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Testimony Of

The American Society of Civil Engineers

Before The Subcommittee on Water and Wildlife

Environment and Public Works Committee

U.S. Senate

On

Our Nation's Water Infrastructure: Challenges and Opportunities

December 13, 2011

Mr. Chairman, Senator Sessions, and Members of the Subcommittee:

Good morning. My name is Gregory E. DiLoreto, and I am the president-elect of the American Society of Civil Engineers (ASCE). I am the chief executive officer for the publicly owned Tualatin Valley Water District in the Portland, Oregon, metropolitan area. The District is the second largest water utility in Oregon, serving more than 200,000 customers in the Portland area. I am a licensed Professional Engineer in the state of Oregon in civil and environmental engineering.

As a public official, I am honored to be here today to testify on behalf of ASCE on the state of America's drinking-water and wastewater infrastructure as the Subcommittee examines "Our Nation's Water Infrastructure: Challenges and Opportunities."

Every four years, ASCE publishes the *Report Card for America's Infrastructure*, which grades the current state of 15 national infrastructure categories on a scale of A through F. In 2009, our most recent *Report Card* gave the nation's wastewater and drinking-water infrastructure systems a grade of a D–.

As a snapshot at a moment in time, the *Report Card* identifies 20-year funding needs; it does not answer critical questions about the impact of delayed or reduced investments in key infrastructure systems as the nation grapples with its aging public works.

That is why ASCE has undertaken a series of four economic studies to identify the long-term consequences to the nation's economy due to our deteriorating infrastructure.

In July, we issued our first report on the under investment in the nation's surface transportation systems. We concluded that by 2020 the nation's deteriorating surface transportation systems could cost the American economy more than 876,000 jobs, and suppress the growth of the country's Gross Domestic Product (GDP) by $897 billion.

Our second report, which we will release later this week, answers the question of how the condition of the nation's deteriorating wastewater and drinking-water infrastructure impinges on economic performance. In other words, how does that D– for water treatment and transmission affect America's economic future? The answer is sobering.

Water is vital. If it is not available, essential life activities cannot be sustained. Although water may be conserved, it must be obtainable. A well-maintained public drinking-water and wastewater infrastructure is critical for public health, strong businesses, and clean rivers and aquifers.

But capital spending has not kept pace with needs, and if these trends continue, the resulting gap will only widen. As a result, pipes will leak, new facilities required to meet stringent environmental goals will be delayed, operations and maintenance will become more expensive, and sources of water will become polluted.

I. Investment Shortfalls Total Billions of Dollars

By now every member of this subcommittee is aware of the funding needs for drinking-water and wastewater systems. In short, by 2020 the gap between needs and anticipated funding for wastewater and drinking-water infrastructure will be $84 billion.

The nation's drinking-water systems face staggering public investment needs over the next 20 years. According to the EPA, while America spends billions on infrastructure each year, drinking-water faces an average annual shortfall of at least $11 billion to replace aging facilities that are near the end of their useful life and to comply with existing and future federal water regulations. The shortfall does not account for any growth in the demand for drinking-water over the next 20 years.

In January 2008, the U.S. Environmental Protection Agency (EPA) reported that the total investment needs of America's publicly owned treatment works were $202.5 billion. This reflects an increase of $16.1 billion (8.6 percent) since the previous analysis was published in January 2004.

In 2002, the Congressional Budget Office (CBO) estimated that for the years 2000 to 2019 annual costs for investment would need to be between $13 billion and $20.9 billion for wastewater systems.

II. The Economic Impact of Current Investment Trends

Our report, *The Economic Impact of Current Investment Trends in Water and Wastewater Treatment Infrastructure*,[1] concludes that the nation's wastewater and drinking-water infrastructure is under great strain.

Clean water is fundamental to our economy and our way of life. Today, the clean water necessary to support our economy and our health cannot be supplied by nature alone. Drinking-water systems collect source water from rivers and lakes, remove pollutants, and distribute safe water for people to drink and for businesses to operate. Wastewater systems collect used water and sewage, remove contaminants, and discharge clean water back into our rivers and lakes for future use. Wet weather management prevents various types of pollutants like sewage,

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[1] The full report will be available on December 15th at www.asce.org/failuretoact

heavy metals, or fertilizer from lawns from ever reaching our waterways. These systems are inextricably linked.

As the U.S. population has increased, the percentage served by public water systems has also increased. Each year new water lines are constructed to connect more distant dwellers to centralized systems, continuing to add users to aging systems. Although new pipes are being added to expand service areas, drinking-water systems degrade over time; they must be replaced at the end of their useful life, which ranges from 15 to 95 years.

Particularly in the country's older cities, much of the drinking-water infrastructure is old and in need of replacement. Failures in drinking-water infrastructure can result in water disruptions, impediments to emergency response, and damage to other types of essential infrastructure. In extreme situations caused by failing infrastructure or drought, water shortages may result in unsanitary conditions, increasing the likelihood of public health issues.

Water infrastructure in the U.S. is clearly aging, and investment is not able to keep up with the need. Our findings indicate that investment needs will continue to escalate.

To repeat, if current trends persist, by 2020 the anticipated capital funding gap will be $84 billion. Even with the increased use of sustainable practices and cost-effective development of other efficiency methods, the growing gap between capital needs to maintain drinking-water and wastewater treatment infrastructure and investments to meet those needs will likely result in unreliable water service and inadequate wastewater treatment.

Our analysis assumes that the mounting costs to businesses and households will result in a number of scenarios or choices:

- Doing nothing and living with water shortages, and higher rates (rationing though price increases); major outlays by businesses and households, including expenditures incurred by moving to where infrastructure is still reliable, purchasing and installing equipment to conserve water or recycle water, and increasing reliance on self-supplied water and wastewater treatment (i.e., installing individual wells and septic waste systems when municipal facilities and services are not available options).
- Responses to failing public infrastructure will vary by location, size, household characteristics, and type of business. Expenditures due to moving, or from installing and operating new capital equipment for "self-supply," are estimated for households, commercial establishments, and manufacturers.

- Movement across regional boundaries and relocation of businesses outside of the U.S. is certainly a response that may be triggered by decreasing reliability of public water and sewer systems.
- Households and businesses that do not self-supply are assumed to absorb the higher costs that are a consequence of disruptions in water delivery and wastewater treatment due to worsening infrastructure. The assumption for this category is that these households and businesses will pay the $84 billion associated with the 2020 capital gap in terms of higher rate costs over and above the baseline projected rates for water and wastewater treatment.

III. Effects on the Nation's Economy

The $84 billion funding gap may lead to $147 billion in increased costs for businesses and a further $59 billion for households. In the worst case, the U.S. will lose almost 700,000 jobs by 2020.

By 2020, the average annual effect on the U.S. economy is expected to be $416 billion in lost GDP. Putting the problem in terms we can all understand, the average family household budget will increase about $900 annually to cover the cost of increased water rates and lost income.

IV. What Can Be Done?

First, the good news is that some of these effects can be mitigated if American households and businesses adopt sustainable practices. Without sustainable practices, the economic effects outlined above will continue to escalate.

But, if households and businesses adopt sustainability practices like improved efficiency through process or equipment changes, water reclamation, or green infrastructure to address wet weather management as water rates continue to rise, negative long-term economic effects can be mitigated.

If sustainability measures are broadly adopted, for example, rather than job losses possibly reaching 1.4 million by 2040, losses would peak at between 800,000 and 830,000 in 2030, and drop to 615,000 by 2040.

Sustainability measures alone won't solve the problem, but they're a good first step. And an additional $84 billion in investments by 2020 will amount to an annualized cost of approximately $9.3 billion.

Funding to close the gap can come from multiple sources. Federal grants and loans have played crucial roles in building water infrastructure over the decades. Despite recent federal deficits, infrastructure spending can both create short-term

construction jobs and improve the foundation upon which the nation's economy rests.

Yet federal funding is not the only answer; since the mid-1970s, money from local and state governments has represented an increasing percentage of public drinking-water and wastewater investment—rising to more than 95 percent in recent years. Because some water systems are now privatized (approximately 10 percent of the 170,000 public-serving drinking-water systems), private capital may become increasingly important. But whether a system is government owned or private, households and businesses still ultimately foot the bill; thus, setting rates at levels sufficient to maintain and upgrade infrastructure is critical. If rates increase too much, however, more low-income residents would face financial hardship.

Of course, we recognize that Congress is dealing with enormous deficits and a massive federal debt, but the remedies for these problems must not come at the expense of programs aimed at protecting public health from the dangers of increased contamination in our rivers, lakes and streams and our drinking-water supplies.

Americans owe their economic prosperity, public safety, and high quality of life to the infrastructure that serves them every day. While we have identified the serious needs facing the nation's infrastructure, these can be solved.

Our *Key Solutions* are ambitious and will not be achieved overnight, but Americans are capable of real and positive change.[2] ASCE urges all those who want to continue our tradition of a strong and prosperous nation to begin by maintaining and improving the infrastructure that makes us great.

In the short term, we believe that Congress must act quickly to address the under investments in drinking-water and wastewater infrastructure. Congress needs to:

1) Reinvigorate the State Revolving Loan Fund (SRF) programs under the Clean Water Act and the Safe Drinking-water Act by reauthorizing federal funding of $13.8 billion over five years.

2) Explore the potential for a "Water Infrastructure Finance Innovations Authority" that would access funds from the U.S. Treasury at Treasury rates and use those funds to support loans and other credit mechanisms for water projects. The loans would be repaid to the Authority and then to the U.S. Treasury with interest.

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[2] http://www.infrastructurereportcard.org/solutions

3) Eliminate the state cap on private activity bonds for water infrastructure projects to bring an estimated $6 billion to $7 billion annually in new private financing to bear on the problem.

4) Allow Public Private Partnerships (PPPs) as one of many methods of financing infrastructure improvements. ASCE supports the use of PPPs only when the public interest is protected. Any public revenue derived from PPPs must be dedicated exclusively to comparable infrastructure facilities in the state or locality where the project is based.

5) Establish a National Infrastructure Bank. Such a bank would leverage public funds with private dollars to invest in infrastructure—transportation, environment, and energy projects of significance—that could play a significant role in improving the nation's infrastructure.

6) Investigate legislation to establish a dedicated source of revenues for wastewater and drinking-water projects that would provide a stable, long-term basis for financing for these critical systems.

Finally, the federal government cannot be the bank of last resort. Individual water utilities must consider the possibility of increasing the price of water to local ratepayers. Water must be appropriately priced to ensure investments can rebuild the infrastructure.

V. Conclusion

Unless current trends are reversed, the performance of the U.S. economy will continue to suffer.

▪ Business productivity will go down. As water rates rise, costs to businesses will go up, and Gross Domestic Product will have dropped by a cumulative total of $416 billion below its anticipated level.

▪ America will lose jobs. The U.S. economy is predicted to lose 700,000 jobs by 2020.

▪ These effects will be widely felt. Job losses will occur throughout the economy, with almost 500,000 jobs threatened in sectors traditionally employing people without extensive education and 184,000 jobs in knowledge–based sectors.

▪ Cumulatively, families will earn $541 billion less in 2020 than they earned in 2011. By 2020, this means that an individual household will be earning $806 less a year.

▪ U.S. exports will fall by a cumulative total of approximately $6 billion by 2020, accounting for about four percent of the total decrease in business sales estimated

for that year. The greatest losses are in the technology and manufacturing sectors, including aerospace, instruments, chemicals and drugs, as well as associated finance and professional services.

There are multiple ways to prevent these negative consequences described in this report. Possible preventive measures include spending more on existing technologies, investing to develop and then implement new technologies, and changing patterns in where and how we live.

All these solutions involve costs. Separately or in combination, these solutions will require action at the national, regional, and private levels, and will not occur automatically.

Thank you, Mr. Chairman. That concludes our testimony. I would be pleased to answer your questions.