

**Testimony of  
Mr. Rudolph S. Chow, P.E.  
on behalf of  
The City of Baltimore, Maryland,  
and  
The Water Environment Federation,  
and  
The WateReuse Association  
before the  
Committee on Environment & Public Works  
United States Senate**

Hearing: "The Federal Role in Keeping Water and  
Wastewater Infrastructure Affordable"  
*Thursday, April 7, 2016*

Chairman Inhofe, Ranking Member Boxer, and Members of the Committee:

My name is Rudy Chow and I am the Director of the Department of Public Works for Baltimore City<sup>1</sup>. It is my honor to be here today on behalf of the City of Baltimore, the Water Environment Federation (WEF)<sup>2</sup> and the WateReuse Association to discuss the importance of the federal role in keeping water and wastewater infrastructure affordable. My testimony will focus upon three significant issues affecting water and wastewater infrastructure:

- *Affordability* – The challenges communities are having with meeting their regulatory requirements with limited funds is a national problem.
- *Federal Funding of Infrastructure* – Congress should provide robust support for existing and proposed federal funding and financing programs.
- *Economic Benefits of SRF Funding* – WEF and the WateReuse Association<sup>3</sup> recently conducted an analysis of the estimated economic impact generated by SRF spending in four

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<sup>1</sup> Rudolph S. Chow, P.E., has been the Director of the Baltimore City Department of Public Works since February 1, 2014. Prior to his appointment as director he served as Deputy Director and was its Bureau Head for Water and Wastewater for three years. Prior to his arrival in Baltimore Mr. Chow spent 27 years with the Washington Suburban Sanitary Commission in Laurel, Maryland. He has a Bachelor's degree in Civil Engineering from George Washington University and a Master's Degree in Environmental and Water Resources Engineering from the University of Maryland College Park. He is a registered Professional Engineer in the States of Maryland and Delaware. He is an active member in ASCE, WEF, AWWA, and APWA. The City of Baltimore is one of 24 jurisdictions in the State of Maryland with a diverse population of 626,644 people. The Baltimore City water and wastewater utilities are regional systems serving nearly 2 million people living in Baltimore and the surrounding counties.

<sup>2</sup> The Water Environment Federation (WEF) is a not-for-profit technical and educational organization of 33,000 individual members and 75 affiliated Member Associations representing water quality professional around the world. Since 1928 WEF and its members have protected public health and the environment. As a global water sector leader, WEF's mission is to connect water professionals; enrich the expertise of water professionals; increase the awareness of the impact and value of water; and provide a platform for water sector innovation.

<sup>3</sup> The WateReuse Association is a not-for-profit organization that educates the public on the importance of water reuse and advocates for policy, laws and funding to increase alternative water supply development in communities across the

example states, including taxes that return to the federal government and the employment and output from that spending.

### Introduction

You are examining a very important national issue today that is near to my heart – how we can address the burgeoning need for investment in our water infrastructure. Baltimore’s Mayor Stephanie Rawlings Blake appeared before this Committee’s Subcommittee on Water and Wildlife in February of 2012 to testify on the challenges of financing water infrastructure, using our Baltimore experiences to illustrate the need and to advocate for funding initiatives to address the growing problem of crumbling infrastructure and declining sources of funding. I would like to be able to state that progress is being made by communities in mitigating the impact of old and failing water infrastructure, but that is just not the case. These needs are an increasing burden on our citizens, particularly our most vulnerable populations.

To give you a sense of the magnitude of the problem our Nation is facing, consider the statistics supporting the American Society of Civil Engineers (ASCE) Report Card issued in 2013<sup>4</sup> that resulted in a D rating for water and for wastewater and stormwater infrastructure.

- There are 170,000 drinking water systems in the U.S., with 54,000 of those systems serving more than 264 million people.
- It is estimated that there are more than 1 million miles of water mains in the U.S. and over 75% of these pipes are in need of repair.
- An estimated 240,000 water main breaks occur each year. If the Nation’s most urgent replacement needs were spread over 25 years, the cost would be an estimated \$1 trillion.<sup>5</sup>
- Furthermore, the ASCE estimates the infrastructure needs for the Far West, Great Lakes, Mid-Atlantic, Plains, and Southwest regions would cost *each person* living in those regions more than \$1,000.
- There are an estimated 700,000 to 800,000 wastewater pipes in the U.S., many of which were built after WWII and are at the end of their useful life.
- According to an EPA Clean Watersheds Needs Survey *conducted in 2012*, the capital investment need for wastewater for the Nation will need \$271 billion over the next 20 years, but the report states that the data underestimates stormwater infrastructure needs by roughly \$100 billion.
- These needs are largely to address pipes, treatment systems, and federal stormwater requirements.

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United States. Our membership of water utilities, businesses, government agencies and not-for-profit organizations is dedicated to recycling water to ensure communities have a safe, reliable and cost-effective supply of water, which is necessary to sustain a high standard of living and robust economy.

<sup>4</sup> The full ASCE Report Card can be found at the following link: <http://www.infrastructurereportcard.org/grades/>

<sup>5</sup> Source: American Water Works Association

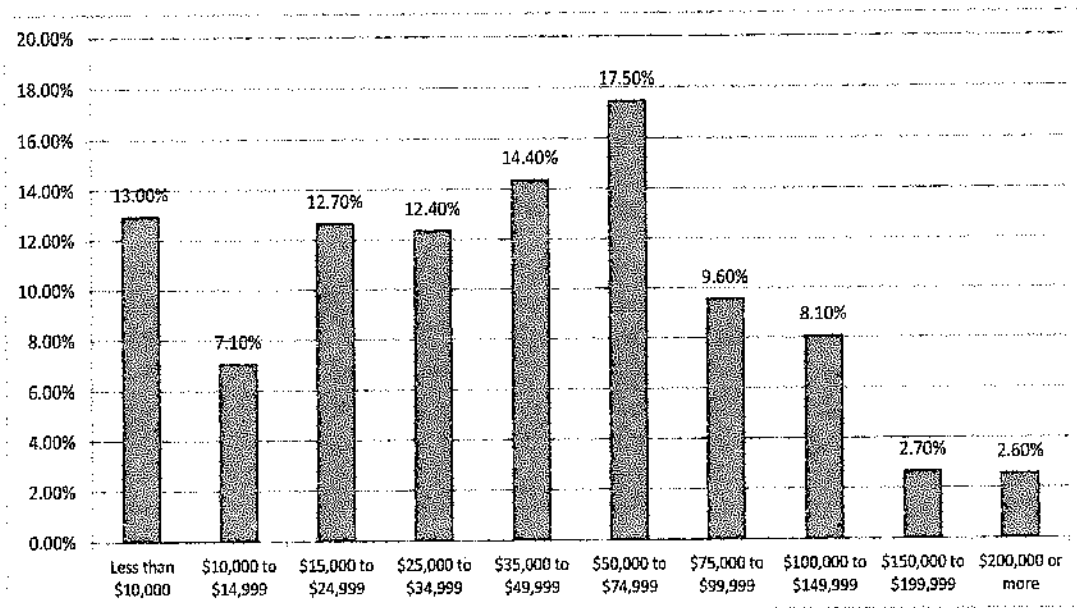
I have been in the public water infrastructure business for more than 30 years so these statistics do not surprise me. Environmental obligations are competing with the maintenance of critical infrastructure for capital funds. But these underground systems have been kept in service well beyond their useful lives and have literally reached the breaking point – and emergency repairs cost more than planned replacement, not to mention the loss of treated water, customers and businesses without water, and the resulting property damage from breaks.

My own City of Baltimore is faced with massive costs of more than \$1.5 billion to comply with a Wet Weather Consent Decree, just under a billion dollars in nutrient removal facilities at our two wastewater treatment plants to help meet the Chesapeake Bay TMDL, an MS4 permit expected to cost us \$200 million in stormwater improvements over the 5 year permit period, and more than \$350 million to cover open finished water reservoirs. This is just a snapshot of the projects we must undertake to remain in compliance with some of Baltimore's environmental obligations and does not include our efforts to extend the life of our underground systems. We consider ourselves good stewards of the environment and public health of our community and the Chesapeake Bay watershed, and take these obligations seriously. We are also tasked with maintaining and improving a large and aging system, which is equally important in many regards because if we do not maintain and improve the system, there may be eventual negative impacts upon our community's public health and environment.

As active members of the U.S. Conference of Mayors, we know the story is the same whether you live in Baltimore, Maryland; Lima, Ohio; or New York City. When it comes to the financial pressures of running modern water, wastewater and stormwater systems, Baltimore is not alone, but every community is on its own when it comes to financing the solutions. It is hard to convince your citizens and ratepayers to accept annual increases in water and sewer rates to comply with federal requirements when basic infrastructure is crumbling. We need to be able to prioritize and balance our investments.

### *Affordability*

To say that Baltimore is not a wealthy city is a gross understatement. The Median Household Income (MHI) of Baltimore, a key indicator in how EPA looks at a community's affordability, is \$39,386. But if you examine the income distribution at the Census tract level, the income distribution of Baltimore is disproportionately skewed low, with MHI within these tracts well below the Citywide MHI. Twenty percent of households and 15 percent of families make less than \$10,000 per year; 33 percent of households and 27 percent of families make less than \$20,000 per year; and 45 percent of households and 39 percent of families make less than \$30,000 per year.



To add to these statistics, 26 percent of our population is living below the poverty line and 12 percent is living at less than 50 percent of the poverty line.

While these statistics are striking, the way that EPA has viewed affordability when considering enforcement initiatives since 1997 focused solely on a simple calculation based on MHI. In 2014 EPA issued new guidance to the Regions which permitted regional staff to consider other relevant economic factors such as demographics, income distribution, and the holistic Clean Water Act and Safe Drinking Water Act needs of the jurisdiction. This guidance has opened the door for rational discussion about affordability and prioritization, with the potential to make sure we are doing what is best for our citizens, our infrastructure, and the environment. The true test now is making sure that jurisdictions and EPA walk through that door together. Change is always difficult and after decades of working within the same affordability framework, some regions are finding the change to the new approach challenging and preferring to return to the standard 1997 financial capability analysis. It is vital that all of the relevant data are considered regarding a jurisdiction's ability to pay for projects is considered in enforcement actions and compliance timeframes.

Pressures on ratepayers to support increased investments in wastewater infrastructure to meet regulatory obligations have lead WEF and other water associations to call upon the EPA to reassess its definition of affordability and allow for communities to have greater flexibility in their planning and funding priorities. WEF has taken a number of steps to assist communities with this problem. In 2014, WEF, AWWA and the US Conference of Mayors produced the "Assessing the Affordability of Federal Water Mandates" report in 2013 that recommended a number of policy changes to the EPA when assessing affordability capabilities for communities. The report recommended that the EPA should not solely focus upon MHI when assessing affordability, but should focus on households at the lower end of the income spectrum. The report also urged that other financial and budget liability pressures on the community should be factored into the EPA's affordability assessment.

WEF, AWWA and the US Conference of Mayors also released the Affordability Assessment Tool for Federal Water Mandates to help communities consider factors affecting affordability and understand the implications of federal water mandates. The tool includes worksheets to help

communities accurately discern the burden of higher water bills on households at different income levels and with various demographic characteristics.

Additionally, WEF, Associations of Metropolitan Water Agencies (AMWA), National Association of Clean Water Agencies (NACWA), National Association of Water Companies (NAWC), and Water Environment Research Foundation (WERF) are collaborating on a resource guide that examines ratepayer subsidy program models in use today with a specific focus on the constitutional, statutory, regulatory, and policy underpinning of these various models at the state and local levels. The report will provide state-by-state analysis of various subsidy programs available, the legal framework that support them, and the specific legal or regulatory barriers to the use of alternative rate structures that may be in existence. The resource guide will be published the by association to assist with the development of local, state, or federal assistance programs.

In Baltimore, our poorer citizens are already feeling the strain of their water bills and with each passing year that stress is working its way into the pockets of our moderate income families. Our citizens cannot continue to sustain this trajectory of increases without some help. Several Members of Congress and water organizations, including WEF, have begun to consider the creation of a new ratepayer assistance program modeled after the successful Low Income Home Energy Assistance Program (LIHEAP). The conceived water bill assistance program would provide support to eligible low-income households similar to the way the LIHEAP program helps low-income households with their heating and cooling energy costs. This program concept warrants further examination by Congress as a potential tool to helping low-income ratepayers.

WEF and WaterReuse Association are supportive of the EPA's efforts to address financing challenges for communities dealing with affordability issues. The EPA's Water Infrastructure Resilience and Finance Center (WIRFC) is compiling a compendium of successful ratepayer assistance programs across the country. WIRFC is providing technical assistance directly and through the EPA supported Environment Finance Centers to communities. WIRFC's WaterCARE technical assistance grants to mid-sized communities to help them address local challenges they are having with financing infrastructure investments, including affordability and financing.

Another relatively new innovation is the integrated planning framework. First introduced by EPA in 2012, integrated planning, in theory, gives jurisdictions the ability to look holistically at their Clean Water Act obligations and evaluate them in terms of the environmental, social, and public health benefits that they provide, then prioritize the highest value projects. This systematic evaluation and prioritization allows a jurisdiction to weigh competing system needs, like aging infrastructure and the new regulatory requirements, to come up with the best possible schedule to meet their needs.

Since the beginning of the integrated planning idea, jurisdictions like Baltimore have been asking EPA to allow us to include drinking water projects into this prioritization. EPA has been resistant to this idea, arguing that mandates based off of the Safe Drinking Water Act, in particular, should not be subject to prioritization because their public health impacts are too important to be weighed against anything else. However, as was most dramatically shown in Flint, Michigan recently, jurisdictions are forced every day to make decisions that balance affordability against system needs. Without a framework that gives appropriate weight to the public health considerations of drinking water projects, it is all too easy for things that are "out of sight, out of mind" to get pushed to the back of the list. I am happy to state that WEF and WaterReuse Association support funding for the EPA's Integrated Municipal Stormwater and Wastewater Planning Approach to help communities address affordability challenges. The President's FY17 Budget request includes \$6.5 million to support Integrated Planning pilot projects through this effort by the EPA. WEF is very supportive

of funding for pilot projects in the FY17 budget and similar efforts by the EPA to support integrated planning.

Local jurisdictions understand their holistic system needs better than anyone, and I can confidently say that none of us are asking the federal government to come in and prioritize our projects for us. What we are asking is that EPA engage with us in a fact-based dialogue about all of our affordability issues, system needs, and public health priorities whenever we are discussing a new regulatory mandate or enforcement action. Every year science and technology advance to continually show us new things that we could be doing. While keeping up with the newest standards is important, new mandates, particularly new underfunded mandates, should be appropriately weighed against ongoing infrastructure needs like keeping pipes and plants in working order. While it is truer of some jurisdictions than others, no one ever has all of the money to do everything our engineers and planners would like us to do to keep our systems at their peak. In order to do the best we can with a financial burden our citizens can afford, we need EPA to engage with us in a dialogue about all of our competing priorities, not just hand out mandates. As our Mayor is fond of saying: "When everything is a priority, nothing is a priority."

### Federal Funding for Infrastructure

I cannot think of a more important investment to be made than in our drinking water, our wastewater, and our stormwater systems. We sometimes forget that, even in their current state, many countries would love to have the water systems we enjoy. We established these systems many years ago to protect our people from outbreaks of cholera and other waterborne diseases. But a lot has happened since sanitary engineering first began shaping our water infrastructure. We know much more about the effects we humans and our activities have on our waterways and on public health.

WEF's members are the water professionals that run the wastewater and stormwater infrastructure in communities across the country and around the globe. WEF has long been supportive of federal funding to assist communities with maintaining and modernizing their wastewater and stormwater infrastructure. WEF's members have made addressing our nation's infrastructure funding challenges a top priority for the association.

WEF and WaterReuse Association is very supportive of full funding for existing infrastructure funding programs. The Clean Water SRF program is one of the most successful federal infrastructure funding programs ever and Congress must reauthorize it and increase the authorized fund levels to help address our national needs. Over the last three fiscal years, Baltimore has obtained \$168,566,000 in low-interest loans through the Maryland SRF loan program, as well as \$4,500,000 in Principal Forgiveness loans. Below market interest rate loans and Principal Forgiveness loans help make water and sewer rates more affordable for our City residents, many of whom are low-income.

WEF and WaterReuse Association recently joined with the American Public Works Association, Associations of Metropolitan Water Agencies, National Association of Clean Water Agencies, National Association of Counties, National League of Cities, National Association of Water Companies, U.S. Conference of Mayors, and Water Environment Research Foundations, on a letter to the House and Senate Appropriations Committees requesting that the FY17 Budget fund the Clean Water SRF and Drinking Water SRF at \$2 billion each. The EPA's recent Clean Water Needs Surveys estimated that the nation will need \$271 billion over the next 20 years, but the report

states that the data underestimates stormwater infrastructure needs by roughly \$100 billion. The EPA's recent Drinking Water Needs Surveys estimated that the nation will need \$384 billion over the next 20 years. Combined, the two surveys call for \$655 billion over the next 20 years, which make the requested increase for the Clean Water SRF from \$1.39 billion in FY16 to \$2 billion in FY17 warranted and a justifiable increase by Congress.

Additionally, Congress should pass legislation to reauthorize the Clean Water and Drinking Water SRF programs and increase the authorized funding levels. WEF and WaterReuse Association support passage of S. 2583 by Sen. Ben Cardin to reauthorize the programs and increase their funding levels. A later portion of testimony includes further justification for increased funding.

The Water Infrastructure Finance & Innovation Act (WIFIA) is another financing tool that Congress should provide significant funding for and support the full authorization of. WEF is extremely grateful to Chairman Inhofe and Ranking Member Boxer for their leadership in creating WIFIA in 2014, and the amendments to the program in 2015. To be clear, WEF and WaterReuse Association are opposed to reducing funding for the SRF programs to fund the WIFIA program. Both programs are vital and must be fully funded.

The FY17 Budget request letter that WEF co-signed with the other major water and municipal associations also requested that the WIFIA program be funded at the authorized level of \$35 million. The EPA has calculated a leveraging ratio of 1:60 for the WIFIA programs, which means that for every \$1 in appropriation for the WIFIA program, the Treasury Departments will be able to loan \$60 for infrastructure projects. A \$35 million appropriation would equal \$2,100,000,000 in loans and loan guarantees from the Treasury. Under the WIFIA program statute, the federal share of a project cannot exceed 49%, which means the combined federally backed loans and the local cost share will equal over \$4.2 billion in infrastructure investments.

While the WIFIA program has yet to begin making loans and loan guarantees, WEF has received word of strong interest in the program for potential applicants. The program that Congress authorized in 2014 is a pilot program set to sunset after FY19, which means that if Congress appropriates funding for the program in FY17, there will only be three fiscal years to provided funding for infrastructure investments and for Congress to evaluate the effectiveness of the program. WEF urges Congress to make permanent the WIFIA program and authorize appropriations for the program at the authorized FY19 level of \$50 million going forward.

Additionally, other important existing federal funding programs should continue to provide support for water and wastewater infrastructure investments. The United States Department of Agriculture Rural Assistance Programs, particularly the Water and Waste Disposal Loan and Grant Program, is an important source of funding and financing for rural communities.

The Bureau of Reclamation Title XVI program identifies and investigates opportunities to reclaim and reuse wastewaters and naturally impaired ground and surface water in the 17 Western States and Hawaii. Title XVI includes funding for the planning, design, and construction of water recycling and reuse projects, on a project specific basis, in partnership with local government entities. Since 1992, approximately \$639 million in Federal cost-share has been leveraged with more than \$2.4 billion in non-Federal funding to design and construct water recycling projects. In 2014, an estimated 378,000 acre-feet of water was recycled through Title XVI projects. WEF, WaterReuse, and the other water and municipal associations that signed onto the FY17 Budget request letter to Congress referred to earlier in this testimony, have requested that the Title XVI program be funded at \$23.365 million in FY17.

WEF and WaterReuse Association are strongly opposed to any efforts to change tax deductibility levels that may affect tax-exempt municipal bonds. Proposals in Congress and in the President's FY17 Budget proposal would have extremely harmful impacts upon the appeal and issuance of tax-exempt municipal bonds. Tax-exempt municipal bonds fund over 80% of water infrastructure investments, of which approximate 50% of the bonds are purchased by individuals directly or through mutual funds<sup>6</sup>. Any efforts to change the way tax-exempt municipal bonds work should be rejected by Congress.

*Recent Findings of Economic Benefits Analysis of Federal SRF Funding*

Note that when I speak about water infrastructure I use the word "investment" because smart, prioritized capital projects and asset management foster a healthy and sustainable environment AND economy. It has long been debated on Capitol Hill and among supporters of the SRF programs that the scoring for the programs do not fully reflect the complete economic benefits of federal funding of the programs. This Committee recognized this inconsistency in the budget scoring of the SRF programs, and asked WEF and WaterReuse Association to look into a more accurate calculation of the tax revenues generated by federal SRF funding as it passes through the economy. For this hearing, WEF and the WaterReuse Association contracted a team of economists to conduct a quick analysis of the economic benefits. Although the time to complete the analysis was very limited, the findings are significant. The full analysis is still being completed and will be submitted to the Committee for the record.

The analysis estimated economic impact of SRF spending in four example states, including taxes that return to the Federal government, and employment and output that the spending generates. The four states chosen were California, Maryland, Ohio, and Oklahoma, which represent a good cross section of states across the nation, representative of geographic size and population size, cost of living, rural and urban populations, and general age of infrastructure.

The model for the analysis was based upon the IMPLAN<sup>7</sup> economic model to estimate the impact of SRF spending on output, labor income, jobs and Federal tax revenues in the four states. IMPLAN captures the effect of spending as it ripples through the economy, and is very commonly used economic model across all sectors of the economy. For example, utility spending of SRF funds results in direct spending on construction contractors (known as the direct effect). The construction contractor then re-spends this money on goods and services in the economy that it needs to operate its business (the indirect effect). Direct and indirect spending generate employment, creating additional income for households that generates even more spending (the induced effect). The total economic impact is the sum of direct, indirect and induced effects. This generates federal, state and local tax revenues.

To model SRF spending in IMPLAN, the analysis used recent total state SRF spending in each state averaged over 2012-2014. This is equivalent of modeling a doubling of current level of SRF expenditures in each state. The data was obtained from EPA's National Information Management System Performance Reports for clean water and drinking water infrastructure needs. The EPA's

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<sup>6</sup> The Impacts of Proposals to Scale Back or Eliminate Tax-Exempt Municipal Bond Financing On Public Drinking Water & Wastewater Systems, NACWA & AMWA, July 2013

<sup>7</sup> The IMPLAN economic model was originally developed by the U.S. Forest Service in 1972. It is used by thousands of federal, state and local government agencies to help make informed decisions and assess the potential impacts of policy and tax decisions on the economy.



National Information Management System Performance Reports is the data source for the Clean Water Needs Survey and Assessment and Drinking Water Needs Survey and Assessment reports.

For this analysis, the data was used to allocate the total SRF spending in each state across different project types based on the level of need in each needs category in the 2011 Clean Water and Drinking Water needs survey. The analysis then mapped the spending associated with the different needs categories into IMPLAN sectors. For example, for each needs category, a percentage of spending was allocated to IMPLAN sectors such as construction, heavy equipment, pipe, engineering and design services, local government/water utilities, and other categories.

The results of the analysis were significant and show that federal investments in water and wastewater infrastructure through the SRF programs have meaningful benefits to the economy, U.S. Treasury, and households across the nation.

### Results

SRF spending generates Federal tax revenues.

- Total (state and federal) annual SRF spending in the four states has averaged \$1.46 billion. This generated \$234 million of Federal tax revenues. **Therefore, every million of SRF spending is estimated to generate \$160,000 in Federal taxes from those states.** This does not include tax revenues generated by indirect spending by firms in other states (other than CA, OH, MD and OK). The model is not able to capture indirect spending that a contractor and firm may take out of CA, OH, MD or OK, and spend in a way that would generate more Federal taxes.
- When compared only to the federal portion of SRF spending, which accounts for 23% of total spending, **every \$1 million of federal spending generates \$695,000 in Federal taxes from those states.**<sup>8</sup>

In addition to tax revenues, spending results in increased in employment and labor income in the four states.

- On average, **14 jobs are generated** in these four states for each million dollars in SRF spending. Plus, additional jobs are likely created by indirect spending in other states.
- SRF spending generates high paying jobs – each job is estimated to bring about *\$60,000 in labor income*.

SRF spending generates output in the state economies.

- **Every million dollars of SRF spending results in \$2.25 million dollars in output for the states' economies, on average.**

### Conclusion

I have touched upon just some of the water infrastructure challenges we at the local government level are faced with, and some of the remedies we believe will help lessen the financial impact on

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<sup>8</sup> This view compares the same amount of taxes generated from SRF spending but compares it only to the federal portion of the total spending.

our citizens, particularly those who have so little income to spare. Full federal funding for this infrastructure through such programs as the SRFs and WIFIA will help us begin to make inroads in our water and wastewater needs. As shown in the WEF and WateReuse study, these program investments should not be seen as just another item on the expense side of the federal government ledger. Investing in water infrastructure delivers environmental, public health and economic benefits critical to the health and safety of our country.

Thank you Mr. Chairman and Committee Members for your kind attention. I would be happy to answer any questions you may have.