



Senate Environment and Public Works Committee

Written Testimony of Josh Ellis

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Good afternoon. My name is Josh Ellis. I am a Vice-President of the independent Metropolitan Planning Council. I am pleased to be here today and to have the opportunity to present information and ideas to Senate Environment and Public Works Committee.

The Metropolitan Planning Council is a Chicago-based not-for-profit organization. Since 1934, MPC has been dedicated to shaping a more equitable, sustainable and prosperous Chicago region for everyone. At MPC we recognize the importance of our water resources for their ecological, recreational, and economic value. We also recognize that sound infrastructure policies and timely infrastructure investments are critical for protecting and fully utilizing our water resources and for supporting economic activity.

MPC very much appreciates the Committee's investigations into America's water infrastructure funding shortfall and the development and use of innovative financing and funding options.

## A National Infrastructure Bill

I would like to start with expressing MPC's strong support for federal infrastructure investments. There is a clear need to repair, replace and modernize our aging infrastructure. I am sure the Committee is aware that the 2017 Infrastructure Report Card, issued by the American Society of Civil Engineers, gave our public infrastructure a grade of D+. Investments in well-planned infrastructure projects will improve quality of life for individuals, support business activity, and reduce environmental, health and safety risks. And infrastructure investments provide significant economic returns. To cite an example from the Great Lakes region, the Northeast Ohio Regional Sewer District undertook a set of wastewater infrastructure improvement projects with a cumulative cost of approximately \$3 billion. Based on a study carried out by Cleveland State University, the District estimates that this investment will lead to more than 30,000 jobs in the Cleveland area and return \$2.63 for every \$1.00 invested.

A substantial Federal infrastructure program will in and of itself produce important results, and will also spark investments by States and cities. I do think, however, we need to be thoughtful about how the programs are set up and administered. We need to make sure the programs do not inadvertently leave out small and medium-sized communities. These communities have aging infrastructure and significant needs, but often have limited capacity to plan and engineer projects and finance projects. Also, we need to utilize program structures with streamlined processes so projects can be completed

as quickly as possible, and with the investments resulting in the maximum scale of in-the-ground infrastructure improvements.

As a complement to a substantial infrastructure bill, we also want to be thinking of ways we can most effectively use resources currently available. Perhaps we can derive the most benefit in the shortest amount of time by considering possible, feasible improvements to existing funding and financing tools.

### Tools and Approaches for Budgeting and Infrastructure Management

There is a perception held by many that drinking water, wastewater, and stormwater service providers have a “fix it as it fails” approach to managing infrastructure. People can have this perception because they have seen things like sinkholes and emergency water main repairs. However, many utilities are striving to get out ahead of infrastructure problems, to proactively perform maintenance and prevent the need for costly and disruptive emergency repairs. Following is a list of tools and approaches that are already in use in some places:

Full Cost Pricing – Many communities and utilities have rate structures which do not provide sufficient funds to fully cover debt retirement, preventive maintenance, repairs, and contribution to a capital fund for replacements and modernization. There are a number of reasons for this, but a primary factor is

rate increases are perceived as something unpopular with voters. Elected officials who are typically on 4-year election cycles are reluctant to push forward with rate increases knowing it could dampen their chances of re-election. However, there are significant real-world impacts of inadequate service rates and under-funded budgets. The most obvious effect is maintenance is deferred and in some cases capital and major repair projects are postponed to some unspecified time in the future. It should not come as a surprise that things break if the budget for maintaining the infrastructure was inadequate.

It is not easy for a utility to raise rates and charge amounts that will support work that needs to be done. However, one step that would be valuable is continued outreach and information dissemination about the value of water and what it really costs to deliver water and wastewater services. Some ratepayers may not be aware of all the costs behind the work and the investments that are necessary for clean, safe drinking water to always be delivered to their tap, and for their wastes to go away and be managed in an effectively functioning wastewater system. Raising awareness about the full cost of water services may make it easier for appropriate rates to be charged.

Another factor that affects rate setting is the local political environment. Mayors and trustees on a 4-year election cycle are often very reluctant to raise rates. This is understandable, the elected officials do not want to incur the wrath of voters, but the result is rates that are too low and revenues that are insufficient. The Federal government and States should consider ways to

detach rate-setting from political processes. For example, could an independent public service commission be responsible for approving rates? Some State already have such commissions.

Asset Management Systems – Asset management is an approach used by well-managed utilities to ensure adequate maintenance is carried out to prevent breakdowns and disruptions. Here’s how it works: the utility exhaustively inventories its assets, including the condition and age and useful life. The asset management system also notes what routine maintenance is needed. The system then identifies and schedules preventive maintenance to routinely maintain and update infrastructure components and in this way “fix things before they fail.” Another important advantage of asset management systems is by comprehensively identifying maintenance and replacement needs the utility can more fully and realistically identify costs that should be reflected in the budgeting process. The detailed information about operation and maintenance costs can help justify an adequate rate structure.

Water Loss Audits – One issue that many drinking water service providers face is water loss. What can happen is the utility draws water from a source (groundwater or a lake), provides treatment for the water, and then delivers the finished water out to a distribution system. But then water is lost in the distribution system. High quality, treated drinking water is leaked out. This problem is particularly prevalent in older systems with aging water mains. Water loss can also be associated with inaccurate metering of customer consumption or theft of service. A check of the amount of water sent to the

distribution vs. the amount of water metered and billed for can show enormous amounts of water are being lost. For example, available information indicates the amount of water lost *each week* in Northeastern Illinois would more than fill the 100-story Willis Tower building.

An approach drinking water providers can use to get a handle on this problem is to regularly conduct water loss audits. The American Water Works Association has established a standard method for water audits, which is referred to as the M36 method. Carrying out such audits and following up on findings to fix leaks, repair and replace lines, and ensure accurate metering can help conserve valuable water resources and can help ensure drinking water utilities are receiving the fee revenue needed to operate and maintain their systems.

Stormwater Utilities – Many public services are provided by a service utility, which charges a fee for service and which uses the fees collected to operate and maintain the system. Electric companies and natural gas utilities are examples. Many drinking water providers are set up as utilities, with rates charged based on per gallon water use. An outlier with regard to such systems is stormwater management.

Stormwater systems provide important services to homes and businesses, collecting and managing rainfall runoff so streets and buildings are not flooded. Stormwater programs also help to reduce the pollution that can be caused by runoff that has picked up litter and pollutants as rainwater runs

across streets and parking lots and lawns. Stormwater systems provide a service to the public similar to drinking water and wastewater utilities; however, in many places the stormwater management services are financially supported in the same way. Stormwater service providers often do not charge a fee for stormwater services; the service costs are instead supported by property taxes or another local government funding mechanism. Thus the stormwater budget competes with the police department, the fire department, and other municipal services for the limited dollars that are available.

The solution to this is for local decision-makers, with State support and authorization, to form stormwater utilities and charge fees for stormwater services. The fees can be set up in a number of ways, but what often is the most defensible fee system is to charge property-owners a fee based on an estimate how much stormwater they are generating. This is not a brand new idea, there are over 1,500 stormwater utilities presently operating in the U.S. But they are still the exception, not the rule. One reason there are too few stormwater utilities is the reluctance of elected officials to establish a new fee, which for some could be perceived as a new tax. The Federal government and States need to support the establishment of stormwater utilities. One thing States can do is make sure they have given cities and towns and counties the authority to establish stormwater utilities.

## State Revolving Loan Programs for Water Infrastructure

Implementing a program established in the Federal Clean Water Act, States administer low interest loan programs for drinking water and clean water (stormwater and wastewater) infrastructure projects. These are invaluable programs, helping communities address critical needs. MPC and most communities across the U.S., would urge Congress to continue to fund and support the State Revolving Fund (SRF) loan programs.

While the programs as currently carried out are extremely valuable, there are ways the programs could be fine-tuned to improve their effectiveness. Following are observations and recommendations related to drinking water and Clean Water SRF programs:

Best Practices - The SRF program works well as a whole, and certain States have implemented features that are innovative or especially effective. However, there is not a compiled inventory of best practices across States and in many cases State agencies busy operating their programs are slow to adopt new practices shown to be effective in other places. The Federal government may be able to do more to catalog best practices and facilitate their adoption across States.

More Like a Bank – SRF programs would be more accessible and more effective if the process for receiving a loan functioned more like steps an entity would take to get a loan from a bank or other lending source. In



particular there is a need to speed up the process from envisioning a project to developing an approvable loan package to receiving the financing.

Presently this process can take up to 3 years. Meanwhile the infrastructure is crumbling and local officials are getting ready to move on to other things.

Some communities go to the bond market for financing because they perceive that approach as being faster or easier than SRF processes.

Applicants need reasonable time frames and certainty so they can balance construction schedules (including seasonality and weather), costs to retain consultants, and getting critical infrastructure needs addressed.

Who Administers the SRF Program – In many States the SRF program is administered by the State environmental regulatory agency. In one way this makes sense -- the environmental agency already interacts with regulated entities and has the experience and knowledge to review plans and designs. However, the State environmental agencies are typically not finance experts. Removing the SRF program from the environmental regulatory compliance agency within each State may be one approach for accelerating loan processes and managing the financing aspects of the loan fund and loan projects. In Indiana, for example, the SRF programs are implemented by the Indiana Finance Authority, with technical project reviews carried out by the Indiana Department of Environmental Management.

Developing Loan Application Packages – There is a substantial amount of work that goes into developing an approvable SRF loan application package, including financial documentation to show project costs and the scheme for

loan repayment. The application package must also include detailed engineering plans and specification for the project to be implemented. The amount of work to be done and the costs associated with this work, for example hiring an engineering company to develop technical plans and specifications, can be more than a low-income community can take on. It would be advantageous for SRF programs to provide grants or at least advance financing for the engineering work needed to plan a project and prepare an approvable application. A program feature such as this would allow more communities to participate in the program.

Fiscal Sustainability Plans – Since the passage of the Water Resources Reform and Development Act of 2014 communities receiving Clean Water SRF funding must develop and implement a Fiscal Sustainability Plan. These plans will have many of the features of an asset management plan and program, and should help provide for better infrastructure maintenance and budgeting. Currently the Drinking Water SRF program does not require asset management programs or Fiscal Sustainability Plans. Ensuring that drinking water loan recipients are implementing a Fiscal Sustainability Plan would be a valuable program enhancement.

Work on Private Property - One factor that contributes to water loss for drinking water suppliers, and to infiltration into wastewater sewers, is leaky water lines and sewer laterals on private property. These connectors between homes and public infrastructure are frequently old and not well-maintained. Part of the reason for inadequate maintenance is the property-owner thinks

it's the city's problem and the city thinks it's the property-owner's problem. A valuable enhancement to the drinking water and clean water SRF programs may be to make it clear that SRF financing can be used for work to repair or replace water lines and laterals on private property. For the drinking water program this could have significant public health consequences as in many communities there are lead pipe water lines that need to be replaced. There may also be cases where it would be environmentally valuable for the Clean Water SRF program to support nonpoint source projects on private property, such as streambank stabilization or buffering. Significant benefits can be realized if SRF programs can be made available to address these types of public needs situated on private property.

A further enhancement could be to allow a water or wastewater utility to hold an SRF loan assigned to private property improvements. The utility could then offer the private property customer a portion of the loan for lead line replacement or lateral repair and collect the costs of loan repayment as an add-on to the water or sewer bill. This would relieve the homeowner of holding a loan, but allow repair now with payment spread over time.

USDA Rural Utilities Service – USDA administers programs that provide much-needed infrastructure or infrastructure improvements to rural communities. These programs include water and waste treatment, electric power and telecommunications services. These services play a critical role in helping to expand economic opportunities and improve the quality of life for rural residents. These programs complement SRF programs and should not be

perceived as redundant or duplicative. The USDA and SRF programs address fundamentally different water management challenges; both need to be supported to address crumbling infrastructure issues and support allow for economic growth and environmental protection.

Flooding – The State of Illinois enacted the Urban Flooding Awareness Act, which called for a study of the extent and cost of flooding in urban and suburban areas. The State-wide study, and an earlier study focused on Cook County carried out by the Center for Neighborhood Technology, found there is very extensive flood damage from storms, even when the event is not declared to be a disaster. The studies also found that disadvantaged neighborhoods often sustained some of the greatest flood damages.

The State-wide flooding awareness report offered several recommendations to better address urban flooding. One recommendation was the Federal government and States should explore grant or revolving loan opportunities to support implementation of local cost sharing mitigation programs for residents impacted by flooding, to evaluate stormwater system capacity and flood risk, and to encourage stormwater management planning. This should be a corollary program, not a component of the already over-stretched Clean Water SRF program.

## Governance and Affordability

Improving funding and financing can go a long way toward helping to address America's crumbling infrastructure issues. However, fixing the money will not necessarily fix all the problems. Governance, and specifically fragmentation of governance, is a huge problem. In many areas there are numerous, relatively small, relatively localized water and wastewater utilities. For example, there are more than 400 community water supply systems in Northeastern Illinois (see Figure 1).

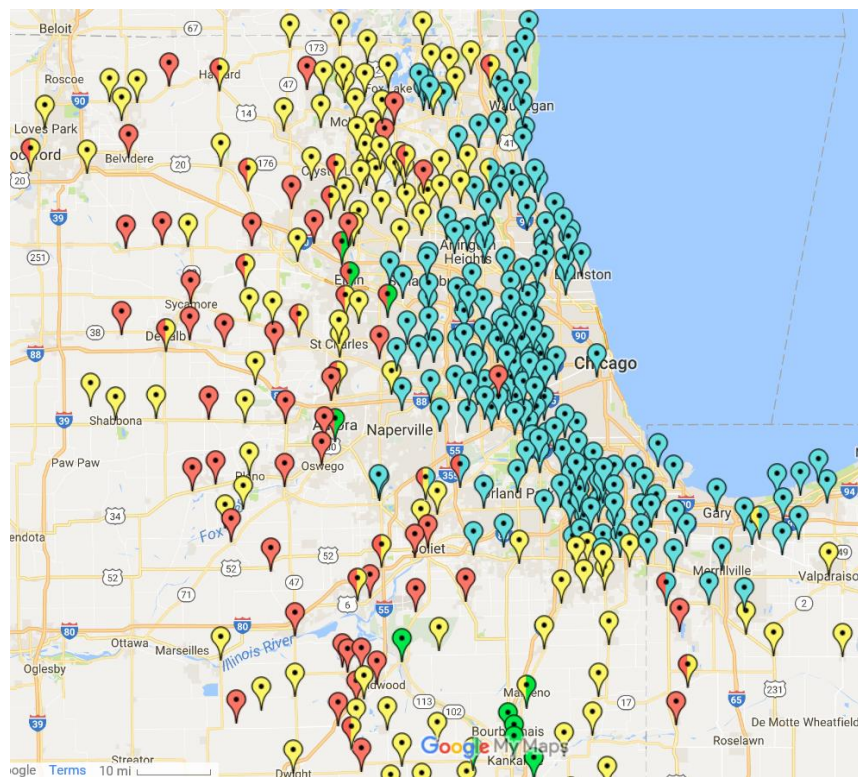


Figure 1 – Community Water Supply Systems in the Chicagoland Area

There are reasons a municipality may wish to operate its own water or wastewater system, including ensuring that community members receive the

services they need. However, having many small utilities in a particular geographic area can lead to inefficiencies and lost opportunities. For example, there can be economies of scale operating a relatively larger treatment plant vs. operating many smaller plants. A larger utility may be able to access financing with more favorable terms. A 2008 study on the economic impacts of utility coordination and consolidation in the Lehigh Valley in Eastern Pennsylvania found that consolidation from 40 separate utilities to one regional utility would result in an average household savings of \$260 per year, and a total savings regionally of \$56 million per year by 2020.

Utility fragmentation can compound underlying environmental, economic and equity issues. For a community whose population is declining, which is common in some cities and many inner-ring suburbs, as well as many rural communities, or for communities where the remaining population is increasingly uniformly poor, there is simply no revenue base – incomes, property values, sales proceeds, billable water consumption – to generate sufficient resources to manage the water and wastewater system. If a community has shrunk by 10,000 people, but the system of pipes, pumps, water towers, etc., has not shrunk, you have fewer people, and often poorer people, trying to pay to maintain the system. A responsible water manager would try to pay the full costs of providing service, but that only leads to higher and higher water rates.

In cities across the United States, water affordability is becoming an increasingly critical issue. Mass shutoffs in Detroit, Michigan resulted in the

termination of service for 50,000 households since the start of a campaign in 2014 to shut off water for delinquent residents. In Philadelphia, Pennsylvania an estimated 227,000 customers, or 4 out of 10 water accounts, are past due. Atlanta, Georgia and Seattle, Washington have some of the highest water rates in the country at \$325.52 and \$309.72 per month for a family of four, respectively.<sup>1</sup>

If there are disadvantaged households where affordability is an issue, households to which a utility might want to provide a rate reduction, it is more feasible that the utility to absorb the affordability rate reductions if there is a large ratepayer base with income diversity.

The issue of water affordability is an important one. The size of a water or wastewater utility and the size and income of the ratepayer base can affect the ability of the utility to maintain its systems and prevent breakdowns, and can have affordability impacts on ratepayers. This is not an urban, suburban or rural issue, this is systemic across many parts of the U.S.

It is time to start thinking hard about modernizing the governance of water and wastewater systems. There are many options available to communities that have been tested and proven to be successful; all have pros and cons. Options include consolidation of neighboring utilities, creating governance independent of the municipality, public-private partnerships, and privatization.

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<sup>1</sup> Elizabeth A. Mack<sup>1</sup> and Sarah Wrase. A Burgeoning Crisis? A Nationwide Assessment of the Geography of Water Affordability in the United States



There are political factors that may affect decisions to collaborate or regionalize, but there are also very practical considerations related to making a change. For a community struggling to get through today, it is difficult to find time and resources and expertise to assess options for the future. I would recommend that the Federal government should not mandate consolidation, privatization, or other organizational changes, but can encourage, incentive and reward communities for taking steps to ensure that they're choosing the best management option for themselves. Policy approaches might include:

- Convening a task force on water utility governance, and commission a study on the phenomenon of shrinking population, lower incomes/ revenues, and higher maintenance costs.
- Allowing that States make grants available for management studies (i.e. consolidation, privatization, etc.) through an SRF set aside program.

Actions that can be taken to facilitate regional coordination or promote the consolidation of small utilities, where appropriate, can be an important component of efforts to maintain and restore our nation's deteriorating water and wastewater infrastructure.

### [Additional Issues of Interest to the Committee](#)

Rivers/Riverfronts – Historically many U.S. cities were established at strategic locations adjacent to rivers. Businesses were built up next to the waterways. The rivers facilitated trade and transportation, and were a centerpiece of the community's economy. However, over time other forms of transportation



became prevalent. Some businesses closed. The rivers became polluted and people did not want to recreate on the rivers or perhaps did not want to even see the rivers.

We are now on the precipice of another major change in how rivers are viewed and their importance to local economies. Cities are rediscovering their rivers and redeveloping along riverfronts. Recreation on the rivers is proliferating. Chicago is a prime example, with the extensive efforts to create a Riverwalk and promote riverfront businesses. Chicago is far from alone, cities across the country are thinking this way. However, there are institutional factors that may be restraining some communities from taking full advantage of river-related opportunities.

Essentially all urban river renewal projects from Chicago to Little Rock, New York to Spokane – have been municipally- or regionally-led. In some cases the Federal players (Corps of Engineers, Coast Guard, EPA, Fish & Wildlife) have needed to be pulled along. Federal policy to more proactively and systematically support rivers projects would be very beneficial. One idea would be a Federal interagency task force to establish a coordinated package of federal programs, resources, etc., for urban river renewal. The Federal government can also help communities explore and take advantage of opportunities to leverage private investment for public good.

I suggest perhaps a Federal interagency task force to establish a coordinated package of federal programs, resources, etc., for urban river renewal.

Revitalizing river corridors can help connect downtowns with lower income neighborhoods, rejuvenate older industrial areas, provide recreation opportunities, and foster progress toward environmental goals. The Federal government can be a leader in moving forward to realize this vision.

Invasive Species – An issue important in the Great Lakes region is aquatic invasive species. You may have seen photos of Asian Carp in the Mississippi River Basin and the Illinois River flying out of the water. These non-native fish disrupt recreational activity and wreak havoc on the ecosystem. Observing how these species have moved in and dominated inland waterways, there is fear Asian Carp will work their way into the Great Lakes, causing huge ecosystem and economic impacts. In fact a Silver Carp was recently found in the Calumet River just 8 miles from Lake Michigan. Aquatic invasive species can also move in the other direction, with non-native fish that have gotten in the Great Lakes, transported by ballast water, finding their way into the Mississippi River basin.

There has been extensive work done to try to control Asian Carp populations, and to prevent the migration of invasive species between the Upper Mississippi Basin and Lake Michigan and Lake Michigan. However, the threat continues. Federal action to limit the migration of invasive species is critical.

The Metropolitan Planning Council strongly supports the following:

- The U.S. Army Corp of engineers has completed a study evaluating measures to control Asian Carp migration at the Brandon Road Locks in Illinois. This report was completed by the Corps to analyze alternatives,

describe a tentatively recommended plan, and start a process to gather input from stakeholders and the public. This report has been held back by the Administration. It needs to be released to allow for review and comment by affected businesses and governmental units and people in Illinois and the other Great Lakes States.

- Work should continue to evaluate what additional controls may be appropriate to control the migration of carp and other species both into the Great Lakes and from the Great Lakes.
- The waterways in Illinois have great economic value for shipping and transportation. Many businesses move raw materials and goods via the rivers. Currently, some of the lock systems are relatively old and they are not sized or designed for some of the barge traffic on the rivers. MPC foresees a terrific opportunity to study possible infrastructure improvements at the locks that would both increase transportation efficiency and control the migration of invasive species. There is no reason these two objectives should be considered separately. There can be valuable synergies by considering these objectives together.

GLRI – The Great Lakes Restoration Initiative has supported many extremely valuable projects which have resulted in great strides toward environmental goals. Projects have involved many diverse groups and addressed many different aspects of Great Lakes protection. Having healthy lakes provides tremendous recreational opportunities and forms a strong foundation for business activity. GLRI is a complement to other Federal and State programs, such as SRF, and is structured to allow creativity and produce results-oriented

projects. The Metropolitan Planning Council ardently requests and recommends continued funding for the GLRI.

Nutrient Trading – Nutrients are a category of pollutants that can cause significant water quality problems. EPA, States, and other water resources stakeholders are seeking to reduce loadings of nutrient parameters, particularly phosphorus and nitrogen, to prevent algae blooms and ensure water quality can support healthy, diverse aquatic communities and recreational activity. Nutrient loadings from the sources in the Upper Mississippi Basin are contributing to Gulf of Mexico hypoxia concerns.

Nutrient trading is a concept under which parties work together to create a "nutrient market" to plan and implement control measures whereby the desired load reductions are achieved at the lowest cost to society. For example one large plant may complete an upgrade to provide a very high level of treatment, and then one or more smaller plants may not have to make expensive upgrades. It will be beneficial for Federal policy to allow and support nutrient trading program development, including trading between wastewater treatment plants within a State, trading between facilities in different States, and trading between wastewater plants and nonpoint sources such as agricultural operations. Endorsing nutrient trading can potentially and optimize cost-effectiveness and accelerate progress toward water quality protection goals.

## Conclusion

As I conclude my testimony I would like to acknowledge input provided by knowledgeable professionals in Illinois that contributed to the ideas and information I have presented today. On June 9 the Metropolitan Planning Council convened a brainstorming session to discuss key issues, best practices, and innovative ideas related to the topics you are focusing on today. The attendees who contributed valuable input during this brainstorming session and their organizations are listed below – please note that listing them here does not necessarily signify that they endorse all the ideas I suggest above.

Thank you for the opportunity to provide this testimony. The Metropolitan Planning Council sincerely appreciates the time and thought you are putting into addressing our nation’s water and wastewater infrastructure issues.

Hopefully and thankfully submitted,

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Water and Wastewater Brainstorming Session

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