

APPENDIX

**Testimony to the Joint Legislative Task Force
on Drinking Water Infrastructure
Public Hearing, Nov. 30, 2016**

Dear Members of the Task Force:

Thank you for inviting me to testify today on the critical issue of drinking water infrastructure. My testimony will address the following points:

- The role water infrastructure plays in laying the foundation for a prosperous economy and healthy communities for everyone
- The state of New Jersey's drinking water infrastructure system
- The Jersey Water Works collaborative and what it offers as a statewide resource
- The need for state leadership on this issue

Twenty-first-century water infrastructure provides the foundation for a prosperous economy and healthy communities for everyone.

Water is life. Modern, reliable water infrastructure lays the foundation for businesses to operate and keeps cities and towns attractive for private investment. Healthy drinking water ensures everyone – including our children – has access to a promising future. Investment in water systems lowers long-term costs, by leveraging new technologies and by avoiding emergency repairs that typically cost three to five times more than planned upgrades. Water infrastructure investments are good for the economy. A U.S. Bureau of Economic Analysis report estimates that for every dollar spent on water infrastructure, \$2.62 is generated in all industries in the same year¹, a better return than for transportation infrastructure investments. For all these reasons, cities and states across the country are investing in water infrastructure and our federal government is now exploring major investments as well.

New Jersey's drinking water infrastructure is inadequate, and its management is highly fragmented.

In New Jersey and across the country, we have taken our water infrastructure systems for granted. Our water infrastructure is aging past its useful life and unable to keep up with growth and demand. The American Society of Civil Engineers' 2016 Report Card² gave New Jersey a "C" grade for drinking water infrastructure. No one knows the costs to bring our drinking water infrastructure into a state of good repair, but the USEPA offers an estimate of at \$8 billion over 20 years³, which industry experts view as a fraction of the total.

The impacts of our underinvestment, which will get worse as systems age and as climate change occurs, include:

¹ <http://usmayors.org/urbanwater/documents/LocalGovt%20InvtnMunicipalWaterandSewerInfrastructure.pdf>

² <http://www.infrastructurereportcard.org/wp-content/uploads/2013/02/ASCE-Report-Card-for-NJ-Infrastructure-6.16.16.compressed.pdf>

³ (<https://www.epa.gov/sites/production/files/2015-07/documents/epa816r13006.pdf>)

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- Water main breaks that disrupt businesses and daily life and can cause street flooding that shuts down transit and roads.
 - Leaky pipes that often lose 20 percent, 30 percent, 40 percent of treated drinking water before it ever reaches the home or business.
 - Unhealthy drinking water that contains lead that threatens the healthy brain development of our children. Online sources from the first seven months of 2016 show 137 public schools in New Jersey have tested positive for lead in at least one drinking water outlet this year⁴.

Our drinking water systems don't exist alone. Cities and towns also have wastewater and stormwater systems, which are also inadequate and in need of expensive upgrades. These systems contribute to localized flooding, water pollution and, in 21 of our oldest and largest communities, combined sewer overflows and backups.

New Jersey's water systems are managed by hundreds of fragmented municipal and regional public and private water and sewer utilities, in contrast to large metropolitan areas across the country where a single regional utility manages drinking water, wastewater and sometimes also stormwater infrastructure. These smaller organizations have limited staff and consulting capacity, and may not be able to take advantage of economies of scale the way their larger counterparts can. In addition, many focus on just one part of the water system – drinking water, for example, or wastewater – and there are additional costs to the state in needing to deal with so many smaller, specialized entities. Water systems in New Jersey are funded almost exclusively by ratepayers, as opposed to state or federal grants.

The politics of water infrastructure are stacked against investment. People take water infrastructure for granted – until it doesn't work. Investments in pipes, pumps and treatment plants are “out of sight and out of mind.” Local elected leaders associated with public water systems often avoid rate increases that may create voter opposition during their next campaign, in contrast to the benefits of modernized water systems, which will accrue over a generation.

Jersey Water Works provides a statewide resource to upgrade water infrastructure

Our fragmented system means it is especially important that you – our state's elected leaders – have created this task force.

And it is also why Governor Whitman and I are honorary co-chairs of a new collaborative, Jersey Water Works. Our first question when we were asked to participate back in 2014 was, “Yes, this is a critical problem, but it is enormous; where will the money come from?” At an early meeting we outlined some “guiding principles” for upgrading water infrastructure, and we participated with 25 leaders statewide to establish An Agenda for Change, which lays out action steps to address the problem. (A copy is attached to my testimony.)

Jersey Water Works is a collaborative effort of more than 260 people, all committed to upgrading our water infrastructure in sustainable, cost-effective ways that provide multiple community benefits. It includes people from all perspectives: utilities, mayors, state and federal regulators,

⁴ <http://www.njfuture.org/2016/08/10/lead-school-drinking-water/>

environmental and smart-growth organizations, community groups, academics, engineers and others.

Jersey Water Works is changing the water system by articulating shared goals, and then supporting its members as they work towards those goals. Its communications connect a growing constituency, and its committees and meetings provide a forum for crafting smart policy and effective programs *(The next speakers will describe this in greater detail.)*

Jersey Water Works is building political will for proactive investments in New Jersey's water infrastructure. It is helping voters and elected and appointed officials to understand that caring about clean water and healthy, equitable communities means supporting robust, modern water systems and making the necessary investments.

State leaders have an important leadership role -- to raise awareness, support good policy and promote smart investments.

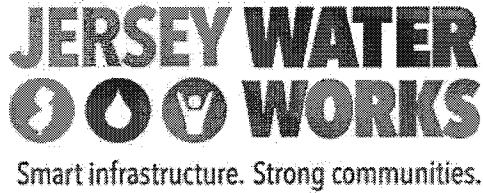
I hope that you and your staff will become involved in Jersey Water Works so you can take full advantage of its resource – a growing constituency, its communications channels and events, and as a forum for crafting policy and programs.

Fixing our water infrastructure is truly an investment in the next generation. Thank you for bringing a spotlight to this issue in New Jersey, especially at this important time when the federal government may be considering major infrastructure investments.

You have the opportunity to reach a much broader audience on the importance of water infrastructure for an economically prosperous and equitable state. I look forward to following your work.

Thank you.

James J. Florio



STATEMENT

Testimony to the New Jersey Joint Legislative Task Force on Drinking Water Infrastructure

November, 30, 2016

Contact:

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Member, Jersey Water Works backbone staff, 609-393-0008, x114
Margaret Waldock, Program Director, Geraldine R. Dodge Foundation;
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Testimony from Chris Sturm

Thank you for inviting Jersey Water Works to testify today. I am Chris Sturm, managing director for policy and water at New Jersey Future, which provides staff support to the Jersey Water Works collaborative. I am here with Margaret Waldock from the Geraldine R. Dodge Foundation, who serves on the Jersey Water Works Steering Committee. Today I will describe the Jersey Water Works collaborative and what it is doing that is relevant to your mandate. Margaret will explain the holistic "One Water" approach, which is making a difference in Camden, and offer strategies to build political will for water investments.

Jersey Water Works and Its Drinking Water Priorities

As Governor Florio explained, Jersey Water Works is a statewide collaborative that promotes the transformation of drinking water, wastewater and stormwater infrastructure in sustainable, cost-effective ways that support economic growth, equitable communities and public-sector accountability.

Jersey Water Works uses a collaborative approach because it aspires to change a large and complex system that has many different actors. The collaborative engages members from all the perspectives with a stake in the system, and they become part of crafting solutions.

The makeup of its Steering Committee reflects that diversity, and includes many of the people testifying today: Daniel Van Abs from Rutgers University, Larry Levine from Natural Resources Defense Council (represented today by Joan Matthews), Peggy Gallos from the Association of

Environmental Authorities of New Jersey, and Andrew Hendry from the New Jersey Utilities Association. Other members who may testify in the future include Dan Kennedy, NJDEP's assistant commissioner for water resources, and David Zimmer, the executive director of the New Jersey Environmental Infrastructure Trust. Jersey Water Works continues to grow and form new partnerships, including with New Jersey American Water and the Plumbers and Pipefitters, who are sponsoring our conference on Friday. Next year, in partnership with some of the state's water trade associations we'll launch a new "One Water" award to recognize projects that provide holistic solutions. You can see a full list of Steering Committee members appended to our testimony, along with a list of the organizations representing our 260+ members.

The members of Jersey Water Works have adopted shared goals and sub-goals to focus the collaborative's work. (*See the attached handout.*) From those I would like to highlight three priorities of greatest interest to the task force:

1. Maintaining pipes through asset management
2. Ensuring affordable access to safe drinking water
3. Improving public accountability by sharing data about water infrastructure systems.

Our drinking water delivery systems – the pipes, pumps, and water towers we rely on every day – leak at an alarming rate and, as you've no doubt noticed from closed roads, emergency repairs and flooded streets, are prone to breaking. This drives up costs and threatens commerce and economic growth. Utilities can turn this around by creating and fully funding asset management programs that treat water systems as assets that are systematically assessed, prioritized and maintained.

Jersey Water Works members are working to improve pipe conditions through asset management. As one example, our Best Practice Committee is partnering with the Sustainable Jersey municipal certification program to provide clear guidance to local officials on how to conduct water loss audits and develop and implement asset management programs, and then share the results with the public. We will offer training on these areas, in partnership with Sustainable Jersey and the Association of Environmental Authorities of New Jersey, in January or February.

Some of the largest upgrades needed are in distressed municipalities where many residents live in poverty. Everyone in New Jersey should have access to affordable and safe drinking water and sewage treatment. Jersey Water Works is conducting research to assess the affordability of

water and sewer service in several New Jersey cities. We will discuss potential solutions to the affordability challenge at our conference on Friday, and will recommend ways to offer assistance to the neediest residents, perhaps similar to home heating assistance programs. This is an area that may require state legislation.

In addition, to help ensure that drinking water is not only affordable but also safe from lead, we have published on the Jersey Water Works website a [list of resources about lead](#) in drinking water.

Lastly, we must improve public accountability and transparency for what are enormous public expenditures, through sharing data about our drinking water, wastewater and stormwater systems. As management expert Peter Drucker has said, "What gets measured gets improved." But the fact is that at the state level we don't have good data on the state of our water infrastructure systems. Jersey Water Works' new measurement system aspires to track progress annually on indicators for pipe condition, asset management and rate affordability, among others. Implementing the system will require a major effort of our members, from state regulators to local system operators. The result will be data that enables local and state leaders to know the extent to which our water infrastructure systems are improving. An illustrated handout describes the system and shows what we will measure to answer the question, "Are we making progress?"

Connecting with Jersey Water Works and its Resources

I'll conclude my testimony with information on how you can connect with Jersey Water Works and take advantage of its resources. Please visit our website, www.jerseywaterworks.org, sign up for our monthly newsletter, and, to signal your support for the Jersey Water Works mission, please join the collaborative as a member. *See handout.* I also invite you to join us at our annual conference on Friday in Newark. *There is a postcard in your packet.* We'll explore solutions from local, state and national thought leaders and practitioners, and we'll unveil more than 30 commitments from our members to upgrade water infrastructure in 2017. Finally, feel free to contact me to discuss how Jersey Water Works can assist your efforts. Our committees will be establishing a 2017 work plan in January, and we would welcome your input.

Thank you for your leadership on this issue!

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Testimony from Margaret Waldock

Introduction

You've heard from Governor Florio about the current condition of our state's drinking water infrastructure and the compelling vision for 21st-century water infrastructure in New Jersey as essential to a prosperous economy and a healthy future for our state. My colleague Chris Sturm introduced you to the work of Jersey Water Works, a vehicle for mobilizing diverse stakeholders towards shared goals related to improving water infrastructure statewide. I am here as a representative of the Steering Committee of Jersey Water Works, an honor I share with 20 other members – representatives from public agencies, private sector, non-profit organizations, academia, and utilities. The Steering Committee is charged with setting the strategic direction of the Jersey Water Works collaborative, monitoring its progress, identifying opportunities for action, and leveraging new resources.

I am also here as a representative of the philanthropic-sector participant in Jersey Water Works. For the Geraldine R. Dodge Foundation, our interest in this issue stems from our interest in healthy, sustainable communities in New Jersey. And we are not alone: There is growing interest and involvement on the part of private philanthropy across the country in advancing smart infrastructure investments that have triple-bottom-line benefits – social, environmental, and economic – for communities. Infrastructure connects to a multitude of philanthropic priorities, from public health and safety to climate-change resiliency, and funders nationwide are deploying their resources to support research, convening and community involvement in infrastructure improvements.

The Benefits of Integrated Water Management

What I've come to learn from this work (we've been supporting Jersey Water Works since 2013) is that the complexities that Governor Florio spoke of – a fragmented water supply and management system, aging infrastructure, increasing costs and strapped municipal/state budgets – demand a new approach, one that does not consider drinking water in isolation, but rather in the context of a broader water system that considers all water – stormwater, groundwater, surface water sources, even sewage – as a resource. And here we would be remiss if we didn't remind the task force that it has been more than 20 years since the last update to the state's Water Supply Master Plan, which addresses both water supply and infrastructure needs – both of which will be important if we are to adopt integrated water management. If we can shift our thinking and approach, we will produce the most cost-effective solutions for community health, sustainability and resiliency.

The good news is that utility directors and other water industry leaders nationally are advancing integrated water management solutions. We were fortunate to send a cohort of New Jersey delegates to a national conference last year at which we learned of One Water approaches happening across the country, from rural communities to cities, and of inspiring collaborations among organizations as diverse as utilities, community redevelopment organizations, the agriculture industry, conservation organizations, and state government. For example, we learned of initiatives that link upstream source-water protection with downstream community redevelopment that incorporates green infrastructure approaches to stormwater management – all in an effort to advance this One Water approach and to maximize the impact and value of investments

I say all of this to assure you that New Jersey is not alone. We have a lot to learn, but we can learn from the shared experiences of others.

And we don't even have to go far to find compelling examples. There are leaders right here in New Jersey whom we can elevate, learn from, and celebrate.

Lessons from the City of Camden

I'm speaking of people like Andy Kricun at the Camden County Municipal Utilities Authority. Andy's organization serves some of the most economically distressed neighborhoods in the state. The City of Camden is at the end of the system, so to speak – the place where the watershed meets the river. It bears the brunt of increasing quantities of stormwater, generated both upstream and across the city, that overwhelm the city's combined storm/wastewater system, causing sewage to flood neighborhood streets during average rainfall events. Andy recognizes not only his obligation to provide basic wastewater treatment services to his customers, but also the opportunities that a One Water approach presents to mobilize community stakeholders in implementing and supporting integrated grey and green solutions that improve neighborhoods and waterways, create local job opportunities, reduce costs, and reinforce the value of infrastructure to people and businesses.

It's that last piece that is most compelling, because I've also come to appreciate that getting people excited about investing billions of dollars in what is largely invisible – pipes in the ground—is the most challenging part of this work. Whether its drinking water, sewage or stormwater, people don't think about it until there's an emergency.

Conclusion

This is why Jersey Water Works is consequential and important: Because the only way we are going to address the drinking water infrastructure needs of New Jersey communities in a cost-effective, successful way is to work in synchronicity to deal with water across the system – to protect its quality, conserve its quantity, and get more value from it, so we can meet all water-related needs across our entire ecosystem.

We also need to ensure that our time and money are spent wisely, benefits are distributed fairly and equitably, and transparency and accountability are hallmarks of the work.

We urge you to consider Jersey Water Works as a partner in your efforts, and look forward to assisting in advancing our mutual goals for the betterment of New Jersey communities.

On behalf of the Jersey Water Works collaborative, we thank you for your leadership on this issue and for inviting us to testify.

Attachments:

- JWW Palm Card
- JWW Steering Committee, Members' Organizations
- JWW Goals
- JWW Measurement System
- JWW Membership Form
- JWW Conference Information

AN AGENDA FOR CHANGE

for New Jersey's Urban Water Infrastructure

Twenty-one participants representing diverse perspectives met in Jersey City on May 20–21, 2014, to build consensus on an Agenda for Change to catalyze the transformation of New Jersey's urban water infrastructure (water supply, wastewater and stormwater). The group established Guiding Principles for improving urban water infrastructure, identified the Driver for Action and recommended a set of Action Steps to stimulate progress.

The meeting was convened by three organizations:

*New Jersey Future,
The Johnson Foundation at Wingspread
and the
Geraldine R. Dodge Foundation.*

NEW JERSEY
FUTURE

The Johnson
Foundation
AT WINGSPREAD
Conferences that Inspire Solutions

The Geraldine R.
DODGE
FOUNDATION
IMAGINE A BETTER NEW JERSEY

SJC-ART
SOUTH JERSEY COUNTY ARTS CENTER

loby
SJC's Rain Garden - ART Campaign

10x

GUIDING PRINCIPLES

A water infrastructure crisis looms in 21 of New Jersey's oldest and all of its largest cities – cities that comprise nearly a fifth of the state's population and are projected to absorb much of its future growth. Aging and degraded water supply, wastewater and stormwater infrastructure threaten to disrupt daily life, commerce and industry in these communities. To stave off severe crisis and position New Jersey's cities for prosperous futures, public, private and nongovernmental partners need to collaborate to ensure the necessary investments are made to design, construct and maintain 21st century water infrastructure that:

Strengthens Cities. Protects public health and the environment and enhances the attractiveness, livability and safety of cities, while making them more resilient to extreme weather events and natural disasters.

Enables Economic Growth. Reliably and efficiently delivers safe and adequate drinking water, wastewater and stormwater management services that meet the needs of city residents and businesses today and into the future.

Leverages Modern Practices. Employs state-of-the-art technologies and best management practices that generate multiple benefits – economic (cost savings, job creation, new businesses), environmental (improved water quality), and social (better quality of life).

Reduces Flooding and Energy Use. Reduces localized flooding from storms, water-main breaks and sewer overflows, and enhances energy efficiency to reduce both water utility costs and air pollution.

Draws on Multiple Funding Sources and Maintains Affordability. Establishes adequate, sustainable funding streams to support improved water infrastructure and services while ensuring affordable rates over time for city residents and businesses.

THE DRIVER FOR ACTION

While many components of New Jersey's urban water infrastructure are past their useful lives and inadequately maintained, the most immediate driver for action is the federal and state regulatory requirement that 21 cities must control combined sewer overflows (CSOs) – a problem caused by aging combined (sanitary and stormwater) sewer systems and exacerbated by increasingly intense rainfall events. In late 2014, the New Jersey Department of Environmental Protection (NJDEP) is slated to issue final permits requiring the responsible cities and utility authorities to develop, adopt and initiate the implementation of CSO Long-Term Control Plans (LTCPs). The NJDEP has proposed a three-year time frame, but will consider a longer time frame for parties that

collaborate across jurisdictions on comprehensive plans. This permit process cannot be avoided, and it can be leveraged to bring attention not only to the CSO issue but to urban water infrastructure problems in general.

While New Jersey is behind most other states in requiring the development and implementation of CSO LTCPs, the timing of the forthcoming permits presents a significant opportunity for the state's urban areas to learn from and adapt CSO control strategies implemented in cities across the country.¹ New Jersey's cities can draw on proven approaches that meet regulatory requirements for clean water while generating additional benefits, including improved public health and environmental quality, enhanced resilience to extreme weather events, new local jobs, greater private investment and revitalized communities. On the other hand, cities that fail to comply with the permits will be vulnerable to lawsuits and ultimately federal court sanctions that impose a specific course of action and may eliminate the opportunity to achieve broader community improvement goals.

RECOMMENDED ACTION STEPS

Participants agreed that the looming regulatory mandate for CSO LTCPs presents an opportunity to focus attention on the full suite of New Jersey's urban water infrastructure challenges. The group coalesced around the following recommended Action Steps, which it believes can catalyze the transformation of urban water infrastructure throughout the state.

Educate and Raise Awareness.

Key stakeholders should design and implement a multi-faceted education and outreach program to raise awareness regarding the importance of clean water and the multiple benefits that sustainable water infrastructure solutions can generate for cities, surrounding communities and the state as a whole. A key objective of such a program should be to identify and engage champions at the state and local levels. Target audiences include elected and appointed leaders, utility executives and professional staff, state and local agency personnel, ratepayers, the business community and schoolchildren. Academic institutions and community-based organizations such as environmental commissions, green teams, faith-based institutions and watershed associations can play an important role in delivering educational messages and information to target audiences, as can decision-support tools that illustrate clearly the costs and benefits of various water infrastructure projects, including the costs of inaction.

INTEGRATED WATER INFRASTRUCTURE SOLUTIONS FOR SUSTAINABLE CITIES

Participants in the May 20–21, 2014, convening believe that the New Jersey cities that seize the opportunity to address CSOs using innovative and integrated solutions consistent with the Guiding Principles and Action Steps presented in this Agenda for Change can leverage those investments to become sustainable cities with healthy environments, vibrant economies and an excellent quality of life.

Notes:

1-See *Ripple Effects: The State of Water Infrastructure in New Jersey Cities and Why it Matters*, New Jersey Future, May 2014, and D.J. Van Abs, et al., *Water Infrastructure in New Jersey's CSO Cities: Elevating the Importance of Upgrading New Jersey's Urban Water Systems*, prepared for New Jersey Future, May 2014. Available online at: www.njfuture.org/water.

2-Green infrastructure involves designs and systems that mimic nature via integrated systems that capture and repurpose stormwater at the property or neighborhood scale to reduce flooding and prevent runoff from entering combined sewers or municipal stormwater sewers.

Optimize Existing Systems and Implement Asset Management.

Before seeking ratepayer support for investment in major capital improvements, water utilities and departments should take aggressive action to optimize the efficiency and effectiveness of their existing systems and business practices. In addition, these entities should develop and implement asset management plans that sustain efficiency over time. Taking these foundational steps in a visible and transparent manner, and demonstrating the associated cost savings, will help utilities and departments build trust with ratepayers and establish credibility to pursue necessary but costly infrastructure upgrades.

Build Capacity and Foster Cross-Jurisdictional Collaboration.

The NJDEP's issuance of the new CSO permits offers a significant opportunity for cities and local utilities to coordinate their efforts to learn about and adapt best practices (technical, financing and communications), reduce costs, spread financial risk and enhance their purchasing power. Permittees could benefit from peer-to-peer training and other support networks to build technical and management capacity. Incentives and methods for cities and utilities to share services across jurisdictions would also be valuable. Key parties that could be involved in such an initiative include the NJDEP, the U.S. Environmental Protection Agency (EPA), other state and federal agencies, water utilities and departments, municipal agencies, planners, consultants and elected officials.

Leverage Early Successes To Generate Political Support.

Cities and water utilities and departments seeking state- and local-level political support for innovative approaches to urban water infrastructure improvements should focus on achieving early successes with highly visible projects.

LEADERSHIP FOR IMPLEMENTATION

Implementing the recommendations in this Agenda for Change and transforming New Jersey's urban water infrastructure will require leadership from the private, public and nongovernmental sectors. New Jersey Future and the Geraldine R. Dodge Foundation are developing a work plan to advance specific aspects of the recommendations herein, and strongly encourage other interested organizations and stakeholders across the state to help advance recommendations that align with their respective priorities. Together we can position New Jersey's cities for prosperous futures.

Because green infrastructure solutions² have the potential to control some of the flows that cause CSOs at the lowest cost with multiple benefits, municipalities should take a "green first" approach, including mapping strategic locations for green infrastructure projects, making local policy changes that facilitate implementation and building demonstration projects that make neighborhood benefits tangible. Organizations including the NJDEP, U.S. EPA, universities and others could provide technical support for project design and implementation. In many situations, more conventional engineering solutions or "gray" infrastructure will be necessary also. Regardless, state and local leaders should be engaged in the planning and rollout of new water infrastructure projects, which will help build broad community support.

Diversify Funding Sources.

Even with optimization and effective asset management, the cost of controlling CSOs and upgrading other aspects of urban water infrastructure will be expensive and will need to be phased in over time, with most cities and utilities ultimately requiring new and/or increased revenue streams to meet these challenges. A range of funding possibilities exists and should be explored, including: legal protection of designated water utility revenues; state pooling of municipal bonds; collecting connection fees consistently; partnering with other local departments (transportation, parks and recreation) to leverage funding for joint projects; leveraging private investment in new development and redevelopment projects; and forming public-private partnerships with investor-owned water utilities, private water services companies or developers. In addition, the New Jersey Environmental Infrastructure Financing Program, administered by the New Jersey Environmental Infrastructure Trust and the NJDEP, can provide subsidized, low-cost funding to accelerate water infrastructure projects and is typically undersubscribed each year.

Meeting Participants

Honorary Co-Chairs

James Florio

Governor of New Jersey, 1990-1994
Founding Partner
Florio Perrucci Steinhardt & Fader

Christine Todd Whitman

Governor of New Jersey, 1994-2001
Founder
Whitman Strategy Group

Participants

The following participants represented themselves and agreed to support the outcomes presented in the Agenda for Change as individuals.

Andrea Hall Adebawale

Acting Director
Department of Water & Sewer Utilities
City of Newark, New Jersey

Philip Beachem

President
New Jersey Alliance for Action

Michele Byers

Executive Director
New Jersey Conservation Foundation

Ed Clerico

President
Natural Systems Utilities

Robert Cotter

Director, Division of City Planning
City of Jersey City, New Jersey

Dennis Doll

Chairman, President and Chief Executive Officer
Middlesex Water Company

Kevil Duhon

Assistant Executive Director
New Jersey Senate Democratic Office

Kim Gaddy

Environmental Justice Organizer
Clean Water Fund

Jennifer Gonzalez

Environmental/Transportation Planner
The Louis Berger Group

Andrew Hendry

President
New Jersey Utilities Association

Robert Iacullo

Executive Vice President
United Water

Jane Kenny

Former Region II Administrator
U.S. EPA
Trustee
New Jersey Future
Managing Partner
Whitman Strategy Group

Andrew Kricun

Executive Director and Chief Engineer
Camden County Municipal Utility Authority

Larry Levine

Senior Attorney, Water Program
Natural Resources Defense Council

Debbie Mans

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Stephen Marks

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Anthony Perno

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Coopers Ferry Partnership

Michael Urbanski

Superintendent of Plant Operations
Passaic Valley Sewerage Commission

Daniel J. Van Abs

Associate Research Professor
Department of Human Ecology
Rutgers University

Alan Weinberg

Vice President of Planning and Policy
New Jersey Community Development Corporation

State and Federal Government Participants

The following state and federal department and agency representatives took part in the meeting to help inform the discussions. Their participation does not constitute individual or organizational endorsement of the recommendations presented in the Agenda for Change, or any other products from the meeting:

Joan Matthews

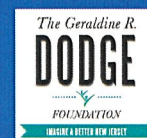
Director, Clean Water Division
U.S. EPA Region II

Michele Putnam

Director, Division of Water Quality
New Jersey Department of Environmental Protection

David Zimmer

Executive Director
New Jersey Environmental Infrastructure Trust



New Jersey Future is a nonprofit, nonpartisan organization that promotes responsible land use policies. The Johnson Foundation at Wingspread is a catalyst for positive and lasting change leading to healthier environments and communities and the convener of the Charting New Waters initiative. The Geraldine R. Dodge Foundation supports leadership, innovation and collaboration for a better New Jersey. For more information, please visit www.njfuture.org/water.

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Our Shared Goals

Jersey Water Works is a cross-sector collaborative of individuals and organizations focused on transforming New Jersey's inadequate water infrastructure by investing in sustainable, cost-effective solutions that provide communities with clean water and waterways; healthier, safer neighborhoods; local jobs; flood and climate resilience; and economic growth.

Through their participation on committees, as supporting members, and through their own work, member individuals and their organizations advance the following shared goals:



Effective Green and Gray Infrastructure

Urbanized communities maintain and improve drinking water, wastewater and stormwater infrastructure systems to reduce flooding, protect the environment, and deliver quality water services in a way that maximizes community benefits.



Smart Combined Sewer Overflow (CSO) Plans

Municipalities and utilities adopt innovative CSO Long Term Control Plans with cost-effective solutions and multiple community benefits that meet or exceed permit requirements.



Financially Sustainable Systems

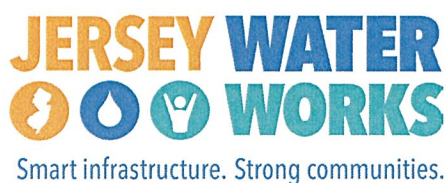
Operating budgets and capital investment for drinking water, wastewater and stormwater infrastructure are adequate and affordable, resulting in systems that operate efficiently and in a state of good repair.



Empowered Stakeholders

Well-informed decision makers, community partners and ratepayers participate actively and influence the planning and management of their water infrastructure.

See the reverse side for more details.



www.JerseyWaterWorks.org

Goals and Subgoals

Jersey Water Works' shared goals are end states the collaborative aims to help achieve over the next three to five years.



Effective Green and Gray Infrastructure

Urbanized communities maintain and improve drinking water, wastewater and stormwater infrastructure systems to reduce flooding, protect the environment, and deliver quality water services in a way that maximizes community benefits.

1.1. Installing Green Infrastructure

The public and private sectors integrate green stormwater infrastructure into new projects and existing facilities to reduce flooding and improve water quality, local economies, community health and long-term resiliency.

1.2. Reducing Flooding

Utilities and departments reduce flooding caused by inadequate wastewater and stormwater systems.

1.3. Maintaining Pipes

Utilities and departments maintain drinking water, wastewater, and stormwater pipelines and other infrastructure assets to efficiently and effectively reduce leakage, emergency repairs and other impacts.



Smart Combined Sewer Overflow (CSO) Plans

Municipalities and utilities adopt innovative CSO Long Term Control Plans (LTCPs) with cost-effective solutions and multiple community benefits that meet or exceed permit requirements.

2.1. Balancing Pipes and Parks

LTCPs incorporate and commit to an optimized balance of green and gray infrastructure to achieve the goals of the Clean Water Act.

2.2. Reducing Combined Sewer Flows

LTCPs prioritize proven approaches that reduce combined sewer system flows, such as inflow and infiltration (I & I) reduction, green stormwater infrastructure and water conservation.

2.3. Serving Host Communities

Implementation of the LTCPs delivers significant additional community benefits including improved public health, green space, economic revitalization and local jobs.



Financially Sustainable Systems

Operating budgets and capital investment for drinking water, wastewater and stormwater infrastructure are adequate and affordable, resulting in systems that operate efficiently and in a state of good repair.

3.1. Wise Management and Spending

Utilities and departments implement water infrastructure asset management programs fully, with sufficient operating budgets and capital investments to deliver required and desired levels of service while minimizing life-cycle costs.

3.2. Affordable Combined Sewer Overflow (CSO) Solutions

CSO LTCPs ensure affordability for all ratepayers by using the most cost-effective overflow-reduction strategies, public assistance, equitable rate structures, innovative financing mechanisms, appropriate implementation schedules and leveraging of other public and private investments.

3.3. Adequate and Fair Revenue

Utilities and departments raise the funds required to make appropriate capital investments and ensure proper operation and maintenance in a cost-effective manner that treats ratepayers fairly, and avoids the need for sharp rate increases.



Empowered Stakeholders

Well-informed decision makers, community partners and ratepayers participate actively and influence the planning and management of their water infrastructure.

4.1. Educated Stakeholders

Stakeholders are educated on problems and are fluent in challenges and solutions.

4.2. Engaged Communities

Stakeholders engage actively in a meaningful public process to influence decision-making in order to ensure sound drinking water, wastewater and stormwater infrastructure.

4.3 Holistic Water Systems

Municipal master plans, neighborhood plans, ordinances, policies, programs and projects reflect stakeholder priorities for water resources and water infrastructure considerations to maximize short- and long-term community benefits.



STEERING COMMITTEE MEMBERS

MARK MAURIELLO

Edgewood Properties, Co-Chair

JENNIFER BRUNTON

The Louis Berger Group Inc.

DREW CURTIS

Ironbound Community Corporation

DONNA DREWES

Sustainable Jersey

PEGGY GALLOS

The Association of Environmental
Authorities of New Jersey

ANDREW HENDRY

New Jersey Utilities Association

PETER KASABACH

New Jersey Future

ANDY KRICUN

Camden County Municipal Utilities Authority

LARRY LEVINE

Natural Resources Defense Council

DEBBIE MANS

NY/NJ Baykeeper

STEPHEN MARKS

City of Hoboken

JANE KENNY

Whitman Strategy Group LLC, Co-Chair

MEISHKA MITCHELL

Cooper's Ferry Partnership

CHRIS OBROPTA

Rutgers Water Resources Program

SHOSHANNA PAGE

New Jersey Urban Mayors Association

ROB PIRANI

NY/NJ Harbor and Estuary Program

DAN VAN ABS

Rutgers University

MARGARET WALDOCK

Geraldine R. Dodge Foundation

EX-OFFICIO NON-VOTING GOVERNMENT MEMBERS

ALYSSA ARCAYA

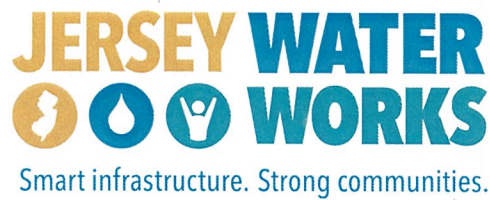
United States Environmental Protection Agency
Region 2

DAN KENNEDY

New Jersey Department of Environmental Protection

DAVID ZIMMER

New Jersey Environmental Infrastructure Trust



ORGANIZATIONS WITH MEMBERS IN JERSEY WATER WORKS

ADS Environmental Services	City of Elizabeth	Langan Engineering &
AECOM	Environment New Jersey	Environmental Services, Inc.
AFL-CIO Union 825 (Operating Engineers)	Essex County Environmental Commission	The Leadership Group
AKRF Inc.	Festo Didactic	Long Island Coatings
AltBridge Capital Partners	Fitzgerald and Halliday Inc	The Louis Berger Group, Inc.
American Association for Cancer Research	Florio Perrucci Steinhardt & Fader LLC	Lower Raritan Watershed Partnership
Amplify	Fund for New Jersey	Manasquan River Regional Sewerage Authority
Apiary Studio, Landscape Architecture	Future City Inc.	Maraziti Falcon LLP
Arcadis	Garden State Labs Inc.	County of Mercer
Association of Environmental Authorities of New Jersey	GEI Consultants	Borough of Milltown
Association of New Jersey Environmental Commissions	Geraldine R. Dodge Foundation	County of Middlesex
Atlantic County Utilities Authority	Grant Rite Management	Middlesex County Utilities Authority
Barnes & Thornburg LLP	Greater Ohio Policy Center	Middlesex Water Company
Office of Senator Cory Booker	Greeley and Hansen	MnM Consulting
Carrolle Huber Landscape Architecture	Greener By Design	County of Morris
Camden County Municipal Utilities Authority	H2M Architects and Engineers	Mott MacDonald
CDM Smith	City of Hackensack	Nai-Ni Chen Dance Company Inc.
Center for Aquatic Sciences, Inc	Town of Harrison	National Association of Clean Water Agencies
Center for Natural Resources, New Jersey Institute of Technology	Hazen and Sawyer	Natural Resources Defense Council
CH2M	HazTek Inc.	Natural Systems Utilities
Clean Water Action	Hector Design Service	The Nature Conservancy New Jersey Chapter
Concrete Washout Systems	Highlands Environmental Commission	City of Newark
Cooper's Ferry Partnership	City of Hoboken	Newark Environmental Sustainability Institute,
DJ Scarfo Realty Group	Hoboken Brownstone Company	Rutgers University
Dovetail Cultural Resource Group	Hudson River Foundation	New Jersey Alliance for Action
Eastern Concrete Materials	Ironbound Community Corporation	New Jersey Board of Public Utilities
Echologics LLC	Isles	New Jersey Business and Industry Association
Edgewood Properties	City of Jersey City	New Jersey Chamber of Commerce
	Joint Meeting of Essex & Union Counties	New Jersey Clean Water Fund
	Kleinfelder	
	Land Dimensions Engineering	
	Landscape Marshal	



ORGANIZATIONS WITH MEMBERS IN JERSEY WATER WORKS

New Jersey Community
 Development Corporation
 New Jersey Conservation
 Foundation
 New Jersey Council for the
 Humanities
 New Jersey Department of
 Environmental Protection
 New Jersey Department of
 Transportation
 New Jersey Economic Development
 Authority
 New Jersey Environmental
 Infrastructure Trust
 New Jersey Future
 New Jersey Innovation Institute
 New Jersey Senate Democratic
 Office
 New Jersey State Chamber of
 Commerce
 New Jersey Urban Mayors
 Association
 New Jersey Utilities Association
 New Jersey Water Supply Authority
 New Jersey Work Environment
 Council
 North Hudson Sewerage Authority
 Northeast Organic Farming
 Association of New Jersey
 NY/NJ Baykeeper
 Passaic Valley Sewerage
 Commission
 Pennoni
 City of Perth Amboy
 Princeton Hydro LLC
 Princeton University

Ramapo College of New Jersey
 Raritan Riverkeeper
 re:focus partners
 Regional Plan Association
 Renova Environmental Services
 Borough of Roosevelt
 Rowbear Consulting PC
 Rutgers Cooperative Extension
 Water Resources Program
 Rutgers University
 Schrauth Consulting LLC
 Stevens Institute of Technology
 Stony Brook Millstone Watershed
 Association
 SUEZ Water
 Surdna Foundation
 Sustainability Institute at The
 College of New Jersey
 Sustainable Jersey
 Sustainable Monroe Township
 Syracuse Environmental Finance
 Center
 T&M Associates
 T-Environmental
 Terhune Orchards
 Tetra Tech
 Thomas Edison State University
 Tony D Environmental Permitting
 LLC
 City of Trenton
 Trust for Public Land
 Utility and Transportation
 Contractors Association
 Veolia North America
 Victoria Foundation

Voorhees Transportation Center,
 Rutgers University
 Wayne Smith & Associates
 The Wei
 Whitman Strategy Group LLC
 William Penn Foundation
INDIVIDUAL MEMBERS:
 Peggy Ann Disco
 Patricia George
 Robert Iacullo
 Susan Prescott
 Aaron Wade

JERSEY WATER WORKS MEASUREMENT SYSTEM

ARE WE MAKING PROGRESS?

The purpose of Jersey Water works is to transform New Jersey's inadequate water infrastructure by investing in sustainable cost-effective solutions that provide communities with clean water and waterways; healthier, safer neighborhoods; local jobs; flood and climate resilience; and economic growth.

DECODING THE SYSTEM:



GOALS AND SUBGOAL:
What we are working to achieve



INDICATOR:
What we will measure to track progress



BY 2020:
What we want to see by 2020



EFFECTIVE GREEN AND GRAY INFRASTRUCTURE

Increase use of green infrastructure, reduce flooding, and deliver quality water services

Installing Green Infrastructure (GI)



INDICATORS:

- Number of GI projects and area served by GI projects
- Amount of stormwater treated by GI

BY 2020:

- The ability to track the number and stormwater management capacity of GI projects
- A significant increase in GI projects

Reducing Flooding



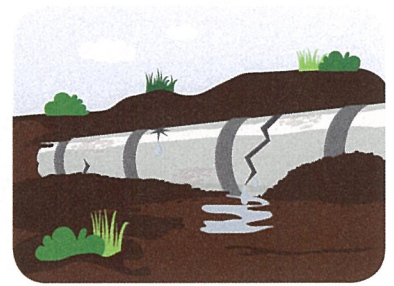
INDICATORS:

- Number, location and severity of localized street and property flooding

BY 2020:

- Public reporting by utilities, local and state governments about street and property flooding

Maintaining Pipes

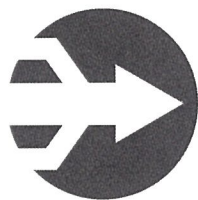


INDICATORS:

- Amount of treated drinking water lost
- Amount of sewage increased due to infiltration of groundwater
- Trends in pipeline breaks per mile

BY 2020:

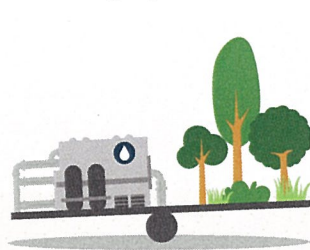
- Minimum standards set for acceptable water loss and infiltration/inflow
- Data tracking system established
- Reduction in water losses and infiltration/inflow



SMART COMBINED SEWER OVERFLOW (CSO) PLANS

Include cost-effective solutions that provide community benefits and meet or exceed permit requirements

Balancing Pipes and Parks



INDICATORS:

- The planned reduction of CSOs (both the number and size of events) that are due to green infrastructure

BY 2020:

- CSO plans include a significant use of green infrastructure projects to achieve overflow reductions

Reducing Combined Sewer Flows



INDICATORS:

- The planned reduction in sewer flows that need to be managed

BY 2020:

- CSO plans have clear and measurable actions to reduce sewer flows by managing water use and inflow and infiltration

Serving Host Communities



INDICATORS: Impact of planned upgrades on:

- Property values, air temperature and green space
- Water-borne illness rates and other health risks
- Local jobs related to GI

BY 2020: CSO plans invest in:

- Green projects that also improve neighborhoods
- Reducing or eliminating sewer backups
- Use of local labor



FINANCIALLY SUSTAINABLE & AFFORDABLE SYSTEMS

That operate efficiently and remain in a state of good repair

Wise Management and Spending



INDICATORS:

- Asset management plans
- Capital budgets and spending for the plan

BY 2020:

- Asset management plans exist and reported on
- Yearly investments match planned upgrades

Affordable Combined Sewer Overflow (CSO) Solutions



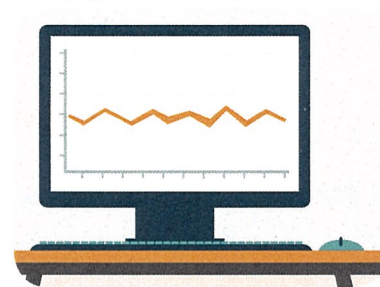
INDICATORS:

- Water and sewer bills relative to household incomes
- Annual cost per volume of CSO programs

BY 2020: Utilities will:

- Keep household rates affordable for all
- Focus on cost-effective and long-term CSO solutions

Adequate and Fair Revenue



INDICATORS:

- Utility rates and reserves relative to costs
- Multi-year rate planning

BY 2020:

- Utility rates represent full-cost pricing
- Rate changes are preplanned and avoid major shocks



EMPOWERED STAKEHOLDERS

Participate actively and influence the planning and management of their water infrastructure

Educated Stakeholders



INDICATORS:

- Documented increase of knowledge by decision makers and community stakeholders

BY 2020:

- Decision makers, influencers and community stakeholders understand key concepts and issues.

Engaged Communities



INDICATORS:

- Increase in quality and quantity of stakeholder engagement in planning and implementing sound water systems
- CSO Supplemental Teams membership and activity

BY 2020:

- Community stakeholders' voices are heard and considered in decision-making
- Community members practice water conservation

Holistic Water Systems



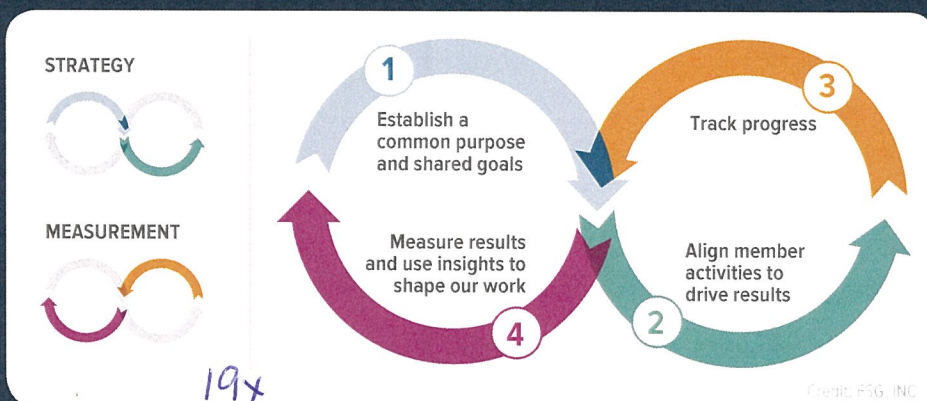
INDICATORS:

- Provisions in municipal plans, programs and ordinances for water-related issues
- Capital projects' provisions for water issues

BY 2020:

- Water is a core consideration in local plans, ordinances, and programs

In 2015 Jersey Water Works established four goals and twelve sub-goals to focus its activities through 2020. In 2016 the collaborative established a measurement system to track its progress in accomplishing those goals. The system is designed to provide feedback to Jersey Water Works members and committees about where its strategies are succeeding and where they need refinement. Next, the collaborative will set up tracking systems, establish a baseline and share data.





Join the Collaborative

Jersey Water Works facilitates cross-sector collaboration to transform New Jersey's inadequate water infrastructure through investments in sustainable cost-effective solutions that provide multiple community benefits.

Members:

Become a member to add your voice, perspective and expertise!

Participate

in the work of Jersey Water Works at any level you want

Stay Up to Date

receive a bi-weekly email with updates, funding, opportunities, news and resources

Connect

with other members via the communications portal, where you can also access member resources

Get Featured

in the bi-monthly Jersey Water Works blog, website and monthly e-newsletter

SIGN UP!

Fill out the below form to join the collaborative today. Membership is free!

Name

Email Address

Title and Organization

Phone Number

Interested in Joining a Committee? (optional)

Work of the collaborative is accomplished by volunteers in the committees listed below. Circle the committee(s) you are interested in joining:

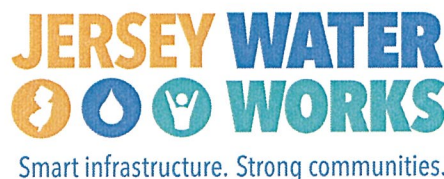
Municipal Outreach

Best Practices

Finance

Community Engagement

Green Infrastructure



Or visit www.JerseyWaterWorks.org to fill out the membership agreement form electronically.



MEMBERSHIP AGREEMENT

By submitting this completed membership agreement you are agreeing to:

- Support the shared purpose and goals, either as an individual or representative of an organization
- Champion the Jersey Water Works activities, including best practices, policy initiatives and awareness-raising efforts, that align with your organization's or your individual mission and values
- Implement and/or support water infrastructure solutions in your organization or community

Visit www.JerseyWaterWorks.org to learn how Jersey Water Works staff supports the organization.

Shared Goals

Jersey Water Works' shared goals are end states the collaborative aims to help achieve over the next three to five years.



Effective Green and Gray Infrastructure: Urbanized communities maintain and improve drinking water, wastewater and stormwater infrastructure systems to reduce flooding, protect the environment, and deliver quality water services in a way that maximizes community benefits.



Smart Combined Sewer Overflow (CSO) Plans: Municipalities and utilities adopt innovative CSO Long Term Control Plans with cost-effective solutions and multiple community benefits that meet or exceed permit requirements.



Financially Sustainable Systems: Operating budgets and capital investments for drinking water, wastewater and stormwater infrastructure are adequate and affordable, resulting in systems that operate efficiently and in a state of good repair.



Empowered Stakeholders: Well-informed decision makers, community partners and ratepayers participate actively and influence the planning and management of their water infrastructure.



Testimony to the Legislative Task Force on Drinking Water Infrastructure

Daniel J. Van Abs, PhD, PP/AICP

Associate Professor of Practice for Water, Society & Environment

Department of Human Ecology

School of Environmental & Biological Sciences

Rutgers-The State University of New Jersey

55 Dudley Road, New Brunswick, NJ 08903

Presented 30 November 2016; Revised 6 December 2016

To the Co-Chairs and members of the Task Force, I thank you for the opportunity to discuss some critical issues of drinking water infrastructure. These issues also apply in many ways to wastewater and stormwater infrastructure, and all are fundamental to the functioning of our economy, protection of our environment, and support of our urbanized society. Please note that I am speaking in my personal capacity as a water management expert and am not representing Rutgers University or any other entity. My career in the water resources management field spans over 34 years in the non-profit sector, state government and now Rutgers. During my state service, I was project manager for the 1996 Statewide Water Supply Plan. I serve as a Governor's appointee and past chair of the New Jersey Clean Water Council, and am a Steering Committee member for Jersey Water Works, the collaborative previously mentioned by Governor Florio. Much of my testimony is based on work conducted with and for New Jersey Future, Jersey Water Works, and the New Jersey Clean Water Council, along with technical reports from various sources.

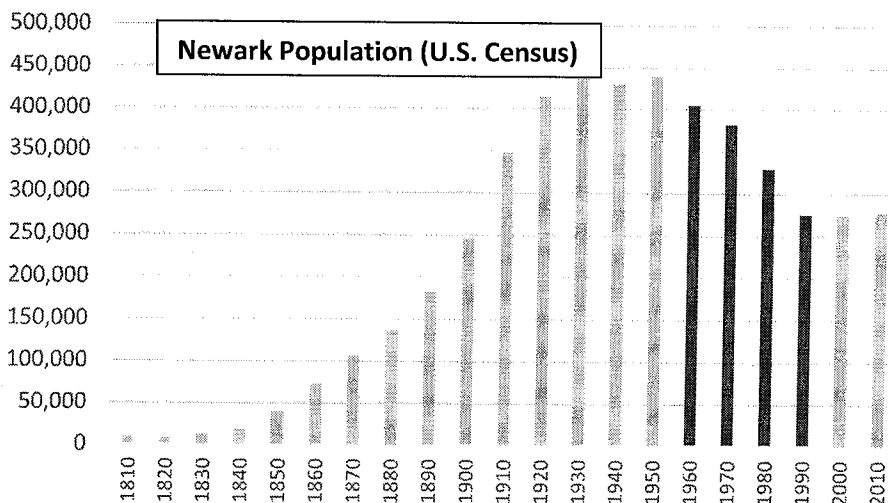
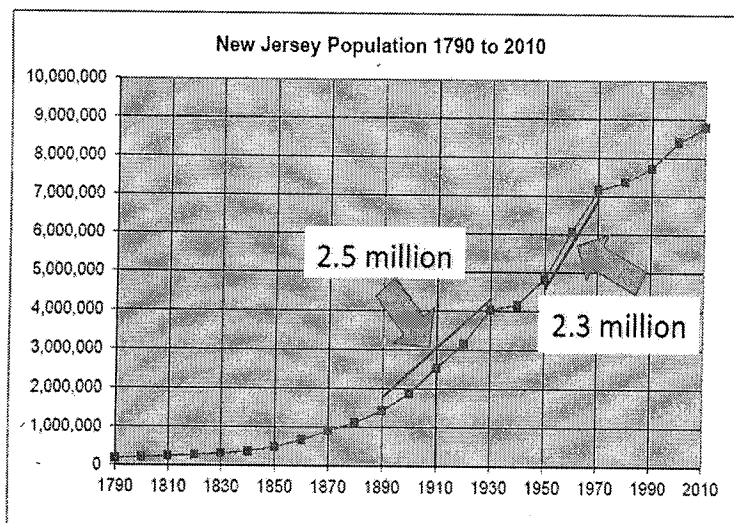
Starting with the good news, drinking water treatment facilities are routinely monitored regarding drinking water quality, the integrity of the physical systems, and their need for improvements. Because drinking water quality standards must be met, failure of the treatment systems is not an option, and so their maintenance is more assured. The major concerns for drinking water treatment relate to the quality and quantity of the original water supply and the risk of damages from disasters. After all, you can't provide what you don't have or can't treat and deliver.

- Drinking water infrastructure is necessarily dependent on and affected by the source waters used (e.g., surface water reservoirs and run-of-the-river intakes; shallow aquifers; confined aquifers), the quality of those source waters, and the potential for future changes in source water quality and quantity. Therefore, source water assessment and protection is a critical aspect of drinking water infrastructure management, as the source waters drive treatment needs. In turn, many drinking water sources, treatment systems and distribution systems are at risk of damages from natural events, such as floods, stream and coastal erosion, and coastal storm surge. We should not view these issues in isolation.

Our major problems relate more to the distribution system – the pumps, pipes, and treated drinking water storage facilities that we rely on to ensure that water gets to customers every minute of every day. It is worth noting that in most urban and suburban areas, for every mile of road, we have three miles of water pipelines – supply, sewage and stormwater. Single drinking water utilities can have thousands of miles of pipelines, many pumps, and many water towers. We know from national studies and anecdotal information in New Jersey that insufficient investments have been made in these physical assets. The American Water Works Association estimated in 2012 that the United States needed to

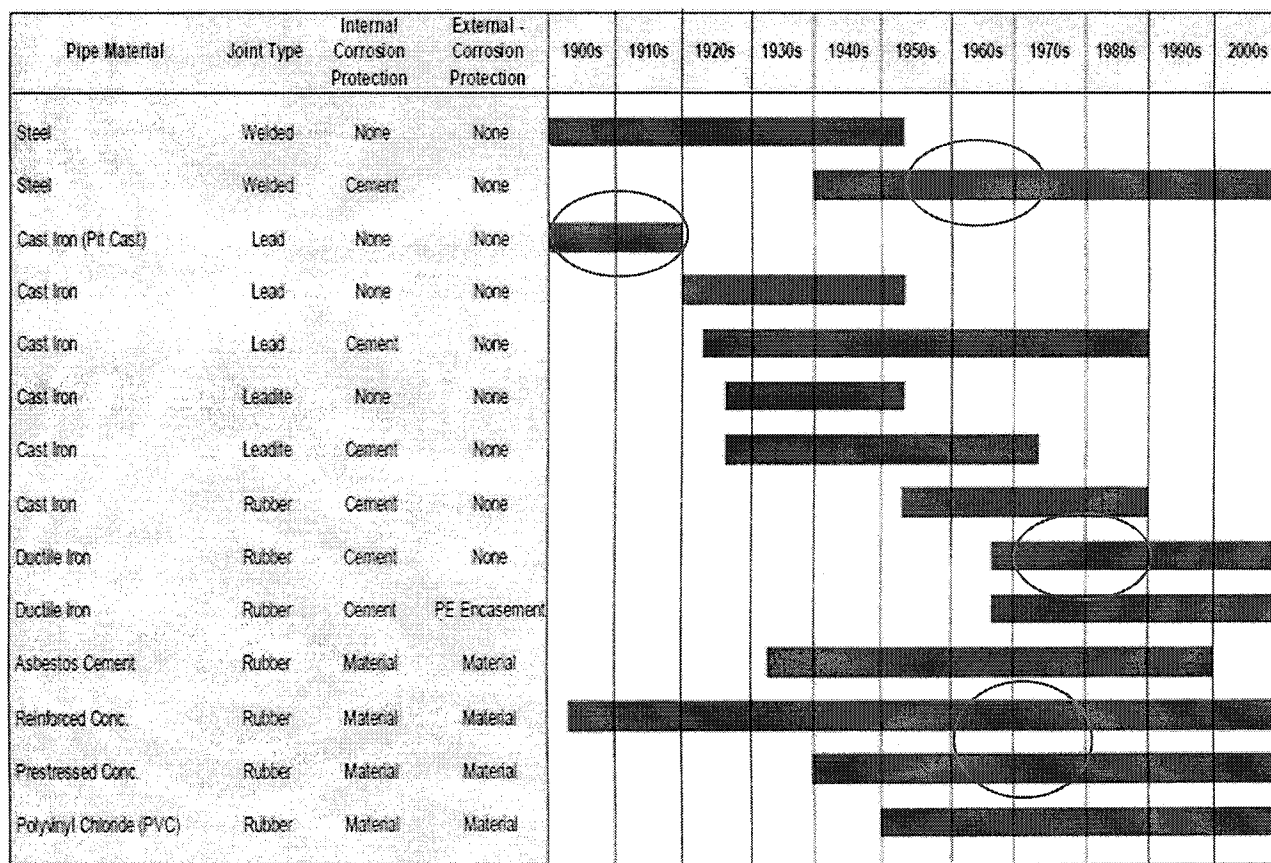
invest roughly \$1 trillion (with a “t”) over a 25-year period. New Jersey has 2.8 percent of the nation’s population, making our share \$28 billion if all states had equivalent needs.

- Various cost estimates exist for drinking water infrastructure needs. We can be sure of only one thing – these estimates are all very rough. The USEPA Drinking Water Needs Survey is based on utility-reported needs that are eligible for funding under the State Revolving Fund program. Where utilities do not have complete asset management plans, their reported needs will not be complete. Ineligible costs are not included either. Therefore, the USEPA values should be considered very conservative. Actual needs are likely much higher.
- New Jersey’s drinking water infrastructure was constructed primarily during the two major development periods of the state, from 1890 to 1930 and from 1950 through 1970, as shown in the first population graph below. The first period was characterized by rapid growth of our cities (as shown in the population graph for Newark) and first ring of suburbs. Even though the population of Newark and most other historic cities then declined (with the notable exception of Paterson), most of the original infrastructure still remains. The second period of growth was primarily in the suburbs and actually was closer to 3 million people, as the cities lost 700,000 people during that time period.



- The AWWA 2012 Report "Buried No Longer" assessed drinking water infrastructure needs through national-level estimates, primarily focused on pipelines. They evaluated the types and general average lifespans of distribution pipes commonly used during various periods, as shown in Figure 4 from that study. The circles indicate materials commonly used in New Jersey. The cast iron pipes from the early 1900s are estimated to have average effective lifespans of 100-120 years; New Jersey's urban pipes are that age or even older. The ductile iron pipes of the post-World War II period are estimated to have average effective lifespans of 50-70 years; again, many if not most of our suburbs are reaching or within that age range. Steel and prestressed concrete pipes are expected to last somewhat longer, on average.

Figure 4: Historic Production and Use of Water Pipe by Material



Commercially Available
Predominantly in Use
Source: American Water

- As noted, New Jersey has 2.8% of the national population and therefore, if all infrastructure were equal across all states, our share of the estimated \$1 trillion in needs (as estimated by AWWA) would be \$28 billion. However, our core urban areas predate the existence of many states, much less their core urban areas. Suburbs in New Jersey are perhaps more equivalent in age to those of other states. We may have less need than many southern and western states for service area expansion, given our lower growth rates. Still, it is quite possible that our

“share” of the \$1 trillion in needs is greater than our population share given the average age of our urban areas.

Infrastructure starts degrading the moment it is placed in service – that is the nature of physics, and can’t be changed. We can slow that degradation through proper operation and maintenance, but in the long run we must repair, rehabilitate or replace all our water infrastructure or it will fail us. Physics doesn’t care whether we have a strong or weak economy, who is in charge, or whether we have other priorities. We can reduce the costs through improved technology, planning, design and implementation – a process known as asset management – but sooner or later, we must pay the bill. The later we pay, the more we pay, because infrastructure decline accelerates over time.

As such, infrastructure costs are unlike most other societal priorities. If we invest half of what is needed, the systems will fail. If we invest three quarters of what is needed, the systems will fail – but more slowly. We have no choice but to invest, but there are better and worse ways of investing. **To succeed, we need improved asset management, capital investment, affordability and leadership.**

To manage our infrastructure properly, we need to inventory our assets. We also need to know the current quality of those assets, which ones are more or less critical to system function, and the level of utility service desired. From all this information comes a plan for repair, rehabilitation and replacement, which must then be supported by capital improvement budgets. Comprehensive asset management is increasingly being used by water utilities in New Jersey, but not across the board and relatively few utilities have complete programs. The NJ Department of Environmental Protection has begun requiring asset management programs for certain utilities, but these requirements are not yet uniformly applied.

Part of the difficulty is that asset management must be tailored to the specific needs of each utility, which vary in age, location, customer base, asset materials, and past management efforts. While the general outlines of good asset management are well known, setting regulatory standards for this process is much more difficult than setting drinking water quality standards. How good is good enough? How can we tell whether a utility’s annual budget is sufficient to implement the plan, given that the plan may be implemented over decades? As shown in Newton last week, these issues aren’t just a problem for our cities, but apply everywhere the infrastructure is aging – in other words, most of New Jersey’s water systems.

- A fundamental reason we lack comprehensive estimates of drinking water infrastructure needs is that many utilities lack comprehensive asset management programs and therefore do not know their investment needs. Some utilities have complete or at least substantial asset management programs, but there is no system for collecting this information other than the USEPA Drinking Water Needs Survey. The Board of Public Utilities requires regulated utilities to provide information on infrastructure needs in support of rate case filings, but again this information is not compiled. What information we have is not evaluated to establish baseline status, benchmarks for utility asset management needs, or trend information.
- A significant question is how much water is currently “lost” after it leaves the well or treatment plant. This amount is variously called “unaccounted for water” (UAW) or “nonrevenue water” (NRW); the latter is the more current nomenclature. The AWWA M36 Water Audit method is becoming the national standard. It provides for a more detailed assessment of NRW than the

existing NJDEP requirement for assessing UAW, which is a simple percentage of water that is produced but not delivered to a metered customer. NRW addresses the following issues:

- Water losses can be “real” – that is, the physical leakage of water from water mains, service lines, plumbing and fixtures. A portion of these losses is inevitable, as no system is entirely without leakage. Such losses are considered irreducible or unavoidable. The amount of irreducible losses depends on a variety of factors, including hilly areas (which requires higher pressure zones to move water against gravity). Other losses are a function of inadequate maintenance. It is important to note that inefficient water uses, such as older appliances and overwatered lawns, are not considered water losses, but rather are addressed through water conservation and use efficiency measures.
 - Water losses can also be “apparent” – that is, water that is actually delivered to a use but either not metered (e.g., firefighting, line flushing, theft) or metered inappropriately (i.e., where meters are inaccurate). Meter inaccuracies can both increase and reduce apparent losses.
 - Some forms of NRW may be metered but not billed, and therefore are considered consumption. As one examples, municipal utility departments might not bill water use by municipal buildings.
 - Importantly, a water audit does not determine whether a certain level of water loss is “right” or “wrong.” Rather, it provides a way of assessing which water loss factors can be resolved cost-effectively.
- The State of Indiana adopted legislation in early 2016 requiring that every community water system conduct a water loss audit using the AWWA method. They achieved 100 percent compliance the same year and published a report showing that average nonrevenue water (NRW) ranged from 19 to 24 percent and did not vary significantly with utility size. As with New Jersey, they found many pipes were reaching the end of their expected service lifespan.
 - The Delaware River Basin Commission (DRBC) has required annual water audits for all community water systems that rely on water from the Basin. The recent report on the 2014 submittals (DRBC, 2016) summarizes the results of 276 water audits, of which 20 systems accounted for roughly 70% of the total volume of water production (with the largest by far being Philadelphia), and only 11 systems exceeded 10 MGD (million gallons per day). The report notes that NRW exceeded 15% of total water produced for over 150 of the 276 audits, but indicates that using this percentage is not modern practice because it will understate NRW problems in utilities that have inefficient water customers (i.e., higher total volume) but otherwise equivalent NRW volumes. Most of the reported losses were considered “real” losses rather than “apparent” losses, with median losses of approximately 65 gallons per service connection.
 - NJDEP does not have a similar uniform reporting process for water losses; rather, water loss information (using the older but still required UAW method) are submitted in support of water allocation permit decisions. Many systems that are using the AWWA method have not needed to provide the results to NJDEP due to how the regulations are written. The Indiana and DRBC examples show the viability and value of a uniform approach.
 - Discussions with utility managers make clear the problem with establishing a single target for water losses. Well-managed systems in the Coastal Plain area of New Jersey are achieving real water losses of 5 percent or less, while achieving the same rates in areas of northern New Jersey, with hills that require higher pressure zones, could be extremely difficult if not

impossible. Anecdotal evidence indicates that a 15 percent threshold for real water losses might be appropriate in hilly areas. Therefore, any single, statewide target would likely allow excessive losses in some areas but perhaps be unachievable in others.

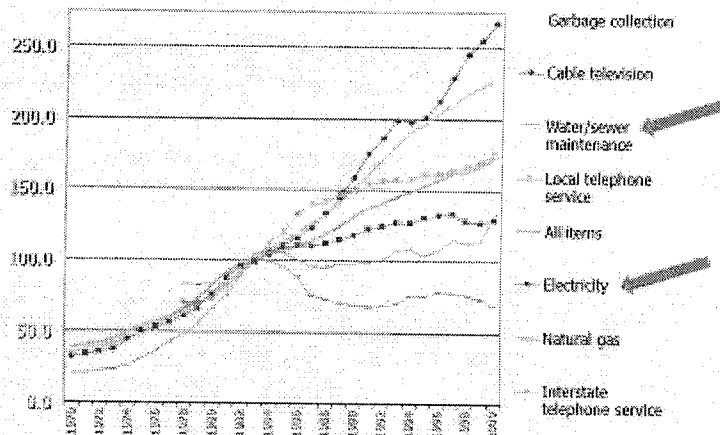
Tied to the difficulty of standards for asset management is the issue of rate setting. In the drinking water field, we have hundreds of systems. Roughly 40 percent of all utility customers are served by investor-owned utilities, which make their profits based on investment, not operations. These utilities therefore have a strong incentive to invest. The Board of Public Utilities is responsible for making sure that the utilities don't overinvest or invest in the wrong things. But how can the BPU know whether a utility is not investing enough? Clear and appropriate management standards can provide answers.

Government utilities, whether municipal departments or utility authorities, don't have the same price signals. They can't make a profit, and they are under constant pressure to minimize current rates, at times regardless of future needs. The Division of Local Government Services in the Department of Community Affairs helps ensure that these utilities have sufficient revenues to cover operational costs, reserves, and payments on debt. Again, how are they to know whether a utility is underinvesting, and what could they do about it if so? As a side point, it is worth noting that if a utility is underinvesting, the utility can't have "excess" revenue that can be contributed to the municipal government – and yet these diversions occur anyway.

In both cases, an underlying deterrent to proper investment is affordability. In New Jersey, most customers can afford an increase in rates, but many people cannot. We have cities where over 25 percent of all households are below the federal poverty rate, which doesn't reflect the full picture of poverty due to New Jersey's higher cost of living. People often oppose rate increases in part because low-income and even moderate-income households will be harmed. The results are underinvestment, which in the long run is a losing proposition, or a call for grants, which subsidizes those who can afford to pay, or both. We should recognize that putting off investments will hit the low and moderate income households even harder at some point in the future, when the inevitable costs come due as our utility systems increasingly fail.

- As shown in the graph below from USEPA, water and sewer rates (Water/sewer maintenance) have been rising faster than the consumer price index (All items) for decades. The disparity began during the 1980s, in response to new drinking water quality and wastewater treatment requirements mandated by the federal Safe Drinking Water Act and Clean Water Act, and equivalent state legislation. We should not expect this trend to change significantly, though improved technology is helping to reduce rehabilitation and replacement costs somewhat. Circle of Blue, a non-profit organization that tracks water rates, in a survey of 30 major cities found that the median increase in residential water rates was 4.5 percent (compared to a core Consumer Price Index increase of only 1.8 percent for the year) and a 41 percent since 2010.

Utility Costs v Inflation



Source: USEPA

- It is important to note that AWWA did not determine the extent to which existing water rates can address the \$1 trillion in national needs. Some infrastructure rehabilitation and replacement is already happening in New Jersey under current rates, and this activity will likely continue. Therefore, some (unknown) portion of our total (partially known) needs will be met by existing rates. In addition, infrastructure rehabilitation and replacement will, over time, provide savings through reduced energy demands, water losses and emergency repairs. Some of these savings will accrue to existing rates, but some savings will be felt more through lower rate hikes than would otherwise have been necessary.
- The Governor's Sustainable Infrastructure Task Report for Pennsylvania concluded in 2008 that their gap between infrastructure needs and revenue would be almost completely eliminated if utilities charged the full cost of drinking water and sewer service up to 1.5 percent of the community median household income for each service (3 percent total). Other sources of funding would be needed to address affordability issues in some communities.
- Similarly, the Delaware Water Infrastructure Advisory Council concluded in 2015 that a significant portion of their estimated \$1 billion investment need (20-year period) for drinking water systems could be met by the ongoing pace of investment. By comparison, Delaware's population is less than 1 million (compared to New Jersey's nearly 9 million) and the average age of their drinking water infrastructure appears to be newer than for New Jersey.
- The following two tables provide a sense of the looming affordability problem in many municipalities. The first table compares the statewide median household income to medians for seven urban municipalities with combined sewer systems, and also indicates the percentage of households with median incomes below \$20,000. As can be seen, only Hoboken has a higher median household income and a lower percentage of very low income households than the statewide medians. The second table shows the percentage of population below the federal poverty rate for 18 CSO municipalities. It should be noted that the New Jersey cost of living is roughly 25 percent higher than the national threshold, and therefore all the percentages shown in this table are lower than the reality faced by these households.

Household Income for Selected CSO Municipalities		
Municipality	median HH Income, 2006-2010 ACS	% HH Income <\$20,000
Hoboken	\$101,782	12.15%
Jersey City	\$54,280	19.68%
Bayonne	\$53,587	17.07%
Elizabeth	\$43,770	20.97%
Newark	\$35,659	31.63%
Paterson	\$34,086	30.95%
Camden	\$27,027	39.40%
New Jersey	\$80,992	13.97%

Poverty Levels of CSO Municipalities

From 2008-2012 American Community Survey		
Over 20% of Population Below U.S. Poverty Line	10% to <20% of Population Below Poverty Line	
Camden (38.6%)	West New York (18.8%)	Hackensack (13.7%)
Newark (28.0%)	Elizabeth (18.8%)	Gloucester City (13.4%)
Paterson (27.6%)	Jersey City (17.6%)	Bayonne (12.6%)
Trenton (26.6%)	East Newark (17.1%)	North Bergen (11.9%)
Union City (22.4%)	Guttenberg (14.9%)	Weehawken (11.3%)
Perth Amboy (21.2%)	Harrison (14.9%)	Hoboken (10.9%)

- In 2017, New Jersey Future and my team at Rutgers will be developing an inventory of water and sewer rates for all major utilities in New Jersey and as many smaller systems as is feasible and available, and comparing those rates to available household income data by census tract. This analysis is being developed in support of the Jersey Water Works goal for affordable water utility services, to provide a baseline for current conditions.
- Median income is a rough indicator of affordability as household incomes do not always occur on a smooth "bell" curve; incomes below the median can be bunched close to the median or far below it. Median simply means that half the households are above that level and half below.

We should recognize that current statutes are unclear regarding infrastructure integrity. We have clear expectations for drinking water quality, but we have no clear integrity requirements other than knowing we don't want systems to break. We also should recognize that the nature of water utility management is changing. Historically, they have preferred to be the unseen utilities – not being in the papers meant that nothing went wrong. We are now facing a period of major investment, which will require sufficient revenues. Utility leadership will be needed to help people understand the needs, how their money will be invested well, and how we measure success.

In summary, I would recommend that the Legislature look at these interconnected issues:

1. **Asset management.** Ensuring that all water utilities thoroughly understand their assets, critical components, investment needs and management concerns, without being unduly prescriptive regarding the specific technical approaches for each utility.
2. **Adequate capital investment levels.** Ensuring that both investor-owned and government water utilities have incentives and regulatory requirements that ensure sufficient, cost-effective but

not excessive capital improvements. These regulatory efforts will require close coordination between NJDEP, which understands water infrastructure, and both BPU and the Division of Local Government Services, which have responsibilities regarding utility budgets.

3. **Affordability.** Ensuring that lower income households are not harmed by utility rates necessary to support proper asset management. Our household energy assistance programs could serve as a possible model.
4. **Leadership.** Ensuring that all those involved in utility management understand the need to step up and exhibit leadership toward sound water infrastructure than can support New Jersey for many decades to come.

Fortunately, there is far more attention to and interest in water infrastructure management than was true in 2010, when the New Jersey Clean Water Council concluded that:

New Jersey can maintain a viable economy with a sound environment only if it ensures that its water supply, wastewater and stormwater infrastructure is effectively maintained in a manner that produces the lowest life-cycle cost.

Action is being taken at the utility and state government levels, and Jersey Water Works is developing a strong collaborative effort among the major infrastructure interests to understand what is needed and how to promote effective action. The Legislature can play a key role by reinforcing these efforts. Thank you for your attention to the issue of drinking water infrastructure, and I look forward to assisting with this issue in whatever ways are appropriate.

Testimony for the Legislative Task Force on Drinking Water Infrastructure

My name is Andrew Hendry, and I am the President of the New Jersey Utilities Association (NJUA). NJUA represents the investor-owned utility companies (IOUs) in this State, including water companies New Jersey American Water, Suez (formerly United Water), Aqua, Middlesex Water Company, Gordon's Corner Water Company, and Shorelands Water Company. Overall, NJUA's members employ nearly 30,000 people, with payroll in excess of \$2 billion a year. Our members own and operate utility infrastructure valued at more than \$37 billion and pay more than \$800 million a year in State and local taxes.

I would like to thank you for seeking the input of the investor owned water utilities as part of your review of water infrastructure in the State. You may be surprised to hear that our six water companies serve approximately 40 to 45 percent of the State's population in just over 300 municipalities. That is significantly more than in other states, where 15 to 20 percent is more the norm.¹ Our state has approximately 475 public community water systems. That of course means that the vast majority of water systems in New Jersey are small. The American Society of Civil Engineers (ASCE) reports that more than half of New Jersey's systems have a design capacity of less than 1 million gallons a day.² By comparison, New Jersey American Water estimates that it provides more than 300 million gallons per day in its service area.

NJUA believes that our State's economy and future depend heavily upon the quality of our infrastructure, be it roads and bridges, or pipes and wires. As we sit at the dawn of the 21st century much of the drinking water infrastructure in this State and nation is nearing the end of its useful life. According to the American Society of Civil Engineers' (ASCE) national infrastructure report card from 2016, New Jersey's water infrastructure is in need of significant investment, with ASCE grading NJ with a "C" for drinking water and a "D" for wastewater.³ As ASCE has noted, "New Jersey's water supply systems were constructed largely during peak periods of development, primarily from 1890 to 1930 when major cities grew, and from 1950 to 1970, when the suburbs added roughly 3 million people."⁴ About 20 percent of New Jersey's drinking water infrastructure is more than 100 years old. While age alone does not indicate a pipe's condition or ability to satisfy needs, failure to invest in our water infrastructure will result in higher costs down the road, damage to the State's economy, and deterioration of our quality of life.

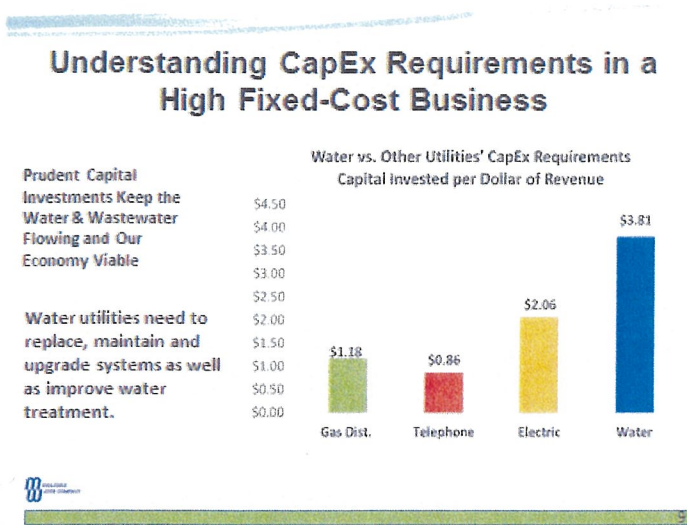
¹ It is also interesting to note that NJ was the first state to utilize chlorine to sanitize water in 1908, making us the first state to have a standardized process for disease free water. See: USEPA. "The History of Drinking Water Treatment." February 2000. <http://www.epa.gov/ogwdw/consumer/pdf/hist.pdf>

² <http://www.infrastructurereportcard.org/wp-content/uploads/2013/02/ASCE-Report-Card-for-NJ-Infrastructure-6.16.16.compressed.pdf>

³ Ibid.

⁴ Ibid.

It is important to note that of all of the sectors of the utility industry – e.g. water, electric distribution, natural gas distribution, telephone – water distribution is by far the most capital intensive. That’s demonstrated in the chart below.



Source: Middlesex Water Company

I include this to emphasize one aspect of the challenge we face – **upgrading and repairing water infrastructure is very expensive, whether viewed in gross dollar figures or relative to other types of infrastructure investments.** Of course this is in part due to the fact that much of our water infrastructure is underground, and water companies are also responsible for the treatment of source water (electric generation was “deregulated” in New Jersey and thus the electric generation system is separate from the distribution system). Our companies have risen to that challenge, which I will detail, but I would first like to give you a bit more information on the investor-owned utility model.

It is important to understand that all water utilities in the United States and in New Jersey, public and private, must comply with the requirements of the National Primary Drinking Water regulations.⁵ Additionally, all New Jersey water utilities, public and private, must comply with the more stringent requirements of the New Jersey “Safe Drinking Water Act” (SDWA).⁶ The record of investor-owned utilities in meeting these requirements has been exceptional, and we are proud of our proven track record.

Investor-owned utilities are rate-regulated by the New Jersey Board of Public Utilities (BPU). The rate making process is a quasi-judicial proceeding, where an evidentiary record is developed before an Administrative Law Judge, and parties, including the New Jersey Division of Rate Counsel and affected municipalities, may file briefs and participate in the proceedings. Utilities are required by law to provide service at rates that are “just and reasonable”⁷ and must prove that their investments are both

⁵ 40 CFR 141 – National Primary Drinking Water Regulations

⁶ N.J.A.C. 7:10 Safe Drinking Water Act Rules

⁷ N.J.S.A.48:2-21

“reasonable” and “prudent.” The process also includes opportunities for public comment and recent enhancements place a number of requirements on the utilities for notifying the public about proposed rate changes and opportunities to comment.⁸ This is unique to the private sector utilities in New Jersey.

Utility capital investments do frequently have an impact on rates, but it is important for ratepayers and policymakers to recognize that development of our rates is subject to a very balanced and transparent, litigated process. As a result, our customers can have confidence that our rates reflect the actual cost of the service – capital expenditures, cost of operations and maintenance, and cost of capital. It is also important to remember that there is significant cost associated with NOT making necessary investments – our companies estimate that it costs 10 times more to make emergency repairs than to upgrade infrastructure proactively. Of course, breaks in service also have a negative economic impact on your constituents and businesses.

Investor-owned utility service is subject to BPU regulation and oversight.⁹ The BPU has a statutory obligation to ensure that utilities under its jurisdiction provide “safe, adequate and proper” service.¹⁰ As such, the BPU can adopt regulations, issue orders, and hold public hearings regarding any aspect of service carried out by New Jersey investor-owned utilities. For example, the IOU water companies are subject to new cyber security rules administered by BPU. Operations are also regulated, including meter testing, valve and hydrant inspections, and customer service.

The investor-owned water utilities in New Jersey have been rising to the challenge of New Jersey’s aging infrastructure. Combined, they spend hundreds of millions of dollars a year, and have spent roughly \$2 billion dollars on improvements to infrastructure over a five year period. Below are examples of a few of those infrastructure improvement, to give the reader a sense of the cost of such projects, and also the wide variety of capital investments¹¹ that go into ensuring that your constituents have access to safe, clean water. Our companies are able to make these investments while keeping the cost of their service is about one penny per gallon of water.

- New Jersey American Water (NJAW) is spending \$45 million on its Howell Transmission Main. This includes more than five miles of new main to connect its Oak Glen plant to its Lakewood system
- NJAW is spending \$28 million to expand its Oak Glen water treatment plant.
- NJAW is spending \$3.9 million for the cleaning and lining of its pipes in Westfield.
- Suez recently spent \$25 million on the Woodcliff Lake Dam, and \$14 million on the Oradell Dam.

⁸ BPU Docket No. AO13030252 – In the Matter of Additional Methods to Inform the Public Concerning Utility Filings." from the Oct 16, 2013 BPU Meeting

⁹ N.J.S.A.48:2-13

¹⁰ N.J.S.A.48:2-23

¹¹ By way of illustration, Suez, the second largest water utility in New Jersey, has 5 dams, 10 treatment plants and 65 wells in addition to its 2800 miles of mains. NJAW maintains 165 tanks, water towers and standpipes, the largest of which holds 10 million gallons of water.

- Suez is spending \$10 million to update an electrical substation serving its Haworth water treatment plant, which had its 50th anniversary in 2016.
- Suez is spending \$150 million on improvements to its distribution system, including sectorization and main and valve replacement, over the next five years.
- Suez is rolling out a system of Enhanced Meter Reading over five years, beginning in 2015, and costing \$50 million. Smart meters record water usage in real time, and wirelessly transmit data back to the water company—instantly.¹²
- Aqua NJ has spent more than \$70 million over the past five years on distribution system improvements.
- New Jersey American Water is constructing a 750,000 gallon water tower in Harrison Township, at a cost of \$5 million
- A six month project recently begun by Middlesex Water Company will replace eight miles of water mains, service lines, valves, fire hydrants and meters in Edison and South Amboy. The project will cost about \$12 million.
- Several of our companies take advantage of lower cost capital through the New Jersey Environmental Infrastructure Trust, which ultimately saves our customers money. For example, NJAW received approximately \$130 million from the EIT over the last five years from many projects including its Canoe Brook Water Treatment Plant, and raising of its floodwall at its Raritan-Millstone Water Treatment Plant in Bridgewater. Our smallest member company, Shorelands Water Company, which serves Hazlet and a portion of Holmdel, used the NJEIT to construct a water treatment plant.

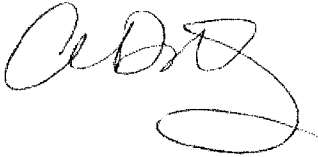
One reason that our companies have been able to make these major capital improvements in recent years is that New Jersey is one of only eleven states with a “Distribution System Improvement Charge” (DSIC), adopted in 2012 by the NJBPU. The DSIC allows water companies to utilize a modest surcharge, separately itemized on a customer’s bill, providing for contemporaneous recovery of expenditures on rehabilitation and replacement of aging infrastructure. This is a departure from the typical process for recovering capital costs, which requires the utility to first complete a capital project, then go to the BPU for a litigated “base rate case,” wherein the utility does not know what portion of the capital project it will ultimately be able to recover. The DSIC creates more certainty for the utilities and more of an incentive to invest in non-revenue producing infrastructure. The regulations governing the DSIC are set to expire in June of 2017.¹³ Our companies are currently working with BPU staff to encourage readoption of the regulations and are suggesting improvements, such as an increase in the amount that can be raised through the DSIC “cap”, and expansion of the DSIC to sewer utilities, as is allowed under Pennsylvania law.

¹² These meters enable customers to save water and money by clearly showing how personal choices impact water usage; for example, how much water it takes to wash dishes by hand versus with a machine, or how much water lawn sprinklers use compared to other smaller uses. Consumers can receive email or text message alerts for sudden spikes in water usage, which could indicate an emergency such as a pipe leak or toilet that constantly flows. SUEZ has installed 34,700 smart meters in the New York Metropolitan area, including 10,500 new smart meters in Bayonne, NJ, covering 90% of the city’s residents and businesses. In only the first months of operation, over 1,000 homeowners had been notified by SUEZ of potential leaks on their property.

¹³ NJAC 14:9-10.1

In conclusion, New Jersey's investor owned utilities are leading the way to a reliable and resilient water infrastructure. We hope to serve as a resource to you in finding ways to further spur investment throughout the entire state.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read 'A. D. Hendry', with a large, stylized loop at the end.

Andrew D. Hendry
President
New Jersey Utilities Association

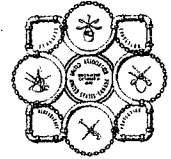
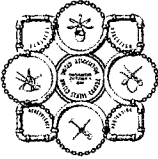
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Good Morning members of the Joint Legislative Task Force on Drinking Water

Infrastructure

My name is Michael Maloney I am the Business Manager, Financial Secretary of Plumbers and Pipefitters Local Union # 9 I am also President of the New Jersey State Pipetrades. The Pipetrades are part of our International union that is called the United Association. The UA consists of all plumbing, pipefitting, steam fitting, sprinkler fitting and HVAC/R service local unions in the State of New Jersey as well as the United States and Canada. Although I am not an expert witness on this matter I am for the record a licensed master plumber in our State and I am on the Board of Master Plumbers as its Vice Chairman I am also a licensed HVAC/R contractor and I am also a member of the board of HVAC/R examiners as its cahairman. I am also a Licensed plumbing and mechanical inspector in our State. I also sit as a member on the Department of Community Affairs Plumbing sub-code committee and lastly I am also a member of the board of director of the National Standard Plumbing Code and that is the code that has jurisdiction for the State of New Jersey. Thank you for allowing me to testify here today in front of this

committee.

- UA represents 340,000 members, and our members build and maintain water and wastewater systems . . .
- Our members also serve as inspectors for water systems; and UA officers serve on industry boards relating to the water industry (e.g., IAPMO).

1. Like many components of U.S. infrastructure, our water and wastewater systems are failing, and in need of major work . . .

- According to the American Society of Civil Engineers, our water systems receive an abysmal grade of a "D" (per latest ASCE report card from 2013); and, it will require billions and billions of dollars in funding to fix these systems . . . but . . . do we really have a choice?
- It is an absolute crime that in this day and age, you can have a tragedy like we've seen in Flint where some 8,000 innocent children were literally poisoned due to inexcusable actions or inactions of govt. that failed to ensure safe water.
- Even worse—Flint is only ONE of thousands of water systems in jurisdictions across the country that are in the danger zone for unsafe levels of lead, copper and other contaminants. These are big cities and small towns and in many of the worse cases, these are water systems that serve our children's schools.
- Add to all this the fact that we're seeing almost a 1/4 of a million water main breaks per year that result in the loss of tons of precious resources and also cause extensive property damage and other problems --- and that we have wastewater systems failing routinely during storms resulting in the discharge of literally billions of gallons on untreated wastewater.
- The widespread failure of these essential infrastructure systems has massive negative consequences -- including huge economic damages, and serious dangers to public health and harm to the environment.
- The fact that that all of this is happening in one of the wealthiest, most advanced nations on earth is simply unacceptable (and likely something that drives average taxpayers crazy); we need action and answers and plans and we need them now to start turning things around.
- In short, the answer lies in education, education, education – of the public, of policy-makers and all industry stakeholders
-
- Our education efforts need to then be transformed into mobilization and activism so we can convince government at all levels – federal, state and local – to take this issue seriously and come up with a plan and some real solutions . . .
- We have to fully fund this critical infrastructure -- and police the operations of these systems once they are built – and develop good enforcement tools to guarantee safety standards are met and public health is fully protected going forward into the future.

- According to the EPA, the U.S. will need some \$655 billion over the next 20 years to repair and replace drinking water and wastewater systems—which translates to almost \$33 billion per year . . . (EPA 2016; other estimates may be higher, but this is ballpark)
-
- So, the bottom line is that ratepayers are going to have to understand that their water bills are going to be higher in their future; but who can argue with this when we are talking about public safety and health? (In contrast, look at what we all pay in monthly cable and cell phone bills).

Benefits of Rebuilding our systems

- In modern society, in the US of A in the 21st century , clean drinking water and safe sanitation systems should be guaranteed, they should be a given; the cost is what it is. So, while we must fix these systems as efficiently and cost-effectively as possible, the “need” to do this – is simply beyond debate.
- In terms of benefits, the No. 1 benefit is protecting the health of our children and grandchildren.
- On top of this--there are numerous major economic benefits that come from ensuring safe water system on one hand; and there are tremendous costs, astronomical really, that we will face if we fail to act on the other.
- For example, a key benefit is jobs; a recent report by the National Blue Green Alliance found that we could create 2.7 million jobs in rebuilding our water infrastructure.
- Also, the ASCE 2011 report found that by investing \$84 billion over several years, we could protect another: (1) 700,000 jobs, (2) \$541 billion in personal income, and (3) \$6 billion in U.S. exports.

Need is Not Just in Flint

- Flint is a tragedy, there's no doubt about it We have had 100s of UA member donating 1,000s of hours to help the city recover and it still has a long, long way to go. But when we look beyond Flint, what we see is an absolute crisis.
- A comprehensive investigative report this year from USA Today revealed that the testing of almost 2,000 water systems across the U.S. showed excessive levels of lead contamination; this impacts at least 350 schools and daycare centers serviced by the these systems.

- But it gets worse—according to another recent by the National Resources Defense Council, there are over 5,000 community water systems across the U.S. that are currently in violation of the Environmental Protection Agency's ("the EPA") lead and copper standards.
- This makes you wonder whether the "D" we got by American Society of Civil Engineers was generous (of course that was in their latest report, which was 2013, well before all of this broke and before the full extent of the problem was clear).

Benefits of Investments

- If these facts and statistics and reports cannot convince policymakers that we need to rebuild our water infrastructure – something is very wrong;
- And, talking in terms of benefits and costs may not be the best approach—safe water should be a basic right not subject to a cost-benefit analysis. After all, would anyone find it acceptable to allow water to be contaminated to the point of it poisoning our children?
- We have to start getting creative by looking at things like a new National Infrastructure Bank, the expansion of Build America Bonds, and new strategies for local water utilities to take the case for new infrastructure to their ratepayers.
- Water supply systems, including water mains and the lines that run right up to your house; These and our waste water systems need to be a big priority.
- BGA estimates that we may need to replace up to 7.3 million lead water lines that run from water mains to single and multi-family residences and other buildings, such as schools, hospitals and day-care centers.
- Likewise, fixing outdated water mains to prevent the 240,000 water main breaks that occur annually and cost about \$2.6 billion per year in damage, not including the loss of critical clean water supply.
- Updating wastewater and sewer systems is also essential since inadequate capacity of these systems result in overflows during storms that drive the discharge of billions of gallons of untreated wastewater that has to be stopped.
- Water conservation projects should also be a priority; our union has been doing some extensive R&D in this area and certain parts of the country affected by droughts, especially the west. We should also be developing rain water and gray water catchment systems to preserve and conserve water supply.



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Joint Legislative Task Force on Drinking Water Infrastructure

Public Hearing, Nov. 30, 2016

Testimony of the Association of Environmental Authorities

Peggy Gallos, Executive Director, AEA

Dave Harpell, Vice President, AEA Executive Committee; Chair, AEA Water Committee; Executive Director, Jackson Township Municipal Utilities Authority

Thank you for the invitation to testify today. I am Peggy Gallos, Executive Director of the Association of Environmental Authorities (AEA), and with me is Dave Harpell, who is executive director of Jackson Township Municipal Utilities Authority in Ocean County. Dave is a member of our Executive Committee and chair of our drinking water committee. Also with me is Pam Carolan, who is executive director of the Mount Laurel MUA. Pam is a past president of AEA, and a member of our drinking water and legislative committees.

AEA would like to continue to be a resource for the Joint Legislative Task Force on Drinking Water, and so I will provide a brief profile of our association, for those who may not be familiar with us. I will discuss the role of public agencies in the drinking water systems of New Jersey and then present our perspective on the matter that brought us here today, how we can continue to ensure adequate and safe drinking water in our State.

The mission of AEA is to deliver information, education and advocacy programs and services that help our member organizations provide excellent service to ratepayers. We also strive to help the public understand and value the work of AEA members. Our members include the public agencies that provide drinking water, wastewater and/or solid waste utility service to millions of people across New Jersey. We have as part of our membership, 23 public agencies, both authorities and municipal systems, in 11 counties, that employ many hundreds of men and women and provide drinking water to about three-quarters of a million people in New Jersey.

Authorities were created in the 1960s and 1970s in response to the Clean Water and Safe Drinking Water acts, when our nation recognized the need to modernize its wastewater and drinking water delivery systems. The authority model is a good one for delivering water services. It leaves management to professionals. It puts the system and perhaps more importantly, its funding, *somewhat* apart from the rest of the local government, and at the same time, allows local officials to exercise oversight. In the case of municipal water, the elected governing body is directly responsible to the ratepayers who use the system. In New Jersey, many hundreds of elected and appointed officials on authority boards,

freeholder boards, and/or municipal governing bodies bear the responsibility of overseeing public systems. This includes approving the budgets, borrowing, and capital spending plans. Quality of service and rates are ultimately their responsibility. In addition, the NJ Department of Community Affairs annually reviews municipal water and sewer utility, as well as authority, budgets. The NJ Department of Environmental Protection and, to a lesser extent, the NJ Board of Public Utilities, also have roles in regulating public agencies that provide water.

When it comes to infrastructure, water (and for that matter, sewer) systems are not ever really completed. They expand to meet growing communities; they change to accommodate more efficient technology or evolving water quality regulations. Old pipes need to make way for new ones. Changing climate means sea walls may have to be built or pumping stations elevated.

Public agencies that provide drinking water are investing millions to maintain their systems. Here are some examples:

- Jackson Township MUA has invested \$30 million in its drinking water system in the last ten years.
- Hamilton Township MUA in Atlantic County has invested \$4.5 million for its 10,000 service units.
- Morris County MUA, which serves 50,000, has invested \$5 million in the last five years and expects to invest another \$5M in the next five years.
- Willingboro MUA serves a retail population of 35,000 and has bulk water sales to Mount Laurel Township MUA and Evesham Township MUA. It has invested \$10M in the last five years and expects invest another \$30 million in the next five.
- Monroe Township in Middlesex County invested \$15 million in the last five years, \$2 million this year, and expects to invest \$20 million in the next five years.
- For its 44,000 people, Mount Laurel MUA has invested \$7.4 million in the last five years, is investing \$1.3 million this year, and is planning to spend another \$11.3 million in the next five years.
- Evesham MUA has invested \$14 million in the past five years and plans to invest well over twice than within the next five years.

These types of investments make quality service, protected public health, and economic prosperity possible. But it isn't just the dollars that matter. Public systems that are well managed have the tools and human resources to help them assess their needs and plan for the future. They are led by professionals who understand how to manage expenditure and debt. They have elected and appointed leaders who value long-term planning and who are partners with the professional staff to explain to ratepayers the connection between ongoing investment and system quality.

The systems I have mentioned have this kind of leadership – leadership that values steady investment, repair and replacement, long-term capital and financial planning, with projects timed to keep rates stable even while maintaining safety, health, and economic well-being.

When it comes to the human side of well-managed systems and infrastructure, we would like to point out two matters of significance:

The first is that in NJ and across the country, many employed in the water utility sector and, to some extent within the community of regulators, are at or near retirement. AEA is working to address succession planning within our member organizations and would be willing to work on this issue in other contexts as well.

The second matter relating to the human side of water system management is the need for well-informed decision makers. Local officials responsible for public systems are key gatekeepers. They make sure the funds collected from ratepayers remain available for the system, and they avoid diverting funds for other uses. Unfortunately, several factors work against this type of leadership. Here are examples:

- Existing statute allows local governments to divert water (and sewer) funds for other purposes, even though those funds have been collected for the purpose of maintaining the infrastructure. In one set of less than 100 New Jersey municipal and authority budgets we studied, we calculated that about \$80 million had been transferred in one three-year period. That's enough to cover the entire budgets of some systems. Some municipalities have become dependent on these annual diversions to supplement other parts of the municipal budget. This is especially problematic in communities where the taxpayers and the ratepayers are not the same group. In that case, a subset of the community, the ratepayers, may be subsidizing the taxpayers.

Funds also disappear when authorities are dissolved. Fund balances, on hand to cover emergencies or to limit borrowing costs, disappear into municipal budgets. In one case, after an authority was dissolved and its emergency funds were absorbed into the municipal budget, the capital spending plummeted. In the three years after the authority was dissolved, the community invested all of \$6,000 in its drinking water system.

- Municipal officials are not being encouraged or educated as well as they could be to abandon shortsighted water system management and decision-making. For example, the 2015/2016 Best Practices Inventory Question Worksheet issued by the DCA included this question:

Does your municipality require its elected officials to attend on an annual basis at least one instructional course covering the responsibilities and obligations of elected officials (for example: ethics, municipal finance, labor relations, risk management, shared services, purchasing, land use administration, personnel, technology etcetera)?

The question endorsed the usefulness of training, even if it did not specifically name continuing education about water systems. AEA would have been happy to see the question revised to include a direct reference that encouraged elected officials to learn about water systems. Unfortunately, it seems that this question was actually among those eliminated in the streamlined version of the Best Practices Inventory Question Worksheet for 2017.

In contrast, appointed planning board and elected board of education members are required to have a baseline orientation to help them understand their vital role in their respective spheres.

Similar requirements for appointed and elected county, authority and municipal officials would be useful. Such new legislation could be modeled on existing requirements for planning board and board of education members – that within the first year of taking office or beginning an appointed term, local officials who will be making decisions about water and sewer funds must attend orientation to introduce them to the basics of operations and best management practices. This baseline knowledge would be useful when making decisions about expenditures, it would promote understanding of the complexities of water supply and quality, and it would assist them with decisions about contract management or sale of a system.

Today seems a good time, as far as we are concerned, to stress the value of a robust, science-based regulatory framework at the State and federal level. This framework creates standards and benchmarks. It provides communities with the support they need to run their systems and if necessary affect changes that protect the public. The New Jersey Environmental Infrastructure Trust, which is supported by State Revolving Fund monies, is an absolutely indispensable and highly successful player in water infrastructure. So is the EPA. According to Water Online, “EPA consent orders now compel \$50 billion of municipal investment over the next 20 years, resulting in construction, jobs, and improved water quality for the communities targeted.”

Affordability is another matter that concerns us. We raise the following two points with regard to this issue:

- To really address lead in water infrastructure, we have to look at homes, where old pipes are located. We believe the Legislature could explore ways of using NJEIT funds to create local low- or no-interest loan programs, modeled on the Clean Energy energy efficiency programs, perhaps. Homeowners could use these loans to remediate plumbing that contains lead.
- Maintaining public ownership/operation of water systems is a way of addressing affordability as well, because public systems can be efficient at lower cost and local officials can keep a weather eye on how they are managed. Rates for public systems in Ocean and Monmouth counties, for example, are considerably lower than rates for investor-owned utilities. A public system customer with a ¾-inch water meter and 24,000 gallons of usage pays on average \$113.05 per quarter. That customer would pay \$229.42 for the same service from the area investor-owned utilities.

Affordability is one of the factors that prompted AEA to oppose the Water Infrastructure Protection Act – WIPA -- which was signed into law last year. WIPA limits the public’s ability to have input when a water system is being considered for sale, and it limits the ability of the Board of Public Utilities to protect ratepayers from unnecessarily high water rates.

This year, AEA is partnering with Jersey Water Works and others on an award for excellence in water infrastructure innovation. It will be called the One Water award. The name reflects that fact that local, county, state and federal officials, regulatory agencies, investor-owned utilities and publicly owned utilities and the public—all work together to address water issues. The name is also a reminder that water, wastewater and storm water systems are connected. Drought affects wastewater systems as well as drinking water supply. Addressing storm water can reduce the costs of operating wastewater

conveyance and treatment systems as well as improving water quality and safety. It is important not to be too "reductionist" about public policy for water.

New Jersey's public water agencies are great partners. They have the experience, the relationships within their communities, and the know-how to help address emerging issues. Jackson MUA partnered with the local school district to test their drinking water. Authorities are helping to address the storm water. Local public agencies could also help promote a home plumbing remediation program. They are ready and able to help.

Thank you for this opportunity to speak today. We hope the Task Force will continue to see AEA as a resource as it moves ahead with its work.



AWWA New Jersey

American Water Works Association

Re: Public Hearing for the Joint Legislative Task Force on Drinking Water Infrastructure

Date: Wednesday, November 30th, 2016 10:00am

Location: Trenton, NJ – Committee Room 11 of the State House Annex

Testimony by: Michael J Furrey, Stephen Blankenship and G. Christian Andreasen on behalf of the New Jersey Section American Water Works Association

Good afternoon, I would like to thank the Joint Legislative Task Force for the opportunity to present testimony today on drinking water infrastructure and water quality issues facing New Jersey water suppliers. My name is Michael Furrey and I am the Owner of Agra Environmental and Laboratory Services which provides certified water and wastewater and testing and compliance/operational services in NJ. I currently serve as the Chair of the New Jersey Section of the American Water Works Association (“Section”). I am here today with Stephen Blankenship, Executive Director of the Hamilton Township MUA (Atlantic County) and Director for the Section, and G. Christian Andreasen, Director of Engineering for Middlesex Water Company and Chair of the Section’s Infrastructure Management Committee (IMC).

The American Water Works Association - New Jersey Section (AWWA NJ) is an association consisting of more than 1,200 NJ based operators, engineers, academics, and other allied water and wastewater professionals. We are the leading authority in drinking water issues throughout the State of New Jersey. On July 1, 2016 the Joint Legislative Task Force on Drinking Water Infrastructure was formed from Bill ACR161. The Section’s Infrastructure Management Committee is specifically charged with assisting in the development and implementation of asset management plans. Considering the Section’s large and diversified water professional membership base, the Section believes it can provide the Task Force with a valuable perspective and would welcome the opportunity to become an active participant in your deliberations.

Some of the most significant advances in public health protection have been developed by AWWA members, including chlorination and filtration of drinking water right here in the State of New Jersey. Recent events in Flint, Michigan and the Newark (NJ) school system have heightened awareness of the value of drinking water professionals and regulatory agencies in the protection of public health, especially with the dangers of lead in drinking water. These events and others around the State have reinforced a continued need for diligence, proper regulatory oversight, and transparency in the public water supply field. In spite of these events, the vast majority of public water suppliers are providing high quality drinking water to their customers and are complying with monitoring and treatment requirements for currently regulated contaminants, and are routinely reporting this information to the public. The Flint Michigan final task force report issued in March 2016 concluded that there were serious failures at all levels of government that can never happen again. While Flint was not initially an infrastructure

failure, it triggered greater concern by the public and by elected officials on the state of the nation's water infrastructure. It is important to note New Jersey also has aging infrastructure that needs to be addressed. As we address this need, we must make every effort to NOT repeat any of the missteps made by Flint Michigan, which jeopardized public health and eroded the public's confidence in our water supply infrastructure.

As background, water infrastructure was generally installed as part of new construction for real estate development of neighborhoods, towns and cities throughout the State. Typically these assets were installed as part of the overall construction of the area's infrastructure; buried facilities were installed first, with road systems and above ground assets constructed afterwards and on top of the buried infrastructure. This resulted in a cost effective bottom up initial construction of all infrastructure, and these costs were typically included in the development costs for the project, as a part of the overall real estate cost for the homes or commercial buildings that were eventually purchased and occupied.

Investment in the water infrastructure has been a challenge and something that has not been a priority in prior years, mostly due to the lack of full understanding of the age and condition of the assets, the "out of sight" scenario of these assets, the excellent reliable service provided by the State's water utilities, and the reluctance to raise rates for utility service. As described previously, New Jersey residents are fortunate that the level of service provided allows consumers to be able to get safe adequate and proper water service from their tap 24 hours a day, 365 days per year, with minimal outages. This service is provided at a very low cost especially when compared to bottled water, or monthly costs for cell phone, internet service, cable TV, or other services. Yet the public's willingness to pay higher utility bills for long term sustainability of the infrastructure continues to be an issue that needs to be addressed.

There is broad recognition of the need for consistent reinvestment in New Jersey's aging water system infrastructure both to ensure that it will continue to serve the needs of our State and reduce the risk to the environment, economy, and public health. As the State focuses on redevelopment and quality of life, the provision of water service, protection of health, and minimization of water service disruption is essential.

While this aging water infrastructure condition has many similarities to the needs of roads, bridges and other public infrastructure, these "buried water assets" have the added criteria of being out of sight, and mostly out of mind. This is of course until a failure occurs and causes damage, disruption to service, and inconvenience. The location of the water assets being buried and shared in rights of ways with roads, other utilities, and public access has added to the challenges of operating and managing these systems. These challenges include the ability to inspect and access an asset for proper condition assessment, sharing of the right of way with other utilities and road facilities, and the public's expectations for the road and their public access to be free and clear, usually considered the most important use of this right of way area. This ends up resulting in road restoration and traffic maintenance being a major part of the work and increases the costs of water and wastewater infrastructure repair and replacement.

Much of the water infrastructure, particularly in the state's urban areas, is approaching 100 years old. Many of these older transmission and distribution systems have significant leakage, also

known as non-revenue water, which becomes a much greater issue as we enter drought conditions. The aging facilities require review and repair so that we can make the most efficient use of our water supply system. Unfortunately, these older urban areas are also where the greatest concentration of low income households resides.

To help address these challenges, the Section supports the use of Asset Management principals and Asset Management Planning for infrastructure operations, maintenance and reinvestment. Asset Management, and Asset Management Programs/Planning (AMP), is the discipline to proactively and effectively address the needs of aging infrastructure, prioritizing limited resources and assuring that there is a deliberative and efficient approach to addressing the most important needs first, achieving the desired level of service for the utility in the most cost effective manner. Simply stated, **Asset Management is a program to provide agreed level of service in the most cost effective manner for present and future customers.**

Forms of asset management have been practiced informally and formally by many utilities for many years. These include standard operations and maintenance (O&M) and capital improvement plans (CIPs) for the utility. Recently there has been more awareness and focus on the use of formal Asset Management Plans, what those plans entail, and how they can be used effectively across the water and wastewater industry to address the needs of aging infrastructure, and the financial requirements that will be necessary.

Formal Asset Management Plans are comprehensive programs which involve the following:

1. Performing an inventory and condition assessment of the system's assets;
2. Defining level of service goals;
3. Prioritizing assets based on criticality and business risk exposure;
4. Establishing life cycle costs
5. Developing a long-term funding strategy.

It is clear that in order to address this infrastructure need, it will require a significant amount of funding. A study by American Water Works Association (AWWA) determined 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 if the current level of service is to be maintained. Funding sources and acceptable strategies remain a significant obstacle to address this need. Costs for an effective operation of a water system include operating, maintenance and infrastructure reinvestment, which are typically recovered through a customer's water utility bill. In New Jersey, organization wise, there are three (3) general types of water utilities that are represented by the NJ Section AWWA, and each have their own process for setting water utility rates. They are:

- Public Utility Department as part of and governed by the local municipality government, where rates are typically set by the local municipal governing body.
- Public Utility Authority or Commission that is governed by a specific Authority or Commission governing board (that may be affiliated with a local municipal or regional government entity), where rates are typically set by this governing board.
- Investor Owned Water Utilities where rates regulated and approved by the New Jersey Board of Public Utilities.

The best practice for utility rate design is that the utility bill should reflect the full cost pricing representing the total and true cost for the utility, including operations, maintenance, and reinvestment of utility assets. Water rates should not subsidize, or be subsidized by, other programs or needs. This is not practiced in all situations throughout the State, particularly where water systems are public and part of an overall budget for a municipality as other non-utility needs and priorities may impact water system funding.

Several programs have been implemented and are in place that begins to address the need for adequate funding. These include the use of low cost borrowing through the State Revolving Fund (SRF) via the NJ Environmental Infrastructure Trust (NJEIT) and the Distribution System Improvement Charge (DSIC) available for the State's investor owned water utilities and adopted in 2012 by the NJ BPU. The SRF provides for low cost loans for approved water and wastewater infrastructure projects. The DSIC allows investor owned utilities to utilize a modest surcharge itemized on a customer's bill to recover expenditures on necessary rehabilitation and replacement of aging infrastructure. These two programs are a good start but need to be supplemented with additional programs to assure adequate funding of this need.

The Section supports a collaborative approach to asset management issues within the water utility industry. It has worked with and will continue to work with NJDEP and other organizations to develop asset management approaches that promote a deliberative and steady process to assist utilities in operating, maintaining, and renewing their assets in a cost effective manner. A methodical approach will allow utilities to pursue full cost pricing and funding and hopefully avoid large rate shocks along the way.

The water supply industry and the Section recognize that a major focus of this newly formed Task Force for the State of NJ is on lead in water issues as well as other potential water quality issues that can be caused by the water industries' aged and potentially failing infrastructure. The Lead and Copper Rule (LCR) was established in 1991 and the industry has come a long way in reducing exposure of lead in drinking water through various regulatory water quality compliance efforts. The Section is working closely with NJDEP on providing training for schools, water professionals and assistance with the review of the USEPA Federal Revised Lead and Copper Rule. The Section is also working closely with the NJDOE and NJDEP on regulations regarding lead in schools that will be required moving forward into 2017 and beyond. The Section also dedicated a lead information webpage, <http://njawwa.org/?page=LeadandCopper>, on the Section's website and recently formed a Lead and Copper Advisory Committee to focus on current regulations and any potential revisions to the USEPA/NJDEP Lead and Copper Rule. The Committee identified the following areas of focus:

1. Large private and public water systems have been spending a considerable amount of time on reviewing sampling protocols, plumbing surveys, and increasing water quality testing to optimize lead removal. In some cases, the systems voluntarily installed new corrosion control initiatives in advance to any potential revisions to the LCR.
2. Small to medium size water systems, having lead and copper corrosion issues that operate under the guidance of qualified NJDEP licensed operators who safely operate, test and address complex compliance issues. These systems do not always have the funding

necessary to comply with complicated regulatory requirements. The Section urges legislators to continue having the State of NJ offer financial assistance to distressed water systems.

3. There has been considerable effort with improving the transparent process of notifying consumers through various public education and notification processes. The Section encourages any new regulations to contain open and transparent communications on the risks of lead contamination in drinking water.
4. Through extensive training of school officials, health departments and public officials, the Section has made considerable efforts to assist schools, NJDOE and NJDEP with lead compliance issues.
5. The industry is particularly focused on full rather than partial lead service line replacement. The Section highly recommends full lead service line replacement via funding made available to the water systems and the final ultimate consumers of the water distribution system.
6. The Section wants to emphasize that there are many sources of lead (lead solder, brass fittings and certain types of valves) that make it extremely difficult to control in the final water supply. The industry is expending considerable efforts to optimize corrosion control and to demonstrate compliance through follow-up testing. The Task Force will have to study and consider the pros and cons of full scale plumbing replacement due to its extremely high remediation costs.
7. Most importantly the Section strongly emphasizes that there is **NO SAFE LEVEL OF LEAD**. The industry wishes to continue to work with legislators and environmental regulators to determine pragmatic and sensible Lead and Copper regulations that protect public health at a reasonable and realistic cost.

In summation, the Section strongly encourages our legislative and its leaders to support the following:

- A collaborate approach and process between NJDEP and water utility industry to address water quality issues and the rehabilitation and renewal of utility systems through asset management planning and processes.
- Full cost pricing and funding.
- Avoid overreactions and “shoot from the hip” solutions to address the crisis of the day.
- Funding and resources for the New Jersey State Departments of Environmental Protection to ensure that it will be properly staffed and supported to meet the challenges at hand.

The New Jersey Section of AWWA appreciates the opportunity to present our testimony today and it is hoped that our offer of assistance, request for resources and a collaborative approach is seriously considered by this Committee and the State.

Respectfully Submitted,

Michael Furrey, AWWA-NJ Chair

Stephen Blankenship, PE, AWWA-NJ Director

G. Christian Andreasen, PE, AWWA-NJ Infrastructure Management Committee Chair

TESTIMONY OF
JOAN LEARY MATTHEWS
SENIOR ATTORNEY
NATURAL RESOURCES DEFENSE COUNCIL

BEFORE THE
NEW JERSEY STATE LEGISLATURE
JOINT LEGISLATIVE TASK FORCE ON DRINKING WATER INFRASTRUCTURE
NOVEMBER 30, 2016

Good morning Co-Chairs Senator Greenstein and Assemblyman McKeon, and members of the Task Force. I am Joan Leary Matthews, senior attorney in the Water Program at the Natural Resources Defense Council. I appreciate the opportunity to testify today.

NRDC is an environmental advocacy organization with over 57,000 members and online activists in New Jersey, and more than 2 million nationwide. NRDC works to safeguard the earth – its people, its plants and animals, and the natural systems on which all life depends. We combine the power of our members and online activists with the expertise of some 500 scientists, lawyers, and policy advocates across the globe to ensure the rights of all people to the air, the water, and the wild.

In my current role, I lead NRDC's Urban Water Management team, overseeing NRDC's urban water, green infrastructure, and water-efficiency efforts, with an increasing emphasis on integrated water management. Until this past spring, I served for several years as the director of the Clean Water Division for the U.S. Environmental Protection Agency's Region 2, where I directed the agency's Clean Water Act, Safe Drinking Water Act, and other programs for New York, New Jersey, eight Indian Nations, Puerto Rico, and the U.S. Virgin Islands.

Additionally, my NRDC colleague Larry Levine, who is unable to attend today, serves on the Steering Committee of the Jersey Water Works collaborative, which other speakers this morning have described. Through Jersey Water Works, as well as coalition efforts with numerous other New Jersey-based organizations, he and others at NRDC have worked for years to improve state policies that protect New Jersey's waters from polluted urban runoff, sewage overflows, and lead and other sources of contamination, and to improve the state's aging drinking water and wastewater infrastructure. Our team of water experts at NRDC works on these same issues in states around the country, and at the federal policy level.

As you have heard from today's witnesses, New Jersey's water infrastructure problems are multi-faceted, widespread, and critical to the health and wellbeing of every resident of the state. I would like to focus today on several key issues, in particular:

- ***Water infrastructure as a whole:*** the links between drinking water infrastructure and wastewater and stormwater infrastructure;
- ***Funding and financing:*** how to equitably generate funds for necessary capital investments and ongoing operations and maintenance;
- ***Lead in drinking water in schools;***
- ***Other drinking water contaminants;*** and
- ***Impacts of climate change.***

1. Links between Drinking Water Infrastructure and Wastewater and Stormwater Infrastructure

The resolution creating this Task Force focused on drinking water infrastructure, and with good reason. The crisis in Flint, Michigan, reminds us all of the degraded state of our drinking water infrastructure, its centrality to the health and wellbeing of all people and to the economic vitality of our cities, and the vulnerability of disadvantaged communities to chronic underinvestment in and neglect of these systems.

It is important for this Task Force, as well, to understand our drinking water infrastructure needs as part of a wide set of interconnected municipal water infrastructure issues, including wastewater and stormwater infrastructure. Understanding these linkages will enable the state to comprehensively address its water infrastructure needs.

One critical linkage is money. The estimated costs to fix New Jersey's drinking water infrastructure represent less than one-third of the estimated total municipal water infrastructure needs. While the U.S. Environmental Protection Agency's Drinking Water Needs Survey estimates \$8 billion in need for drinking water systems, EPA's Clean Watersheds Needs Survey (2012) estimates over \$17 billion in needs for wastewater and stormwater infrastructure. Given the limitations of EPA's methodology, these numbers are almost certainly under-estimates.¹

All of these water infrastructure systems ultimately rely on the same principal sources of funding: revenue generated from utility ratepayers and (to a lesser extent) property taxes, and state and federal grants and subsidized loans. The same ratepayers are responsible for paying both water and sewer bills. The same taxpayers are responsible for the general revenues that fund grant and subsidized loan programs for both water and sewer service. Therefore, the politics, and hence the finances, of funding these systems are inextricably linked.

After peaking in the 1980s, federal and state grants for drinking water and wastewater infrastructure have declined precipitously, leaving utility ratepayers as the primary source of revenue. Predictably, water and sewer rates have risen to offset, in part, the decline in grant dollars, increasing burdens in particular on low-income households. Yet, water and sewer service overall remains underpriced to fund the full costs of service, including infrastructure operations, maintenance, replacement, and upgrades necessary to protect human health and the environment. Households commonly pay less for these essential services than for other "discretionary" services such as cable television. A suite of solutions to water infrastructure funding challenges, including concerns about the affordability of water and sewer service, are discussed later in this testimony.

A second set of linkages is operational. The more drinking water is used, the more wastewater is generated and must be treated. Therefore, water use efficiency – or inefficiency – affects the capital and operating needs – and costs -- of both drinking water and wastewater system, as detailed in a 2014 NRDC report, "Waste Less, Pollute Less."² As EPA summarized when explaining why federal wastewater infrastructure funds may be used for drinking water conservation efforts: "Water conservation and reuse programs can be developed to help systems avoid, downsize, or postpone

¹ These figures are based on incomplete self-reporting by utilities. Further, they do not include certain categories of need, such as stormwater infrastructure costs associated with flood control and drainage improvements, apart from water pollution control needs.

² www.nrdc.org/sites/default/files/clean-water-act-urban-conservation-IB.pdf

wastewater projects. There are also benefits from increased treatment plant efficiency and reduced energy costs.”³ In short, as explained by EPA’s WaterSense program, which promotes water-efficient appliances and fixtures: “Water efficiency can lessen the stress on [wastewater] systems and extend their useful life.”⁴ There are many opportunities for the state, and for individual water utilities, to adopt policies that improve water use efficiency. Some of them are cost free, such as incorporation of modern water efficiency standards into state and/or local building codes,⁵ and others will pay back the investment many times over.

Another operational link is less intuitive to non-engineers, but is potentially very significant: water that leaks from aging and cracked drinking water pipes can end up in aging and cracked wastewater pipes. (Sanitary sewers are situated deeper than drinking water pipes to ensure that sewage leaks do not contaminate drinking water lines.) Though there is little data on this phenomenon, wastewater utility managers will attest that significant volumes of treated drinking water can enter sewer lines in this way, thereby becoming wastewater that must be treated or that contributes to overflows of raw sewage from overburdened wastewater systems. Water loss audits, discussed below, are a necessary step towards addressing this problem.

A further example relates to stormwater management. Huge amounts of drinking water treated to drinking water quality are used for landscape irrigation, where drinking water quality – and the effort and cost needed to achieve it – is unnecessary. At the same time, tremendous volumes of stormwater runoff, which could be captured for reuse in landscape irrigation with minimal treatment, routinely flows into overburdened storm sewers and combined sewers, where it carries pollutants to local waterways and contributes to raw sewage overflows and urban flooding. Greater use of stormwater to substitute for municipal water supplies where appropriate would, therefore, simultaneously reduce the strains on drinking water, wastewater, and stormwater infrastructure.

Stormwater infrastructure deficiencies are also directly linked to wastewater infrastructure deficiencies. In 21 of New Jersey’s oldest and largest communities, stormwater directed into sanitary sewers triggers raw sewage overflows (into surface waters) and back-ups (into streets and basements). Further, the same surface waters that are fouled by sewer overflows are often fouled as well by runoff that washes pollution from roadways, parking lots, lawns, and rooftops directly into inadequate municipal storm sewers that drain directly to local water bodies, without any treatment. And just as neighborhood

³ U.S. EPA, Office of Water, *Funding Water Conservation and Reuse with the Clean Water State Revolving Fund*, EPA 832-F-99-050, June 1999 <http://www.dnrec.delaware.gov/fab/Documents/Workshop-webinar%20presentations/Funding%20Water%20Conservation%20and%20Reuse%20with%20the%20CWSRF.pdf>.

⁴ U.S. EPA, “Water Sense: Comprehensive List of All Frequent Questions,” www.epa.gov/WaterSense/full_list.html. (Accessed November 29, 2016.)

⁵ For example, other jurisdictions have adopted water efficiency standards for bathroom plumbing fixtures based on EPA’s voluntary “WaterSense” criteria. These include New York City, Georgia, California, and Texas. New York State is considering adopting the same standards. See NYC Local Law 57 of 2010, available at http://www1.nyc.gov/assets/buildings/local_laws/ll57of2010.pdf; Georgia State Amendments to the International Plumbing Code (Revised Jan. 1, 2012), available at <http://www.dca.state.ga.us/development/constructioncodes/programs/documents/2012effective/effective/IPC-2012-effective.pdf>; Georgia Code § 8-2-3, available at <http://law.justia.com/codes/georgia/2006/8/8-2-3.html>; California Health and Safety Code § 17921.3, available at <http://codes.findlaw.com/ca/health-and-safety-code/hsc-sect-17921-3.html>; Texas Health and Safety Code, Title 5 Chapter 372, available at <http://www.statutes.legis.state.tx.us/Docs/HS/htm/HS.372.htm>. See also a compilation of states with standards for one or more bathroom fixtures that exceed minimum federal standards: <http://www.ncsl.org/research/environment-and-natural-resources/water-efficient-plumbing-fixtures635433474.aspx>.

flooding can result from sewer backups, so too can it result in backups from these separate storm sewer systems. Improving stormwater management – especially through the use of green infrastructure solutions, like porous pavement, green roofs, parks, roadside plantings and rain gardens, that stop rain where it falls – can therefore cost-effectively help address both wastewater and stormwater infrastructure needs. Capturing runoff and treating it as a resource, rather than a waste, reduces demand on traditional “gray” (i.e., concrete) sewage and stormwater systems, while creating new green spaces that improve communities and public health.

New Jersey has two critical opportunities to use the Clean Water Act to jumpstart green infrastructure implementation. NJDEP issued new permits in early 2014 to the communities with combined sewer overflows, directing them to develop “long term control plans” to reduce overflows within five years. The permits require robust consideration of green infrastructure as part of these plans. NJDEP is providing substantial support to the permittees, as is Jersey Water Works and its members in the non-profit, government, and private sectors, to develop and implement plans that embrace the full potential of green infrastructure. All state agencies should be encouraged to do the same, since green infrastructure touches on so many aspects of urban development and redevelopment (including roadways, housing, land use, etc.).

The second opportunity concerns NJDEP’s Clean Water Act permits for municipal storm sewer systems, and the agency’s Stormwater Management Rules, both of which have not been updated in more than a decade. NRDC and a coalition of about ten New Jersey-based organizations filed a legal petition with NJDEP in early 2014 calling on the agency to modernize its municipal stormwater permits.⁶ We called on the agency to make green infrastructure practices a cornerstone of the permit’s requirements. In parallel, updates are needed to the agency’s Stormwater Management Rules to make green infrastructure the default approach to managing runoff from new development and redevelopment. NJDEP is due to release draft statewide municipal stormwater permits imminently, and has also convened a stakeholder group to discuss potential revisions to the Stormwater Management Rules. NJDEP should take these opportunities to modernize both the permits and the regulations, enshrining green infrastructure as the standard practice in stormwater management statewide, as recommended by the nation’s top stormwater experts at the National Research Council and by the U.S. EPA, and as implemented by many other states.

2. Funding and Financing

It is beyond dispute that more spending on water infrastructure is needed to solve the challenges faced by New Jersey and states around the nation. The question is where these funds will come from, and how ultimately responsibility for bearing the costs will be allocated among federal, state, and local government, and among various categories of ratepayers. We cannot allow New Jersey’s water infrastructure needs to go unmet for want of funds, nor can we settle for lower environmental and public health standards in communities less able to pay the cost themselves.

Many water and wastewater utilities in the state need investments at a level that exceed their ability to pay for them, on any reasonable time scale, under a business-as-usual approach to funding and financing water infrastructure. That it not to say that utilities cannot, or should not, raise more revenue locally to increase investment. As noted above, water and sewer service is typically underpriced relative to the cost of service. And, while increasing water and sewer rates can adversely affect low-income households, those effects are not inevitable and can be avoided with more equitable rate structures and

⁶ <https://www.nrdc.org/experts/larry-levine/groups-petition-nj-address-biggest-water-pollution-source-green-infrastructure>

low-income customer assistance programs, thereby allowing utilities to generate more rate revenues without undue burdens on those least able to afford rate increases. Further, no municipalities in New Jersey currently have stormwater utility fees, an essential funding mechanism used in over a thousand communities nationwide,⁷ but which does not have clear legislative authorization in New Jersey. Stormwater fees, based on impervious area (as a surrogate for the amount of runoff a property contributes to public sewers), equitably allocate the cost of stormwater infrastructure and create a dedicated revenue stream, while creating incentives for property owners to reduce runoff. Governor Christie has vetoed legislation authorizing local stormwater fees. The Legislature should again pass such legislation, and the Governor should sign it.

In addition to generating more revenue – and generating it more equitably – from ratepayers at the local level, significantly increased federal and state grants for water, wastewater, and stormwater are essential. Current federal funding of \$2.37 billion per year for water infrastructure falls far short of the enormous need. Moreover, since the 1970s and 1980s, it has shifted from almost entirely grant funding to almost entirely loans. With the incoming federal Administration, there has been much talk of potential new federal infrastructure funding. While it remains unclear what form any infrastructure funding proposal from the new Administration would take – and even what types of “infrastructure” would be included – the State should be at the forefront of pressing for the inclusion of new federal funding for water and wastewater infrastructure, and for prioritizing the use of such funding in low-income communities and in communities of color.

Moreover, the state does not need to wait for federal action to increase its own commitment to water infrastructure funding. For example, in 2015, New York State launched a new statewide water and wastewater infrastructure grant program that was expanded in 2016 and totals \$425 million in state appropriations to date.⁸ A broad coalition, including utilities, the construction industry, local governments, and environmental organizations backed this initiative, and continues to seek further expansion of the grant program. I have no doubt that Legislative efforts to develop a similar grant program in New Jersey would garner the same widespread political support. As with new federal funding, new state funding should be prioritized for low-income communities and communities of color.

In addition to major new infrastructure grant programs, the state should use the following strategies to help communities afford necessary water infrastructure investments. These strategies serve to reduce costs overall, or to offset burdens on low-income households when utilities raise rates to generate additional revenues needed for capital investment.

- **Customer assistance programs:** Increase the use of (and dollar amounts dedicated to) “customer assistance programs,” which subsidize or cap water and sewer bills for low-income homeowners and affordable multi-family housing owners. A recent EPA report catalogs such programs around the country, providing examples upon which New Jersey can draw.⁹ By far, the most effective approach includes what EPA describes as “bill discounts,” which provide a long-term reduction in (or even a cap on) customers’ bills, using an income-based needs test. The state can provide both technical assistance and direct funding to utilities to establish and

⁷ <https://www.wku.edu/engineering/civil/fpm/swusurvey/>

⁸ See (<http://assembly.state.ny.us/Press/20160401b/> and <https://www.efc.ny.gov/Default.aspx?tabid=609>).

⁹ EPA, Drinking Water and Wastewater Utility Customer Assistance Programs (2016), https://www.epa.gov/sites/production/files/2016-04/documents/dw-ww_utilities_cap_combined_508.pdf

expand such programs at the local level. Moreover, the Legislature should establish a statewide program analogous to the “Low Income Home Energy Assistance Program” – a stated-administered federal block grant that subsidizes energy bills for low-income households – to help low-income households pay their water and sewer bills.

- **Equitable rate structures:** The state should promote the use of utility rate structures that raise revenue more equitably. This includes tiered water and sewer rates (which charge higher per gallon rates for higher-volume users) and stormwater fees (which charge property owners based on impervious area, corresponding to their contribution of runoff into public sewers). In the case of stormwater fees, this would not only equitably allocate cost burdens, but would create an entirely new revenue stream dedicated to meeting stormwater infrastructure needs.
- **Improved asset management generally:** Require utilities to develop and implement effective asset management programs, which hold costs down for everyone in the long run, since preventive maintenance and repair on a regular cycle is far cheaper than reactive repairs when system components break from lack of maintenance or excessive age.
- **Increased adoption of cost-effective solutions like green infrastructure and water efficiency:** As discussed above, expanded use of green infrastructure and water efficiency strategies can help water, wastewater, and stormwater utilities more cost-effectively meet their needs, mitigating costs for all customers.

3. Measuring and Reducing Water Losses

Professor Van Abs emphasized the importance of asset management in maintaining – and restoring – the integrity of our drinking water systems. One of the most prominent ways in which poor asset management manifests is through water main breaks. Old, deteriorated pipes, sometimes in combination with excessive water pressure within a distribution system, result in “water losses,” the technical term for leakage from a drinking water system. Some of this water loss is highly visible above ground; still more is chronic below-ground leakage, which remains out of sight and out of mind. These water main breaks and leaks can cost utilities and their ratepayers millions of dollars; damage roads, businesses, homes, and other property; allow pathogens to penetrate the system or multiply in areas of decay; and waste huge volumes of water. As the state’s current drought warnings remind us, we cannot afford to waste water in this way.

New Jersey can, with a push by the Legislature if needed, immediately take a necessary first step towards solving this problem. Most drinking water utilities do not even know how much water they are losing, or what the causes are in their systems, because they do not effectively audit their water losses. Effective audits would provide the information necessary to reduce water losses and prioritize investments.

States around the nation are beginning to require all utilities to perform and report the results of annual water loss audits using a standard methodology, developed by the American Water Works Association that reflects current best practice in the industry. Some of these states are also requiring independent validation of the self-reported audit data, and some are setting performance benchmarks to reduce losses over time.

In New Jersey, utilities under the jurisdiction of the Delaware River Basin Commission (DRBC) are required to perform and report the results of annual water loss audits using the AWWA methodology.¹⁰ NRDC commissioned a detailed review of water loss audit reports filed by the 76 DRBC-regulated New Jersey water suppliers, which estimates that leakage totaled 14 million gallons per day (mgd) in 2013. Of this amount, at least 3.5 mgd appears highly likely to be “economically recoverable” – i.e., investments to reduce leakage will result in savings that equal or exceed the costs. The review also estimated apparent losses – the failure to accurately record and collect revenue from water actually delivered to customers – totaling 2.1 mgd, valued at \$5.2 million in lost revenue, in 2013. Significantly, however, the DRBC water loss data is all self-reported by utilities, and in the absence of a system of data validation, these audit reports must be viewed as preliminary indicators rather than definitive findings. Compared to a validated water audit data set from around the country, these water loss estimates were lower, but water costs were higher. Higher costs increase the financial impact of non-revenue water on utility revenues, and conversely increase the financial rewards of water loss reduction measures.

The majority of New Jersey residents, however, are served by utilities outside of the DRBC area. These other utilities are not required to perform the AWWA audits, as neither NJDEP nor the NJ Board of Public Utilities (which regulates investor-owned utilities) requires them.

An NRDC website, “Cutting Our Losses,” summarizes water loss auditing policies in every state, including in New Jersey, and highlights the best policies in leading states.¹¹ The website also includes model state legislation, which has already formed the basis of legislation passed by two states within the last year. Water loss audit legislation has actually been introduced in the New Jersey Legislature every session since 2002.¹² But the bill is based on outdated audit methods, and has never advanced out of committee. NRDC’s model legislation provides a template for the Legislature to take prompt and effective action on this issue. I would also point out that NJDEP and NJBPU have authority to require these audits by regulation.

4. Lead in Drinking Water in Schools

The crisis in Flint, Michigan highlights the long-neglected problem of lead drinking water pipes, which can leach harmful lead into drinking water in homes, schools, hospitals, and businesses. There is no safe level of exposure to lead, and it is especially harmful to children because exposure can cause irreversible damage to developing brains and nervous systems, even at very low levels.¹³ Lead can decrease a child’s cognitive capacity, cause behavior problems, and limit the ability to concentrate – all of which, in turn, affect the ability to learn in school.

The ultimate solution to lead in drinking water is removal of all lead water service lines. The nation’s largest drinking water utility trade association, the American Water Works Association, has

¹⁰ <http://www.nj.gov/drbc/programs/supply/audits/>.

¹¹ <https://www.nrdc.org/resources/cutting-our-losses>

¹² See A. 1614 (2016), <http://www.njleg.state.nj.us/bills/BillView.asp>. On the Legislature’s webpage for this bill, clicking on “last session bill number” will show the corresponding bill from the previous session, and then from prior sessions all the way back to 2002.

¹³ Drinking Water Requirements for Lead, U.S. EPA, <https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water> (“The [maximum contaminant level goal] for lead is zero. EPA has set this level based on the best available science which shows there is no safe level of exposure to lead.”).

recommended that all lead service lines be replaced to reduce the threat of lead contamination.¹⁴ There is some good news here: new, lower-cost techniques for replacing service lines in Lansing, Michigan, and elsewhere demonstrate that innovative approaches are bringing costs down.¹⁵ Until complete removal is achieved, improved testing and public notification, with priority remediation in key locations such as schools, is essential.

I would like to take this opportunity to highlight one short-term, critical need in New Jersey, concerning the remediation of lead in public schools' drinking water. In March 2016, the New Jersey Department of Environmental Protection announced that the annual testing of water taps in the Newark Public Schools district revealed that 30 schools recorded levels of lead above the federal action level set by the U.S. EPA at 15 parts per billion. Since then, annual water testing data from the Newark district has been released dating back to 2010, indicating that more than 80 percent of the school facilities assessed had a sample in excess of the federal action level. Almost one-quarter of the tested schools had at least one sample that was more than ten times higher than the action level in that time period, with some samples exceeding the action level by as much as 100 times.

While news of lead-contaminated water throughout the Newark school district made headlines this spring, the City of Newark and its environmental justice communities have struggled for years with the greatest number of lead-poisoned children in New Jersey.¹⁶ Children in Newark face multiple health challenges due to cumulative impacts from environmental burdens, including poor air quality causing asthma and lost school time.

Despite this, the New Jersey State Department of Education and Schools Development Authority informed Newark public school State District Superintendent Christopher Cerf that "any and all assessments or remediation efforts for lead" would not be eligible for School Development Authority funding intended to make emergent repairs in schools under State control.¹⁷ This blanket refusal by the State, particularly when plumbing work is expressly identified as the type of project envisioned for the funds, is unlawful under the New Jersey Supreme Court's Abbott v. Burke line of cases¹⁸ and the Education Facilities Construction and Financing Act.¹⁹

¹⁴ American Water Works Association (hereinafter AWWA), "Board Supports Recommendation for Complete Removal of Lead Service Lines," press release, March 8, 2016, www.awwa.org/resources-tools/public-affairs/press-room/pressrelease/articleid/4069/awwa-board-supports-recommendation-for-completeremoval-of-lead-service-lines.aspx.

¹⁵ Statement of Randall Roost, Lansing Board of Water & Light, at AWWA seminar, "Lead Service Line Replacement: Vital Tips from Leading Utility Managers," May 3, 2016; *see also* Eric Lacy, "Lansing BWL's Push to Remove Lead Water Lines Continues," *Lansing Journal*, January 22, 2016, www.lansingstatejournal.com/story/news/local/2016/01/22/lead-water-lineremoval/79108766/.

¹⁶ *See* N.J. Dep't of Health, Childhood Lead Poisoning in New Jersey Annual Report 27-30 (2014), available at <http://www.state.nj.us/health/fhs/documents/childhoodlead2014.pdf>.

¹⁷ *See* attached for reference.

¹⁸ *See* 153 N.J. 480 (1998). The State is required to fully fund and ensure adequate school facilities for all students as a critical component of its responsibility to provide students in SDA districts with their constitutionally guaranteed education. The state Supreme Court has explicitly directed the State to fund "the complete cost" of "remediating the infrastructure and life cycle deficiencies that have been identified in the Abbott districts." 153 N.J. 480, 524 (1998) (*Abbott V*).

¹⁹ N.J.S.A. 18A:7G-1 et seq *See* Emergent Project Program, SDA, https://www.njsda.gov/njsda/Schools/Emergent_Project_Program.html (noting that emergent projects "include the repair or replacement of roofs; windows; exterior masonry; heating and cooling systems; and plumbing, electrical, mechanical and security systems, as well as addressing water infiltration issues").

The Department of Education and School Development Authority determination must be reversed immediately, so that the Newark Public School district can receive State funding for the plumbing system work necessary to remediate the district's system-wide lead contamination.

The Legislature must ensure that the State fulfills its constitutional obligation under the Education Clause and the Abbott v. Burke rulings to provide students with safe and healthy school facilities. Specifically, acting through this Task Force and/or other appropriate legislative committees, the Legislature should exercise its oversight authority over the Department of Education and the School Development Authority to ensure that they allow not only Newark, but school districts throughout the state, to seek funding for emergent repairs to remedy lead-contaminated water. NRDC, our colleagues at the Education Law Center, and our community partners stand ready to assist the Legislature in that effort.

5. Other Drinking Water Contaminants

Far too many drinking water treatment plants in the U.S. continue to rely solely upon outdated technologies for treatment such as coagulation, sand filtration, and chlorination. These technologies can work well to remove some basic contaminants, like certain microorganisms, but cannot remove many of the modern contaminants, such as pesticides, industrial chemicals, pharmaceuticals, and other chemicals that are widespread in water.²⁰ We need to invest in modernizing our treatment plants, as some leaders in the industry have done.

In many cases, the federal government has failed to set standards for “newer” contaminants in drinking water. States like New Jersey can help fill the gap, until the federal government takes action.

For example, we would like to commend the New Jersey Department of Environmental Protection for setting a strong maximum contaminant limit for perfluorooctanoic acid (PFOA), a synthetic chemical that was used, among other things, to manufacture Teflon. PFOA is found more frequently in New Jersey drinking water than in many other states – at least 12 water systems in the state have already been found to have elevated levels of the contaminant.²¹ The U.S. EPA has found that PFOA is linked to severe health effects, including cancer, fetal growth problems, and high cholesterol. Despite these findings, the federal agency has declined to set a maximum contaminant level under the Safe Drinking Water Act.

In a regulatory universe where the EPA has failed to act, New Jersey has stepped up to protect its residents, setting what may be the most stringent advisory standard for PFOA in the nation. At 14 parts per trillion, New Jersey’s advisory level is significantly lower than EPA’s health advisory of 70 parts per trillion. Of course, to ensure the effectiveness of this standard, it will have to be vigorously enforced, and we will be watching carefully to see that such enforcement takes place.

²⁰ NRDC, “Report Finds Deteriorating Infrastructure, Pollution Threaten Municipal Drinking Water Supplies,” 2003, <https://www.nrdc.org/media/2003/030611>; Erik Olson et al., NRDC, “What’s on Tap?” 2003, <https://www.nrdc.org/sites/default/files/whatsontap.pdf>; Brian Cohen and Erik Olson, “Victorian Water Treatment Enters the 21st Century,” NRDC, 1995.

²¹ Atlantic City Municipal Utilities Authority; Brick Township MUA; Garfield Water Department; Greenwich Township Water Department; Montclair Water Bureau; New Jersey American’s Raritan system; New Jersey American’s Logan system; New Jersey American’s Penns Grove system; Orange Water Department; Paulsboro Water Department; Rahway Water Department, and South Orange Water Department.

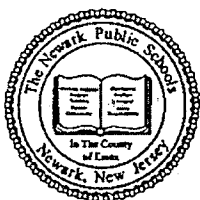
6. Impacts of Climate Change

Finally, I wish to emphasize that climate change will increase the stress on New Jersey's drinking water, wastewater, and stormwater infrastructure, underscoring the need for comprehensive and long-term solutions to the state's water infrastructure challenges. An EPA fact sheet released in August 2016, titled "What Climate Change Means for New Jersey," explains:

Rising temperatures and shifting rainfall patterns are likely to increase the intensity of both floods and droughts. Average annual precipitation in New Jersey has increased 5 to 10 percent in the last century, and precipitation from extremely heavy storms has increased 70 percent in the Northeast since 1958. During the next century, annual precipitation and the frequency of heavy downpours are likely to keep rising. Precipitation is likely to increase during winter and spring, but not change significantly during summer and fall. Rising temperatures will melt snow earlier in spring and increase evaporation, and thereby dry the soil during summer and fall. So changing the climate is likely to intensify river flooding during winter and spring and drought during summer and fall.²²

New Jersey cannot afford to wait to address the state's drinking water, wastewater, and stormwater infrastructure challenges. And, in doing so, the state must ensure that new policies and capital investments are tailored to accommodate not only the precipitation patterns of today, but also those we can anticipate for decades to come.

²² <https://www3.epa.gov/climatechange/Downloads/impacts-adaptation/climate-change-NJ.pdf>



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Christopher D. Cerf
Superintendent

August 30, 2016

Dear Mr. Della Fave,

I am in receipt of your letter expressing your interest in the current status of Newark Public Schools' effort to manage the water issues discovered earlier this year in several District schools. This has been a summer of learning for us and dare I say the entire State of New Jersey. The State has now issued its guidelines for testing protocols. A review of the newly crafted guidance suggests that steps taken by the District, as well as the lessons learned, have significantly influenced the State's direction.

Since we last met, the District has continued to test all outlets in all schools. These tests have been catalogued and shared with the Department of Environmental Protection. As part of the school opening process, each school will receive its test results and a back pack letter for parents during the first week of school. We will also update the District's website with all test results (by school), as has been our practice since testing began. We delayed this notification during the summer to ensure that all the affected school communities received the correct information.

Our test results demonstrate that several schools originally placed on bottled water could be put back on regular drinking water. Only schools with an adequate number of drinking water sources below the federal action level will be eligible for this change. All drinking water outlets that have tested above the action level remain turned off. All non-drinking sources in all schools that have tested above the action level have consistent signage indicating they are not to be used for drinking or food preparation.

Immediately following school opening, we will begin installing filters on all drinking fountains tested below action level as a precaution to continue to keep them at acceptable levels and to ensure consistency in practice.

For schools that have kitchen sinks that test above the federal action level, Reverse Osmosis Systems are being installed before the beginning of school. We have also changed the fixture/outlet in the kitchen where these levels have occurred. In other kitchens, any fixture that displays an actionable level on first draw but drops to below an actionable level on flush will be continuously treated using a flush protocol, which is being implemented using a rigorous monitoring process. This course of action is recommended and approved by the Department of Environmental Protection.

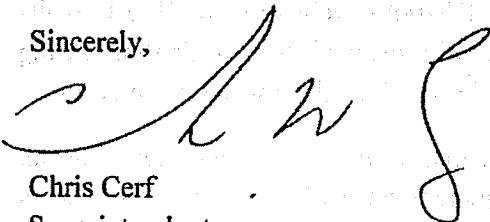
The district will continue to test and maintain compliance in conjunction with the new State law that went into effect on July 25, 2016.

We continue to research the potential resources for lead testing and remediation and will be pursuing a public bid process for evaluation and assessment of all buildings with the goal of developing a comprehensive plan. This plan is dependent upon the district securing funds to be used for capital work remediation. We are continuing to work with both the State and City to secure debt service aid and bond dollars to move forward. Our discussions seem to be yielding positive results.

In your letter you indicated that, "The District was not planning to apply for emergent project status for lead." That is incorrect. We have applied and always intended to apply. The State and SDA clearly indicated to the district that any and all assessments or remediation efforts for lead would not be funded by the Emergent Project Process. The recent release of the SDA's application process indicates specific categories the District can apply for. Unfortunately, neither plumbing nor lead is allowed. I have attached for your information a copy of the projects for which we are currently in phase 2 of the application.

We look forward to our continued partnership and will continue to provide additional updates as new information or strategies are employed. We appreciate your guidance on this ongoing issue.

Sincerely,

A handwritten signature in black ink, appearing to read "Chris Cerf", is written over the word "Sincerely,".

Chris Cerf
Superintendent

ADDITIONAL APPENDIX MATERIALS
SUBMITTED TO THE
JOINT LEGISLATIVE TASK FORCE
ON DRINKING WATER INFRASTRUCTURE

for the
November 30, 2016 Meeting

Submitted by Christine Sturm, Managing Director, Policy and Water, New Jersey Future:

OPINION: Jane Kenny and Mark Mauriello, “Fixing N.J.’s water structure is not a cost, it’s an investments,” *The Star-Ledger*, November 29, 2016.

Submitted by Michael K. Maloney, President, New Jersey State Pipetrades; and Business Manager and Financial Secretary, Plumbers and Pipefitters Local Union No. 9:

Cristina Rojas, “20 Trenton school buildings test high for lead levels,” *nj.com*, October 11, 2016, ©2016 New Jersey On-Line LLC.

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