



America's Infrastructure Crisis Gets Real

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Infrastructure Challenges of Declining Industrial Cities

Flint, Michigan

- Despite multiple levels of government oversight of Flint drinking water:
 - City of Flint responsible for daily operation of water plant, water distribution, and water sampling
 - State of Michigan responsible for ensuring compliance with Lead and Copper Rule, and Safe Drinking Water Act
 - EPA sets national drinking water standards, and provides oversight to ensure those standards are met

The system failed!



Manmade Catastrophe

- In April 2014, in a cost savings move, Flint switched its source of drinking water from purchasing treated water from City of Detroit to the Flint River
- Did not implement orthophosphate treatment for corrosion control
- Within months of the switch:
 - Water tested positive for disease carrying bacteria
 - High chloride levels made water highly corrosive
 - Corrosion caused pipe lead to leach into city drinking water
 - Lead levels were more than 3X the levels that cause concern
- No entity had focused on the structure and analysis enough to understand possible implications of the switch; more than one year passed until the scope of the problem was understood
- 18 months of contamination before reconnect to Detroit's water supply
- **100,000 Flint residents drank, cooked, bathed with lead-contaminated water**



How Toxic?

City	Lead in Water Parts per Billion (ppb)
Troy	1.1 ppb
Detroit	2.3 ppb
Cause for concern	5.0 ppb
Flint	27 ppb
Highest level found in Flint	158 ppb

In some homes, lead levels high enough to meet EPA definition of “toxic waste”



Aftermath

- President declares state of emergency
- 9,000 young children exposed, doubling and, in some areas, tripling the rate of lead poisoning among children
- Water still not safe to drink
- 100,000 water filters
- National Guard distributes 234,000 cases of bottled water
- 32,000 water testing sample kits



Aftermath

- **Bureaucracy at its worst**
 - Accusations of misapplication of testing standards, ineffective communications, misleading and withheld information, warnings ignored, inaction, delay and foot dragging, slow paperwork, business as usual in time of crisis
- Little accountability; instead, blame shifting, finger pointing, vilification
- Calls for resignations and jail time; recall efforts underway; special prosecutor
- Loud, contentious hearings on Capitol Hill



Aftermath

- Need to replace 15,000 lead-lined pipes
 - \$55 million to install new pipes connected to homes
 - \$1 billion to replace the city's water system
- \$67 million in state emergency funding;
request for \$165 million more
- Bipartisan bill in Congress seeking \$220 million to fix and replace lead-contaminated pipes in Flint and other cities has been stalled by the objections of a few Senators



Flint: Canary in the Coal Mine

- Many other cities reporting problems
- Nation's drinking water and wastewater infrastructure **graded D**
- Much of our drinking water infrastructure nearing end of its useful life; many pipes and mains more than 100 years old
- 240,000 water main breaks per year
- Modernization and financing a critical issue:
 - \$84 billion investment gap between needs and funding by 2020
 - Funding gap increases to \$144 billion by 2040
- Critical issues facing the water industry as ranked by water industry professionals:
 - **#1**: 64% rank renewal and replacement of aging water and wastewater infrastructure critically important
 - **#2**: 57% rank financing for capital improvements critically important



Competitive and Economic Consequences

- **Cumulative costs to U.S. business:**
 - \$147 billion by 2020
 - \$1.4 trillion by 2040
- **Cumulative loss of business sales:**
 - \$734 billion by 2020
 - \$7.5 trillion by 2040
- **Cumulative costs to U.S. households:**
 - \$59 billion by 2020; average \$900 per family per year
 - \$557 billion by 2040
- **Cumulative GDP losses:**
 - \$416 billion by 2020
 - \$4.1 trillion by 2040
- **Possible cumulative job losses:**
 - 700,000 jobs by 2020
 - 1.4 million by 2040



Main Sources of Federal Funding for Water Infrastructure

- EPA Clean Water State Revolving Fund
- EPA Drinking Water State Revolving Fund
- EPA Water Infrastructure and Innovation Act (new)
- USDA Rural Development Water and Environmental Program
- HUD Community Development Block Grants
- DOC Economic Development Administration

EPA Clean Water State Revolving Fund (CWSRF)

- Grants to states to capitalize state CWSRF loan programs
- States contribute 20% match
- Operates like infrastructure bank
- Operated by states that set loan terms, interest rates, repayment periods
- Flexibility in financing water quality infrastructure projects:
 - Loans
 - Purchase of debt or refinancing
 - Loan and debt guarantees
 - Purchases of bond insurance
 - Grants
 - Principal forgiveness
 - Negative interest rate loans
- **Drinking Water State Revolving Fund (DWSRF) largest component**
 - **FY 2016 CWSRF Appropriation \$1.4 billion, of which**
 - **\$863 million for DWSRF**

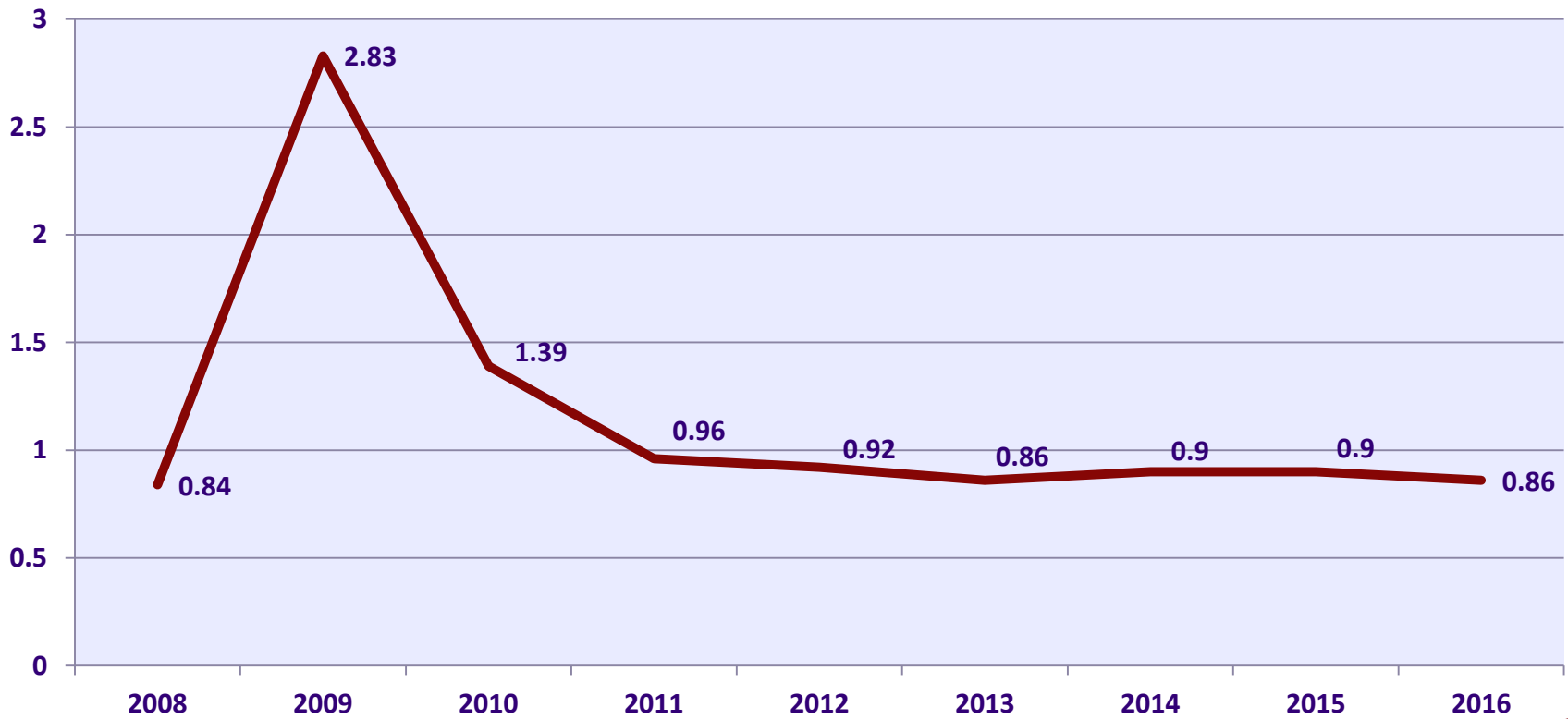
Drinking Water State

Revolving Loan Fund (DWSRF)

- Operates like an infrastructure bank
- Projects specifically focused on drinking water
 - Improving drinking water treatment
 - Fixing leaky or old pipes (water distribution)
 - Improving source of water supply
 - Replacing or constructing finished water storage tanks
 - Other infrastructure projects needed to protect public health
- Flexibility in financing drinking water projects:
 - Loans
 - Purchase of debt or refinancing
 - Loan and debt guarantees
 - Purchases of bond insurance
 - Grants
 - Principal forgiveness
 - Negative interest rate loans

Drinking Water State Revolving Loan Fund

Funding 2008-2016
(billions of dollars)



EPA WIFIA

- Water Infrastructure Finance and Innovation Act of 2014 authorizes new EPA loan program (authorizes \$35M in FY 2017, \$45M in FY2018, \$50M in FY 2019)
 - Low-interest rate loans and loan guarantees for up to 49% of costs for large drinking water, wastewater, storm water, and water reuse projects
 - Projects should cost no less than \$20 million; \$5 million for small community projects; 15% small community set aside (less than 25,000 population)
 - WIFIA and SRF may jointly fund a project
 - Legislation passed in December lifted ban on use of tax-exempt bonds with loans authorized under the Act
- EPA standing up 5-year pilot program program; requests \$20M in FY 2017 to begin financing projects; \$15 million in credit subsidy for potential \$1 billion in loan capacity
- Municipal entities, State revolving fund programs, partnerships, and corporations eligible
- Fund wide range of water infrastructure projects



USDA Rural Development Water and Environmental Program

- Financing for rural communities with less than 10,000 population, and tribal lands in rural areas
- Low-interest loans, and grants if funds available
- \$1.2 billion annually for direct loans; \$450 million for grants
- Most state and local governments, private non-profits, and Federally-recognized tribes eligible; applicants that cannot otherwise secure commercial credit on reasonable terms
- Acquisition, construction or improvement of:
 - Drinking water sourcing, treatment, storage and distribution
 - Sewer collection, transmission, treatment, and disposal
 - Storm water collection, transmission and disposal
 - In some cases, legal and engineering fees, land acquisition, start-up operations, etc.
- Also offers technical assistance and training grants
 - Identify and evaluation solutions to water and waste problems
 - Preparing applications for loans and grants, other technical assistance
 - Grants as high as several million

Other Sources of Financing

- **HUD Community Development Block Grants**
 - Block grants to state and local governments; funds can also be used for loan guarantees
 - Range of program components focused on funding development activities that build more resilient, economically stronger communities
 - \$47 billion in block grants in 2015
 - Can fund drinking water and waste water projects
- **Department of Commerce Economic Development Administration Public Works Program**
 - Helps communities in economic decline upgrade physical infrastructure that will support economic development
 - Can underwrite planning and construction costs for drinking water and waste water facilities that lead to job creation in a community
 - State and local governments, non-profits, others eligible
 - \$About \$100M available for awards; \$3M award ceiling
 - Rolling submissions

Some Recent Water Infrastructure Legislation

- **S. 2606 Sustainable Water Infrastructure Investment Act of 2016**
 - Amends the Internal Revenue Code to exempt from state volume caps tax-exempt facility bonds for sewage and water supply facilities
- **S. 2579 Drinking Water Safety and Infrastructure Act**
 - Additional support to ensure safe drinking water; makes program adjustments in EPA's drinking water loan programs (DWSRF and WIFIA); authorizes additional \$100 million for DWSRF grants
- **H.R.4468 Water Infrastructure Trust Fund Act of 2016**
 - Would establish trust fund for EPA use; 85% for Federal Water Pollution Control Act and 15% for capitalization grants under Safe Drinking Water Act (DWSRF), under certain CWSRF appropriation scenarios
- **H.R.3337 National Infrastructure Development Bank Act of 2015**
 - Establishes National Infrastructure Development bank as wholly owned government corporation
 - Loans and loan guarantees for financing or refining infrastructure projects
 - Issue public benefit bonds and provide financing for infrastructure projects
 - Pay interest subsidy to issuer of American Infrastructure Bonds
 - Bonds issued by the bank would be exempt from state or local taxation
 - Authorizes \$5 billion annually over FY 2015-2019 to capitalize the bank



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