction workers for expansion, and added 150 people to the workforce at their Greek yogurt facility in Johnstown.

Public and private partners financed the most recent phase of this project. Fulton County invested $3 million dollars; the New York State Energy Research and Development Authority invested $2 million. The Mohawk Valley Regional Economic Development Council, National Grid, and the US Department of Housing and Urban Development invested the additional funds.



## Spotlight: Village of Minoa in the Oneida Lake Watershed

The Village of Minoa has been ahead of the curve on innovation, installing three (3) constructed wetlands to handle wet weather flows. These wetlands are extremely efficient at removing pollutants. The Village also is engaged in public outreach activities with the local school on their food recycling program.

# Continued Investment: We All Share the Cost

Continued investment in infrastructure and the personnel maintaining it is **essential**. Skilled people need to be trained to operate WRRFs. Educational programs and formal on-the-job training programs are needed to attract younger workers to replace retiring baby boomers. Nationally, nearly a third of the clean water workforce is expected to retire in the next decade.

New Yorkers made an **enormous** investment in clean water infrastructure in the last century; today we are confronted with an aging system and a vital workforce that is in need of investment to address today's challenges.

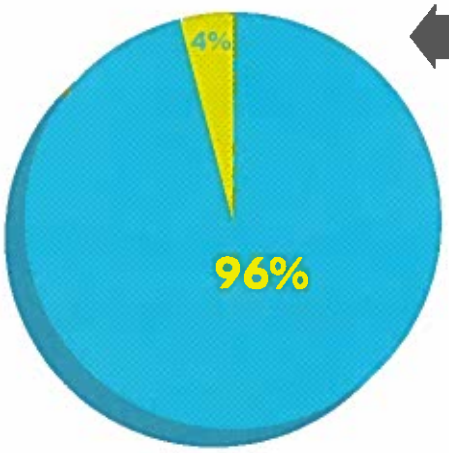
**ACTUAL ANNUAL INVESTMENT: $202 MILLION**

**ANNUAL NEED: $1 BILLION**

The current level of spending will not meet future needs.

NYS Office of the State Comptroller, 2014. Growing Cracks in the Foundation: Local Government Still Challenged to Keep Up with Vital Infrastructure Needs. Division of Local Government and School Accountability. Albany, NY.

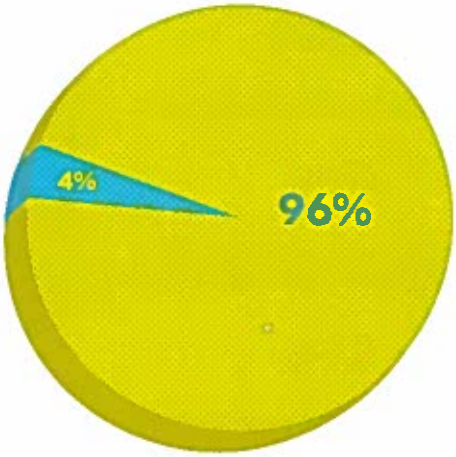
## Local governments are the main investors in water and sewer systems




S. Eskaf, 2015. Four Trends in Government Spending on Water and Wastewater Utilities Since 1956. Environmental Finance Center at UNC Chapel Hill, Chapell Hill, NC

For all public spending on water and wastewater facilities, state and local governments account for 96%, federal share is 4%

For sewer infrastructure spending, local governments account for 96%, state share is 4%. In the future, it may take funding coming from federal, state, and local governments together to improve water quality.




R. Krop et al., 2008. Local Government Investment in Municipal Water and Sewer Infrastructure. Adding Value to the National Economy. US Conference of Mayors. Mayors Water Council, Washington, D.C

# Need for Infrastructure Investment - By the Numbers

**70%**

Reduction in federal funding for water and wastewater infrastructure since the 1980s[8]

**New York is #1 in need to invest in:**

- Advanced wastewater treatment
- New sewer systems
- Wastewater treatment for small communities[9]

**$31.4 billion**

Cost to meet New York's wastewater infrastructure needs over 20 years[10]

# Investment Supports Infrastructure

**35,000**

Miles of sewer pipes to maintain in New York State

**40%**

Sewers more than 60 years old

**64%**

Sewers more than 60 years old that experience sewage release events[11]

8 S. Eskaf, 2015. Four Trends in Government Spending on Water and Wastewater Utilities Since 1956. Environmental Finance Center at UNC Chapel Hill

9 US Environmental Protection Agency (USEPA), 2016. Clean Watersheds Needs Survey 2012. Report to Congress, EPA-830-R-15005. Office of Wastewater Management, Washington, D.C.

10 US EPA, 2016

11 NYS Department of Environmental Conservation, undated. POSS Technical Guidance Website. Division of Water. Albany, NY.

# 21st Century Challenges

Advanced treatment and innovative solutions will be needed to address the **complicated** issues affecting our aging water resource recovery utilities including: pharmaceuticals, personal care products, nutrients, stormwater, and more. Infrastructure built in the 19th and 20th centuries will require replacement.

Water Environment Federation
the water quality people®

NYWEA and our parent organization, the Water Environment Federation, believe wastewater treatment plants are **not** waste disposal facilities, but rather water resource recovery facilities that produce clean water, recover nutrients, and have the potential to reduce the nation's dependence upon fossil fuel through the production and use of **renewable** energy. With these benefits — in addition to the public health, environmental, and economic impacts — WRRFs truly are vital to our communities.

# How You Can Help

New York has led the way due to **tremendous benefits** provided for public health, the environment and the economy, on the foundation of its remarkably advanced clean water recovery system. New York communities have managed water quality problems for more than 100 years; these infrastructure systems — and the operators who manage them — are **critical** to modern life.

On behalf of the water resource recovery industry, NYWEA asks for:

- **Increased investment in water infrastructure.** This includes realistic funding for the budgets of local government WRRFs, state and federal infrastructure grants, and progressive legislation to facilitate capital improvements such as the New York State Water Infrastructure Improvement Act of 2015.
- **Additional support for WRRF operators.** WRRF operators say that protecting public health and the environment is the most satisfying aspect of their job. Operators deserve recognition and adequate compensation for their hard work. New job training programs are needed to recruit talented people into the clean water field and ensure they have the skills to operate WRRFs.
- **Assistance for developing the 21st century solutions to today's water quality challenges.** To be utilities of the future, WRRFs need the flexibility and partnerships to innovate with the most effective science and technology for New York's watersheds.

WRRFs are ready, as always, to get to work on new challenges — can we count on you to help support and communicate this message?

To find out more, contact NYWEA at:

**525 Plum Street**
**Syracuse, NY 13204**
**NYWEA.org | 315.422.7811**

NYWEA
LEADING THE WAY IN WATER QUALITY MANAGEMENT

# Sustaining New York's Clean Water

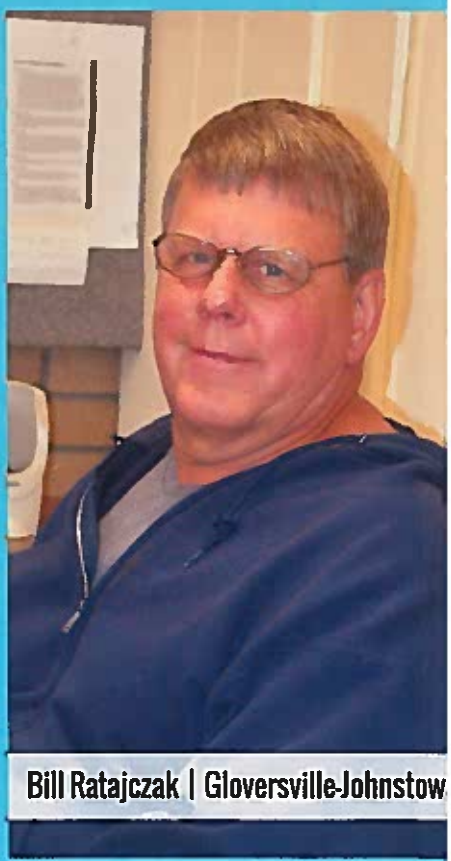
MD Islam | NYCDEP

Donald LeQue | Albany County

Tom Ambrosino | Gloversville-Johnstown

Briskella Garas | NYCDEP

Zion Chaney | Albany County



Bill Ratajczak | Gloversville-Johnstow

NYWEA